



# LEADERSHIP

Latin America-Europe ICT Research  
& Innovation partnership

## Policy brief on LAC ICT Regulations

Analysis of Latin American ICT R&D  
Regulatory and Institutional Framework,  
best practices and recommendations

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## LIST OF ABBREVIATIONS

AHCIET:	Asociación Iberoamericana de Centros de Investigación y Empresas de Telecomunicaciones.
ALETI:	Federación Latinoamérica, El Caribe, España y Portugal de Entidades de Tecnologías de la Información.
BEREC:	Body of European Regulators for Electronic Communications.
CAF:	Corporación Andina de Fomento – Banco de Desarrollo de América Latina.
CELAC:	Comunidad de Estados Latinoamericanos y Caribeños.
CERT:	Computer Emergency Response Teams.
CINTEL:	Centro de Investigación y Desarrollo en Tecnologías de la Información y las Comunicaciones.
ECLAC:	The Economic Commission for Latin America and the Caribbean.
EU 2020:	The Europe 2020 strategy.
FTTH:	Fiber to the Home.
H2020:	Horizon 2020.
HW:	Hardware.
ICT:	Information and Communications Technologies.
IP:	Internet Protocol.
ISP:	Internet Service Provider.
IMF:	The International Monetary Fund.
IMT:	International Mobile Telecommunications spectrum specifications.
INSEAD:	Institut Européen d'Administration des Affaires.
IADB:	The Inter-American Development Bank.
ITU:	The International Telecommunication Union.
LAC:	Latin American and the Caribbean
LRIC:	Long Run Incremental Costs.
LTE:	Long Term Evolution.
NRA:	National Regulatory Authority.
OECD:	The Organisation for Economic Co-operation and Development.
OTT:	Over the Top providers or services.
R&D:	Research and Development.
R&I:	Research and Innovation.
REGULATEL:	Foro Latinoamericano de Entes Reguladores de Telecomunicaciones.
S&T:	Science and Technology.
SME:	Small and Medium Enterprises.
SMP:	Significant Market Power.
SOM:	Senior Officials Meetings.
SW:	Software.
UNESCO:	The United Nations Educational, Scientific and Cultural Organization.
UNICEF:	The United Nations International Children's Emergency Fund.
WB:	The World Bank.
WEF:	The World Economic Forum.

# 1 Introduction

The **LEADERSHIP project** supports the evolving dialogues on EU-LAC Research and Innovation (R&I) cooperation in ICT by providing input to bilateral and bi-regional dialogues on Science, Technology and Innovation. To this purpose the **“Input Paper on ICT Regulations”** **aims to** identify indicators, tools and methodologies to measure the gaps and distance to an efficient LAC Regulatory and Institutional Framework and identify best practices and proper actions in order to orient and promote ICT R&I as well as to create appropriate conditions for strengthening EU-LAC cooperation in ICT.

The Input Paper performs an analysis and benchmarking of ICT Research and Development (R&D) institutional and regulatory frameworks in LEADERSHIP target countries - Argentina, Brazil, Chile, Colombia and Mexico. It is intended to feed the bi-regional and bilateral policy dialogues, in particular, the ICT Working Group (WG) of the EU-CELAC Senior Officials Meeting (SOM).

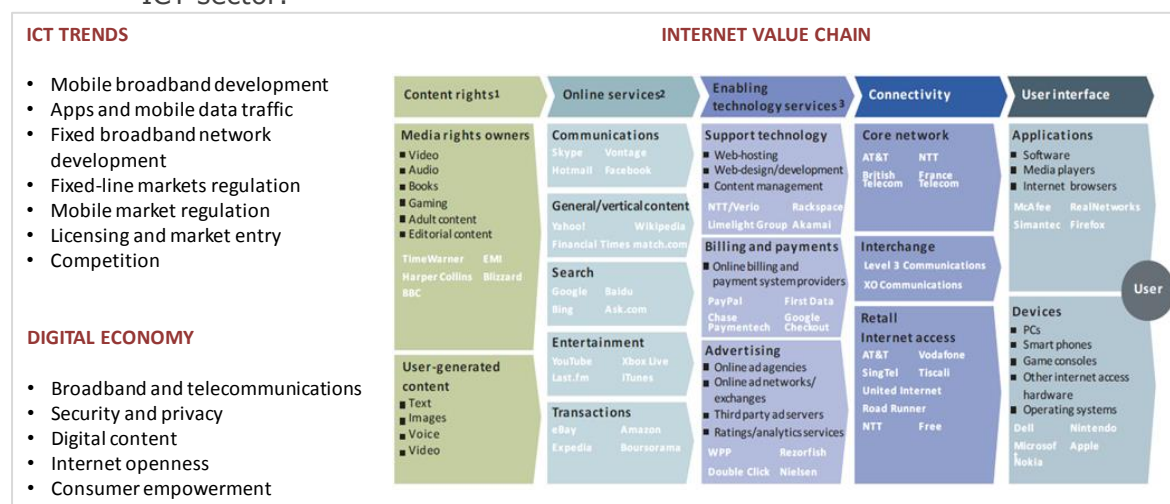
The **elaboration of the Input Paper**, led by CINTEL - Telecommunications Research Centre of Colombia, is mainly **based in the following inputs**:

