

# “INSIGHTS ON THE RTO MODEL AROUND THE GLOBE” Latin America Review

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President

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■ Suma valor a un país de ideas



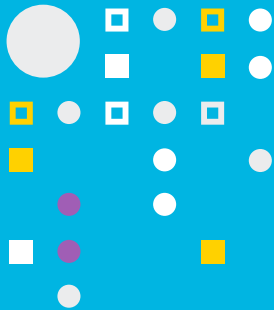
**INTI**

Instituto  
Nacional  
de Tecnología  
Industrial



Ministerio de  
Producción y Trabajo  
**Presidencia  
de la Nación**

# About



**A brief overview of LATAM**

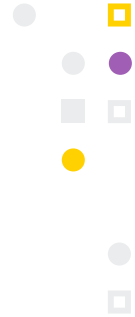
**Main actors in Research, Development and Innovation in the region**

**Technology oriented support: RTOs**

**Regional and international links**

**Argentina: INTI, some facts**

**Challenges for RTO's business models**



# A brief overview of the region



1

World GDP  
EUR 77.8 trillion

2

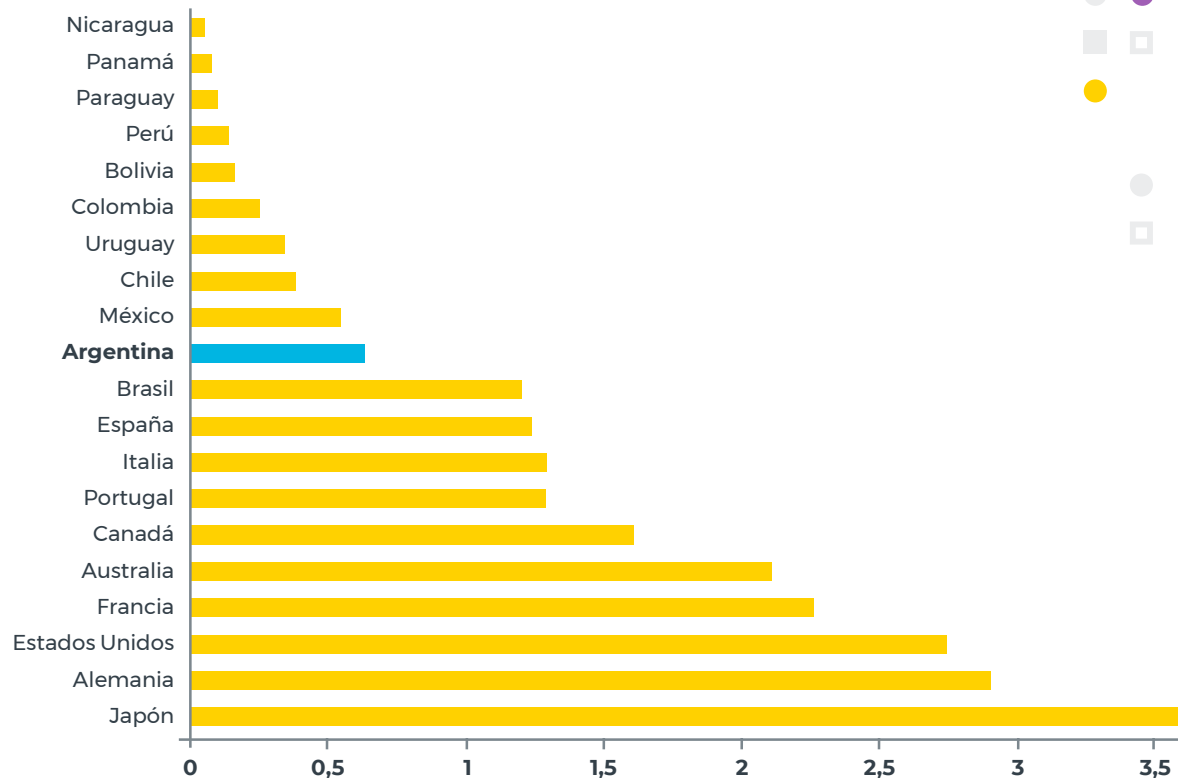
European Union GDP  
EUR 16.9 trillion

3

Latin America GDP  
EUR 5.1 trillion

- 20 countries. About 10% of the 194 countries in the world
- 626 million people representing 8.5 % of the world population  
*(Brazil, México, Colombia, Argentina)*
- EUR 7.500 average GDP/capita . About 73 % world features and 17 % G-7 major economies  
*(Chile, Argentina, México, Brazil)*

## Percentage share of the investment in R&D with respect to selected countries



Source: SECyT, OCDE and RICTyT.