- An extensive literature review on ICT regulations, reviewing recent documents from various sources such as AHCET, ALETI, BEREC, CAF, ECLAC, IMF, IDB, ITU, OCDE, REGULTEL, UNESCO, UNICEF, WB and WEF, among others. Based on the literature review findings, a prospective and convergent ICT frame of reference was defined in order to identify ICT trends, ICT indicators and ICT indexes globally and across the EU and LAC target countries, measuring the gaps and distance in the development of the ICT sector between the two regions;
- An online questionnaire designed to prioritize the ICT regulatory areas of strategic interest in order to improve LAC ICT R&D Institutional and Regulatory Framework; and
- Discussions and feedback with LAC and EU experts from the ICT Regulations Working Group within the LEADERSHIP LAC-ICT Expert Group, which included meetings where a draft of the Input Paper was discussed.

The **Policy Brief on LAC ICT Regulations** synthesizes the knowledge and results produced in the elaboration of the Input Paper on ICT regulations. It aims to **highlight main findings and recommendations** to improve the LAC ICT R&D Institutional and Regulatory Frameworks in order to strengthen R&I cooperation in ICT. The document is **structured in the following chapters**: Chapter 2 presents the prospective and convergent ICT frame of reference with the description of the most important ICT trends, ICT indicators and ICT indexes; Chapter 3 gives an overview of the LAC ICT R&D Institutional Framework; Chapter 4 describes the key aspects of the LAC ICT R&D Regulatory Framework from three different perspectives: a) Sectorial Regulations, b) S&T Regulations, and c) Industrial Regulations; Chapter 5 presents the prioritization of ICT regulatory areas of strategic interest for EU-LAC cooperation from the perspectives mentioned above; Chapter 6 presents overall conclusions; and Chapter 8 presents a set of recommendations.

## 2 Prospective and convergent framework

Long-term evolution of technologies, technological progress and the phenomenon of convergence in the provision of telecommunications services are factors that marked both the dynamics of the ICT sector and the schemes of State intervention to ensure efficient delivery of ICT public services to end users in the LAC region. From the standpoint of public policy, LAC governments are usually framed in a context of laws, international agreements and national constitutions, which can only be modified at an appropriate time. The institutions around public policy and regulatory frameworks have had to adapt to the dynamics of the ICT sector.



**Figure 1: ICT Trends under a prospective and convergent vision**

Source: AT Kearney Analysis in ITU (2014)<sup>1</sup>

Additionally, in order to landscape LAC's performance on indicators and indexes, the figure below presents the results of targeted LAC countries in four of the most important ICT indexes. The countries that performed above world average on each indicator are marked in green.

	GLOBAL COMPETITIVENESS INDEX 2013-2014*	NETWORKED READINESS INDEX 2014*	GLOBAL INNOVATION INDEX 2014**	ICT DEVELOPMENT INDEX 2012***
Argentina	104 (3,76)	100 (3,5)	70 (35,1)	53 (5,36)
Brazil	56 (4,33)	69 (4,0)	61 (36,3)	62 (5,0)
Chile	34 (4,61)	35 (4,6)	46 (40,6)	51 (5,46)
Colombia	69 (4,19)	63 (4,0)	68 (35,5)	77 (4,20)
Mexico	55 (4,34)	79 (3,9)	66 (36,0)	83 (3,95)
World	(4,20)	(4,10)	(36,9)	(4,35)

**Figure 2: LAC countries performance in world indexes**

Source: \* World Economic Forum (2014) - 148 economies; \*\*INSEAD, Cornell University & WIPO (2014); \*\*\*ITU (2013) - 157 economies

<sup>1</sup> ITU (2014). Trends in Telecommunication Reform Special Edition 4th Generation

### 3 LAC ICT R&D institutional framework

LAC countries have made great progress in the use and adoption of ICT in diverse areas of the economy in both the public and private sectors. This includes the deployment of a digital information infrastructure, the modernization of the ICT public institutions, the digitalization of economic processes to increase productivity, among other things. The Figure below shows the institutional framework for targeted countries, which has contributed to identify LAC's institutional framework characteristics and lessons learned.

	Argentina	Brazil	Chile	Colombia	Mexico
Public Policy	Secretaría de Comunicaciones del M° de Planificación Federal, Inversión Pública y Servicios	Ministério das Comunicações	Ministerio de Transportes y Telecomunicaciones	MINTIC - Ministerio de Tecnologías de la Información y las Comunicaciones	SCT - Subsecretaría de Comunicaciones de la Secretaría de Comunicaciones y Transportes
Regulation	CNC - Comisión Nacional de Comunicaciones	ANATEL - Agência Nacional de Telecomunicações	SUBTEL - Subsecretaría de Telecomunicaciones	CRC - Comisión de Regulación de Comunicaciones	IFT - Instituto Federal de Telecomunicaciones
Competition	CNDC - Comisión Nacional de Defensa de la Competencia	CADE - Conselho Administrativo de Defesa Econômica	TDLC - Tribunal de Defensa de la Libre competencia	SIC - Superintendencia de Industria y Comercio	CFCE - Comisión Federal de Competencia
Universal service	Fondo Fiduciario del Servicio Universal	FUST - Fondo de Universalización de los Servicios de Telecomunicaciones	FDT - Fondo de Desarrollo de las Telecomunicaciones	FONTIC - Fondo de las Tecnologías de la Información y las Comunicaciones	Fondo de Cobertura Social de Telecomunicaciones

**Figure 3: LAC institutional framework**

In the LAC region, the conformation of Digital Agendas and Broadband Plans is considered good practice, and its development is driven largely by public opinion. It is also important to highlight the existence of a consolidated institutional framework of the ICT sector with authorities in the fields of competition, public policy and regulation. Currently ICT regulatory agendas in LAC combine great efforts to promote competition under an environment of technological convergence. At the same time, those institutions play a fundamental role in the implementation of digital agendas and the reduction of legal impediments to the entrance of the new actors in ICT markets with high barriers to entry.

In addition, the institutions around ICT in LAC have common goals such as: encouraging open markets to competition to promote effective delivery of services (adequate quality of service, modern services and efficient prices); prevent abuses of market power (excessive pricing and anticompetitive conduct) by dominant firms, which do not exist or fail competitive markets; create favourable investment environment to expand telecommunications networks; promote market confidence through transparent regulatory procedures and granting licenses; promote greater connectivity through broadband plans; among others.

Finally, most Latin America countries have established policies for universal access and universal service, several of which are based on the constitution of dedicated funds.

## 4 LAC ICT R&D regulatory framework

In recent years, governments in LAC have identified the need to prepare the ICT sector to meet the challenges brought by the development of technological, institutional and market convergence. This implies raising a new balance between promoting competitive development of the sector and meeting social goals of greater coverage and access for citizens, businesses and public institutions.

Therefore, LAC governments have worked over the last decade with a permanent industry feedback to: review the regulatory framework of the ICT sector in order to upgrade it to the institutional and market dynamics, anticipate to rapid technological changes, and strengthen the approach aimed at promoting the popularization of ICT in all social, geographic and economic environments.

LAC ICT regulation authorities have welcomed the scheme of the “fourth-generation regulator” implementing several guidelines for best practices on the evolving role of regulation and regulators in a digital environment. LAC ICT regulation authorities have: adopted a “light-touch” regulatory approach intervening only when necessary, conducted market analysis to assess the situation in a converged environment, adopted a regulatory framework that eliminates barriers to new entrants, included competitive provisions that guarantee a healthy relationship between all authorized players in the relevant market, and empowered consumers to make informed decisions through the development of online tools to check download speeds, quality-of-service and prices for access as well as data plans.