# Patents requested, granted and other indicators according to the OECD modality in selected countries

Country	Patents requested			Coefficient of invention	Dependent patents
	R	N-R	Total		
United States	265.096	293.706	578.802	88,32	1,1
Japan	265.959	60.630	326.589	209,33	0,8
Germany	73.826	17.811	91.637	91,16	0,9
Canada	4.100	31.283	35.483	11,81	7,7
Brazil	4.659	25.683	30.342	2,30	5,9
France	25.116	2.033	27.149	37,96	0,3
Australia	1.988	23.968	25.956	8,41	12,2
Mexico	1.246	14.889	16.135	3,04	11,1
Italy	12.243	781	13.024	20,14	0,3
Spain	4.416	225	4.641	9,50	0,3
<b>Argentina</b>	<b>546</b>	<b>3.570</b>	<b>4.116</b>	<b>1,30</b>	<b>6,1</b>
Chile	452	2.653	3.105	2,53	5,9

Source: INPI, OMPI y OCDE. Argentina figures are 2015, while the rest corresponds to 2014.-

Country	Number of researchers	Patents granted		
		R	N-R	Total
United States	1.307.973	144.621	156.057	300.678
Japan	682.935	177.750	49.392	227.142
Germany	351.130	23.714	4.396	28.110
Canada		2.984	20.765	23.749
Brazil	138.653	374	2.375	2.749
France	269.377	15.298	1.319	16.617
Australia		1.199	18.105	19.304
Mexico	29.921	305	9.514	9.819
Italy		9.137	932	10.069
Spain		3.436	266	3.702
<b>Argentina</b>	<b>52.970</b>	<b>214</b>	<b>1.345</b>	<b>1.559</b>
Chile	7.602	156	1.012	1.168

## Latinamerican Nobel Prize Laureates in Science



Bernardo Houssay  
ARG - 1947



Luis Federico Leloir  
ARG - 1970



César Milstein  
ARG - (1984)



Baruj Benacerraf  
VNZ - (1990)



Mario Molina  
Mx - (1995)



# Key actors in Research, Development and Innovation in LATAM



Research and Technology Organisations, RTOs

Universities

NMIs: National Institutes of Metrology (SIM)

Private non profit entities, supported by an industrial chamber or a group of enterprises

Specific sectors non-profit Research Technological Centres as industry property corporations

National Science Councils

Proficiency training institutions (public and private)



# Research and Technology Organisations (RTOs)

## Key actors of National Innovation Systems (NIS): shared characteristics at a glance

Their goal: to respond to existing demands in the industry and promote a more demanding and sophisticated level of requirements

- ✓ *Technological assistance to industry*
- ✓ *private.-public relationship*
- ✓ *predominance of mixed patterns of financing*
- ✓ *Prioritary directed to SMEs (Small and Medium Enterprises)*
- ✓ *Main role as intermediate or “translator”*
- ✓ *Capacity of integration and cooperation with other RDI actors*
- ✓ *Regional display and insertion*
- ✓ *Map of experts as main background*
- ✓ *Generic and Proficiency Training for enterprises and industries*
- ✓ *Internacionalization ‘??????’*



# RTOs: key actors of the National Innovation System (NIS) in LATAM: some examples



Fuente: Basado en Shapira, P, Youtie, J. et al (BID, 2015) on TEP in LATAM (2015)

	Applied Technology Center Services	Incentive programs and instruments	RTOs and other technical services suppliers
Organisation	<ul style="list-style-type: none"> <li>❑ Exploitation of applied Research and technological development</li> </ul>		
Characteristics	<ul style="list-style-type: none"> <li>❑ Mix of in-house, consultants, students</li> <li>❑ Range of government, large and small business clients</li> <li>❑ Primarily contract applied R&amp;D, testing, material analysis, instrumentation as well as TES services</li> <li>❑ May use decentralized network of institutes</li> </ul>		
EXAMPLES	<ul style="list-style-type: none"> <li>❑ ARGENTINA</li> <li>❑ BRASIL</li> <li>❑ CHILE</li> <li>❑ PERÚ</li> <li>❑ URUGUAY</li> <li>❑ BOLIVIA</li> <li>❑ MÉXICO</li> <li>❑ PARAGUAY</li> </ul>	PAC Access to competitiveness Program)  SIBRATEC ET (National Innovation System) SEBRAETEC (Innovation Assessment for SMEs)  CORFO     PROBOLIVIA   INADEM INNOVAPYME  CreceMype (private)	INTI   SENAI SEBRAE IPT   Universities  ITP, Technological Institute of Perú CITES, Tech Centers (public and private)  LATU  PROBOLIVIA Tech Centers CONACYT (Research Council)  I2T2, Innovation Institute and Technology Transfer (public)  INTN (public) CEPPROCAL-UIP (private)