Finally, as shown in the figure below, regulatory agendas in LAC have areas of common interest, even with issues that are currently being implemented in Europe, related to Competition Promotion, Significant Market Power analysis, Sharing and access to passive infrastructure, Quality of service, Consumer protection, Licensing and authorization, Access and Interconnection, Net neutrality, Internet Governance, Cybersecurity and Spectrum planning and management.

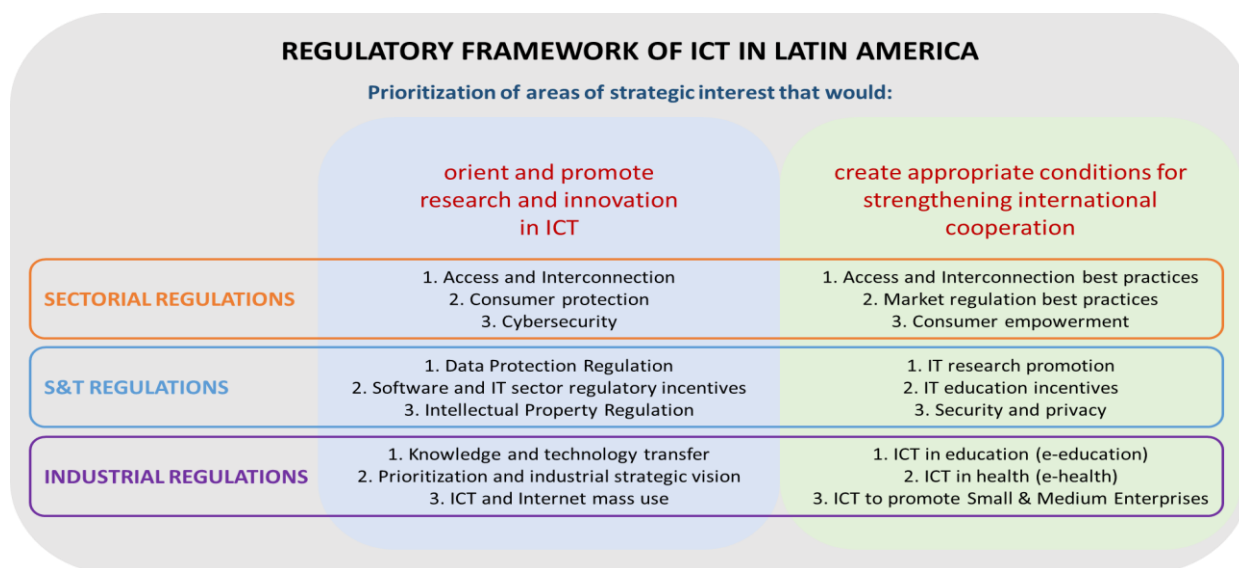
Figure 4: Areas of interest on LAC targeted countries' regulatory agendas

AREAS OF STRATEGIC INTEREST				ARGENTINA	BRAZIL	CHILE	COLOMBIA	MEXICO	H2020 FINANCING	REGULATORY AREAS IN EUROPE
REGULATION	SECTOR	TYPE	AREAS							
REGULATORY AREAS	ICT	ICT services	Competition promotion	X	X	X	X	X		X
			Significant Market Power analysis		X		X	X		X
			Unbundling					X		X
			Sharing and access to passive infrastructure		X	X	X	X	X	X
			International Roaming conditions				X			
			Access conditions		X		X			X
			Quality of service		X	X	X	X		X
			Consumer protection		X		X	X		X
			Broadband regulation	X			X			
			TV regulation				X	X		
			Postal sector regulation		X		X			
			Licensing and authorization		X			X		X
			Official approval and legalization of equipment		X					
			Interconnection		X		X	X		X
			Satellite communications					X		
			Net neutrality					X		X
			Internet Governance				X	X		X
			Regulatory review		X		X	X		X
		Spectrum	IMT frequency bands	X	X	X	X	X		X
			Spectrum planning and management	X	X	X	X	X		X
		Cybersecurity	Cybersecurity	X		X	X		X	X
	SCIENCE, TECH AND INNOVATION	E-commerce	E-commerce			X	X	X		
		Intellectual Property	Security and Privacy			X	X	X	X	
			Data protection for ICT users	X		X	X	X	X	



## 5 ICT regulatory areas of strategic interest

Building on a convergent and prospective vision, a prioritization of the ICT regulatory areas of strategic interest was conducted. The figure below schematically summarizes the results of the prioritization undertaken from three different perspectives: i) Sectorial Regulations, ii) S&T Regulations and iii) Industrial Regulations; both to orient and promote ICT R&I and to create appropriate conditions for strengthening international cooperation with EU.