Regional and international links

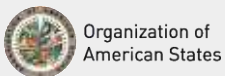
# SIM

## InterAmerican Metrology System

34 countries,  
20 corresponding to LATAM



**NIST** National Institute of Standards and Technology  
U.S. Department of Commerce



**MEXICO**  
CENAM



**COLOMBIA**  
Instituto Nacional de Metrología



**ECUADOR**  
INEN



**PERU**  
INACAL



**IBMETRO BOLIVIA**  
Instituto Boliviano de Metrología



**INN CHILE**  
Instituto Nacional de Normalización



**VENEZUELA**  
SENCAMER



**INMETRO BRASIL**  
Instituto Nacional de Metrologia, Calidad y Tecnología



**INTN PARAGUAY**  
Instituto Nacional de Tecnología, Normalización y Metrología



**LATU**  
Laboratorio Tecnológico del Uruguay



**ARGENTINA**  
Instituto Nacional de Tecnología Industrial

# Regional and international links



**South-South Cooperation: 15 TT projects in 8 with about 25 RTOs and governmental organizations as stakeholders (2016-2019)**



**Energy Efficiency in SMEs – about 80 members of governmental organizations participating of the LATAM network**

**SMEs Management Technologies – about 100 members of governmental organizations participating of the LATAM network**



Organization of American States

**Inter-American Competitiveness Network (RIAC), OAS**



OPCW

**Chemical labs safety and Security – about 35 members of governmental organizations participating of the LA network**

# Regional and international links



## Mercosur Strategic Technological Institutes Association Since 1996.

1

### ARGENTINA

INTI

2

### BRAZIL

INMETRO BRASIL- Instituto Nacional de Metrologia, Calidad y Tecnología

INT - National Institute of Technology (Ri de Janeiro)

IPT - Instituto de Pesquisas Tecnológicas, Technological Research Institute (SP)

3

### PARAGUAY

INTN PARAGUAY - Instituto Nacional de Tecnología, Normalización y Metrología

4

### URUGUAY

LATU- Laboratorio Tecnológico del Uruguay





## Argentina: some facts

# Main actors in the National Innovation System



- Universities

- R + D + I Organisms



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UNIVERSIDAD  
NACIONAL DE  
SAN MARTÍN



# Argentina: some facts

Research and  
Development  
in SMEs

## Current Market

87.300



**Industrial SMEs\***

20%



**Performs activities of R+D+I\*\***

18%



**Ties with INTI\*\***

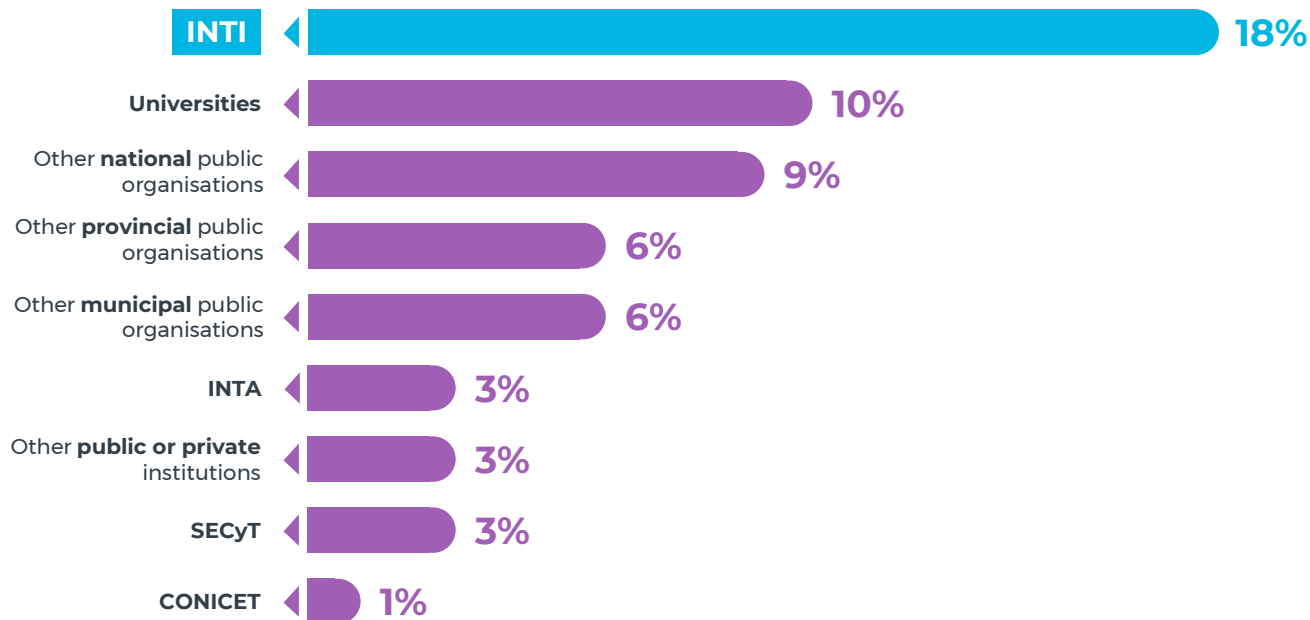
\*Source: <https://www.produccion.gob.ar/pymesregistradas/> Pymes industriales (incluye monotributo) 87.280 (fuente Sepyme 2018 en base a AFIP)

\*\*Source : Special Report "Research, Development and Innovation among industrial SMEs" Fundacion Observatorio PyME (Junio 2017)





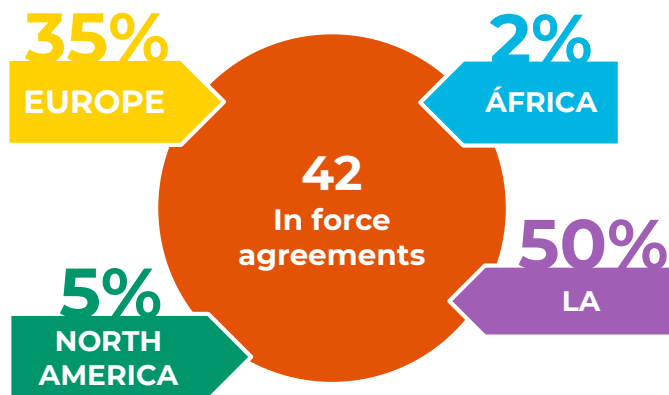
# SMEs ties to obtain Technical Assistance



**41% OF SMEs didn't requested technical assistance**

Source: Survey to Industrial SMEs. SMEs Observatory Foundation. June 2017.

# INTI: regional and international links

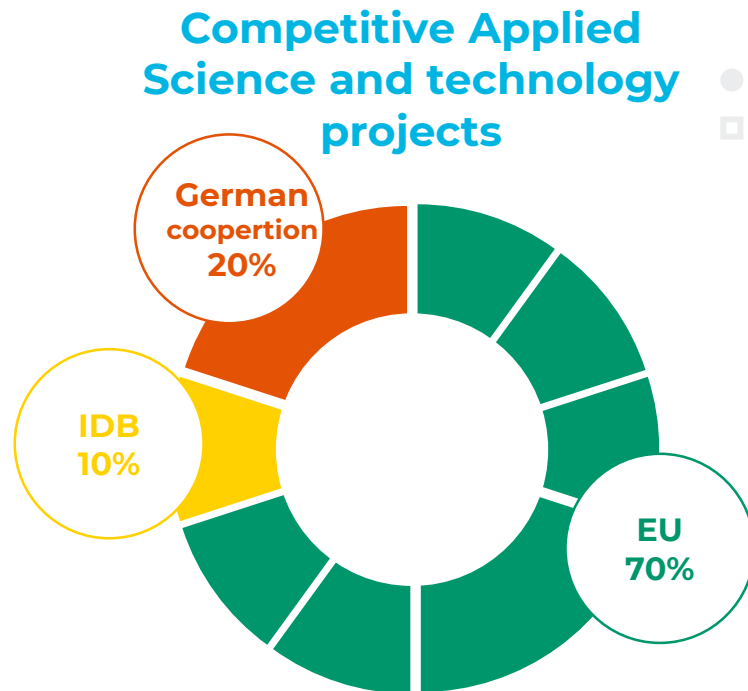


And:

**4 Development**

projects financed by EUROPEAID for

**27 Million Euros since 2000**



Horizon 2020 (RISE)  
South-South projects: ADELANTE  
Euramet

# Challenge .....

**Considering technology and innovation as** true driving force of development, a force capable of creating and maintaining prolonged cycles of development growth

*our challenge is*

Contribute to strengthen the competitiveness and innovation capacities of LATAM transforming the region institutions into vectors for the transfer of R&D+I to industry which will allow to reduce regional development gaps among the countries of our region.



**Muchas gracias**

[www.inti.gob.ar](http://www.inti.gob.ar)



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