**Figure 5: Prioritization of LAC ICT regulatory areas of strategic interest**

Source: CINETEL, based on the responses of ICT regulation experts to the LEADERSHIP online questionnaire.

From a *sectorial regulations* perspective, is important to note that priority ICT regulatory areas: *Access and Interconnection* and *Consumer protection and empowerment*, were considered relevant by the LAC stakeholders consulted as these issues have the potential to promote ICT R&I and to create conditions for cooperation with EU. Those priority ICT regulatory areas are also currently frontline issues in the ICT regulatory agendas in both EU and LAC. Similarly and given that in the LAC region a number of network and information systems has been affected by incidents (human mistakes, natural events, technical failures or malicious attacks) and are becoming bigger, more frequent and more complex, *Cybersecurity* were also considered a priority ICT regulatory area by LAC stakeholders.

From an *S&T regulations* perspective, *Intellectual Property*, *Data Protection*, *Security and Privacy* are priority ICT regulatory areas in the LAC region. According to the EC, i) *a strong industrial property rights system is a driving force for innovation, stimulating R&D investment and facilitating the transfer of knowledge from the laboratory to the marketplace*, and ii) *Privacy is to be considered also as a domain for expertise and innovation. Policy makers and their respective support organizations will be able to build a positive message next to the challenge of protection only, when assessing the necessity for security and data protection*.

From an *industrial regulations* perspective, a set of ICT regulatory areas have been identified as a priority in order to stablish a structural change in the era of ICT by designing and implementing a new industrial policy for a digital economy. From this perspective, the LAC stakeholders consulted identified priority ICT regulatory areas such as *Knowledge and technology transfer*, and *Industrial strategic vision and ICT to promote Small & Medium Enterprises (SME)*, which is fully connected to the vision of ECLAC (2014)<sup>2</sup>: *An industrial policy for the digital economy must consider two main objectives: i) Development of the software industry and applications to create new high-productivity sectors and strong performance, and ii) Development of digital skills to increase SMEs efficiency and productivity*. Under the last perspective, *ICT in the health and education* fields has also been identified as a priority that can be supported by science, industry and society and thus its adoption would require an intensive EU-LAC dialogue.

On the other hand, in order to create appropriate conditions for strengthening international cooperation, priorities on sectorial regulations are: access and interconnection best practices; Market regulation; and consumer empowerment. Concerning to S&T, topics that would strength cooperation are oriented to: IT research promotion; education incentives; and security and privacy. Finally, on industrial perspective, ICT in education and health and ICT to promote SME, are the three priorities to reinforce international cooperation.

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<sup>2</sup> ECLAC (2014). The digital economy for structural change and equality  
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## 6 Recommendations

The recommendations from the ICT Regulations Input Paper are intended to improve the LAC ICT R&D Institutional and Regulatory Frameworks that would orient and promote ICT R&I and to create appropriate conditions for strengthening international cooperation with EU. The following recommendations are addressed to LAC Governments and regulatory bodies as well as to EU-LAC policy dialogue actors through the ICT Working Group of the EU-CELAC Senior Officials Meeting.

### 6.1 *Recommendation on LAC ICT R&D Institutional framework*

Based on the analysis and benchmarking of the LAC ICT R&D Institutional Framework under a prospective and convergent frame of reference, the following recommendations are proposed:

#### Institutional Framework

- Harmonise a legal and institutional framework that would ensure a coordinated implementation of S&T strategies, ICT public policies, Broadband Plans and Regulatory Agendas within and across levels of governments in the LAC region.
- Encourage continued work of LAC ICT regional groups and forums, such as REGULATEL or ALETI, and set up efficient communication channels with those in EU.
- Promote the open, distributed and interconnected nature of the Internet fostering innovation, creativity and economic growth in the LAC region.
- Ensure true independence of the LAC national regulatory authorities.
- Merge separate regulatory bodies and harmonize regulations across different sectors, in order to support efficiency, fairness and clarity for service providers and the general public.

### 6.2 *Recommendation on LAC ICT R&D Regulatory Framework*

Based on the analysis and benchmarking of the LAC ICT R&D regulatory Framework, the ICT Regulations WG proposes the following recommendations under three different perspectives: a) Sectorial Regulations, b) S&T Regulations and c) Industrial Regulations.

#### **a) Sectorial Regulations**

From Latin America Sectorial Regulations perspective, Access and Interconnection, Consumer protection & empowerment and Cyber security are priority ICT regulatory areas. These areas are also currently frontline issues in the ICT regulatory agenda in Europe.

#### Market regulation best practices

- Carry out regular reviews of relevant markets both at wholesale and at retail level in LAC countries in order to preferably establish ex ante regulation.
- Set up regulatory measures concerning the relevant markets for wholesale (physical) network infrastructure access and wholesale broadband access based on non-discrimination obligations and cost-oriented methodologies.

#### Access and Interconnection

- Establish an IP interconnection framework which will encourage competition by stimulating the development of communications services and networks.
- Review the stages of migration towards an all-IP based interconnection architecture across EU countries.

#### Consumer protection and Consumer empowerment

- Foster a climate of trust among LAC ICT users in relation to information security and network security, authentication, privacy and consumer protection.
- Develop principles to promote efficient, transparent and fair global markets for consumers.

#### Cybersecurity

- Create a cybersecurity strategy establishing Computer Emergency Response Teams – CERT– for the institutions and focusing on the protection of LAC critical information infrastructure from cyber disruptions.

### b) S&T regulations

From Latin America S&T regulations perspective, Data protection, Software & IT sector incentives, Intellectual property are priority ICT regulatory areas.

#### Intellectual Property Regulation

- Ensure protection of Intellectual Property for promoting innovation and creativity in the ICT and S&T sectors, but also for developing employment and improving competitiveness.
- Measure the importance of Intellectual Property rights in the LAC economy and review the EU system of IP rights which not only guarantees innovators their due reward but also stimulates a competitive market.

#### Data Protection Regulation

- Review and propose a reform on the data protection rules to strengthen online privacy rights and boost LAC digital economy.
- LAC governments, the private-sector, the Internet technical community and civil society should work together to strengthen data protection regulation and to ensure effective individual control over the receipt of information and disclosure of personal data.

#### Security and privacy

- Encourage cooperation in the LAC region to promote Internet security and the implementation of internationally recognised, market-driven security standards and EU best practices to promote online security.
- Achieve regional and local interoperability recognising privacy rules based on global principles and laws that achieve the same objectives, and considering fundamental rights of others in society including rights to freedom of speech and to freedom of the press.

#### Software and IT sector regulatory incentives

- Promote an open Internet that supports the free flow of information, research, innovation, entrepreneurship as well as basic and applied research and collaborative knowledge and innovation networks.
- Boost the creation and development of the ICT application software industry driven by innovative production clusters, made up of universities, high-level technological centres and leading businesses; angel and venture capital funds; and a culture of entrepreneurship.

### **c) Industrial regulations**

From Latin America Industrial regulations perspective, Knowledge & technology transfer, industrial strategic vision and Internet mass use are priority ICT regulatory areas.

#### **ICT and Internet mass use**

- Provide the backing and support to the various regulators, associations, regulatory authorities, regional organizations and institutions involved in promoting access, adoption and use of broadband services so as to help reduce the digital divide while promoting economic growth and social inclusion.

#### **ICT in education (e-education)**

- Promote the use of ICT in education in order to strengthen democratic and transparent education planning and management, expand access to learning, improve quality and ensure inclusion.
- Work with EU partners on the development and analysis of ICT policies in education and highlighting how these policies can be aligned to wider societal and economic goals.

#### **ICT in health (e-health)**

- Maximize ICT potential for enhancing the quality of health care for LAC people through public-private collaboration that brings together specialized professional teams to integrate medical, public-health and ICT knowledge.
- LAC governments should review the EU eHealth Action Plan 2004-2011 covering electronic prescriptions and health cards to new information systems that reduce waiting times and errors, in view to explore the feasibility of the integration of telemedicine into health systems in LAC.

**Download the complete report at:**  
[http://www.leadershipproject.eu/?page\\_id=3442](http://www.leadershipproject.eu/?page_id=3442)

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