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**5-7 JULY 2017 ENGHEN-LES-BAINS FRANCE**

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# A Journey into the Brazilian Innovation Ecosystem!

Filipe Cassapo, Diretor at Anpei, and Innovation Manager at Senai, Brazil



# Our agenda for this Talk

- Anpei – The National Association for Research and Development of Innovative Companies
- The Brazilian Innovation Ecosystem: Main Actors and Strategic Programs
- Brazil and the Culture of Innovative Entrepreneurship
- Brazil and Innovation: Some Strengths and some Challenges!

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# Anpei: Who are we?

## ***Anpei (National Association for Research and Development of Innovative Companies)***

- Anpei is the major multisectoral and independent Brazilian association that brings together the main professionals who **practice** innovation anchored in technology and the generation of high value-added business.
- Anpei is always on the lookout for frontier themes of innovation:
  - To disseminate intelligence and practical ability in its network;
  - To accelerate the learning curve of organizations;
  - To influence the National Innovation System.

# Anpei - Numbers (2017)

- 32 years of Association;
- R\$ 720 bi associate billing;
- **R\$ 1,68 bi in innovation incentives throughout the year;**
- **60% of private investment in R,D&I;**
- + 3.000 participants in events organized by Anpei;
- + 850 participants in events organized by Anpei;
- + 3.500 SMEs prone to innovate;
- 15 internationalized startups;
- + 20.000 innovation-related contacts
- **50% of the BNDES innovation portfolio**

# Anpei - Some Associates



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# Brazil - Some Data



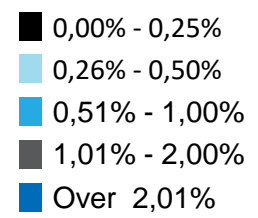
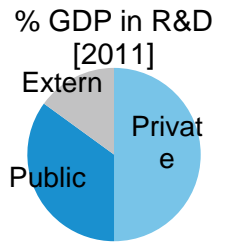
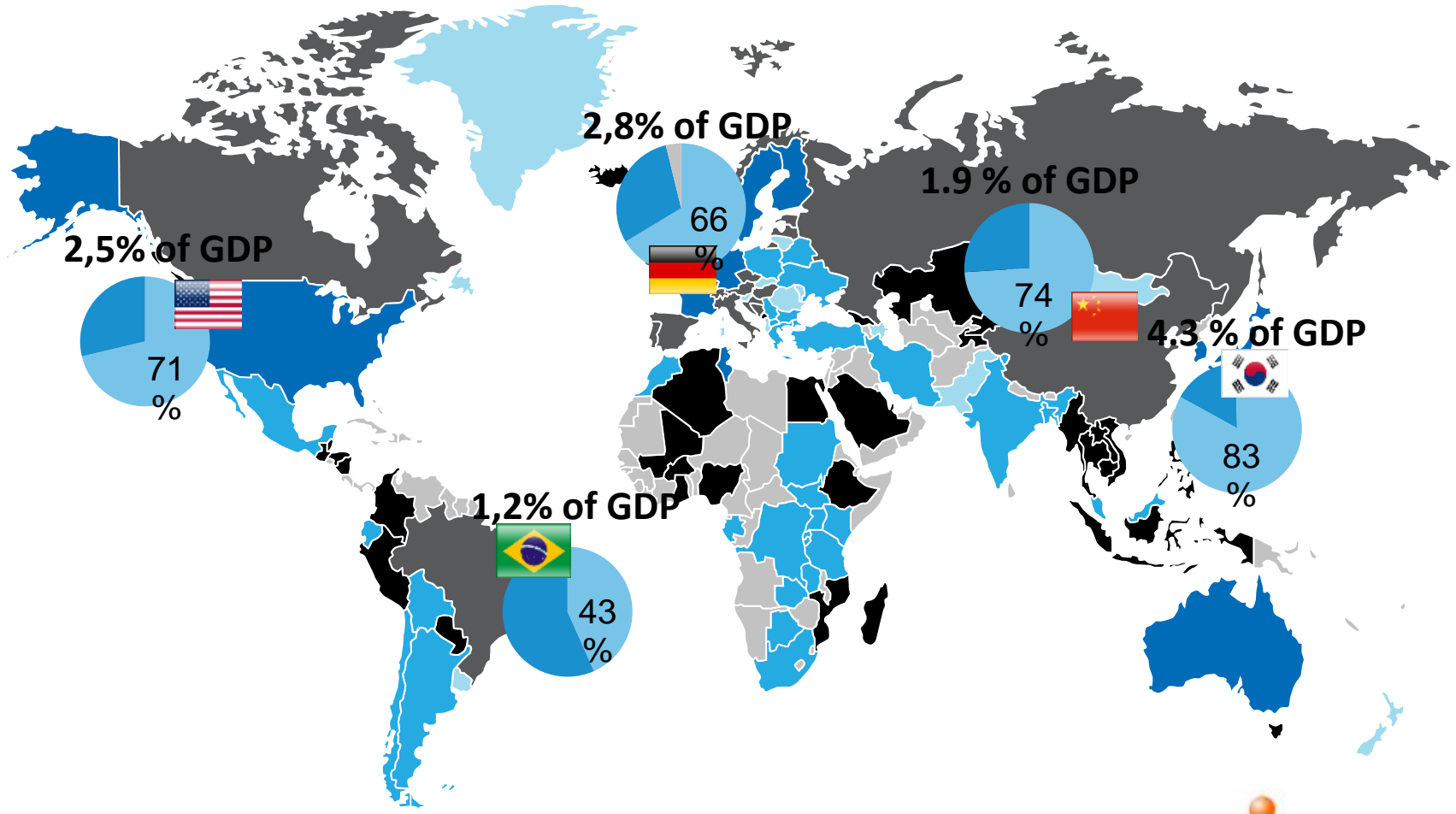
**Area**  
8.514.876 km<sup>2</sup> (5<sup>th</sup>)

**Population**  
202.768.562 (5<sup>th</sup>)

**GDP**  
US\$ 2.4 trillion (7<sup>th</sup>)

**Students at Universities**  
4.880.381 Students

# Investments in R&D&I



# Innovation Ecosystem at Federal Level

**MCTIC** - Ministry of Science, Technology, Innovation and Communication

**MDIC** - Ministry of Industry, Foreign Trade and Services

**Finep** - Funding Authority for Studies and Projects (under the MCTIC)

**BNDES** - Brazilian Development Bank (BNDES) - main financing agent for development in Brazil

**Embrapii** - Brazilian Company for Industrial Research and Innovation (connected to the MCTIC and to the Ministry of Education)

**CNI** - The Brazilian National Confederation of Industry is the official and highest-level organization representing Brazilian industry.

**CNPq** - The National Council for Scientific and Technological Development (CNPq) is an agency linked to the MCTIC, dedicated to the promotion of scientific and technological research and to the formation of human resources for research in the country.

**Lei do Bem (Law)** - offers fiscal incentives for companies that perform R&D within the country.

# Innovation Ecosystem at State Level

**FAPs** - Brazilian State Funding Agencies (Examples: FAPESP, FAPEMIG, FAPERJ)

**Regional Development Banks**

**State Innovation Laws** - State laws are an important part of the legal framework for innovation, derived from the Federal Innovation Law (Law 10,973/04)

# Innovation Ecosystem at Municipal (City) Level

## Municipal Innovation Laws

*Varies according to the city*

Example:

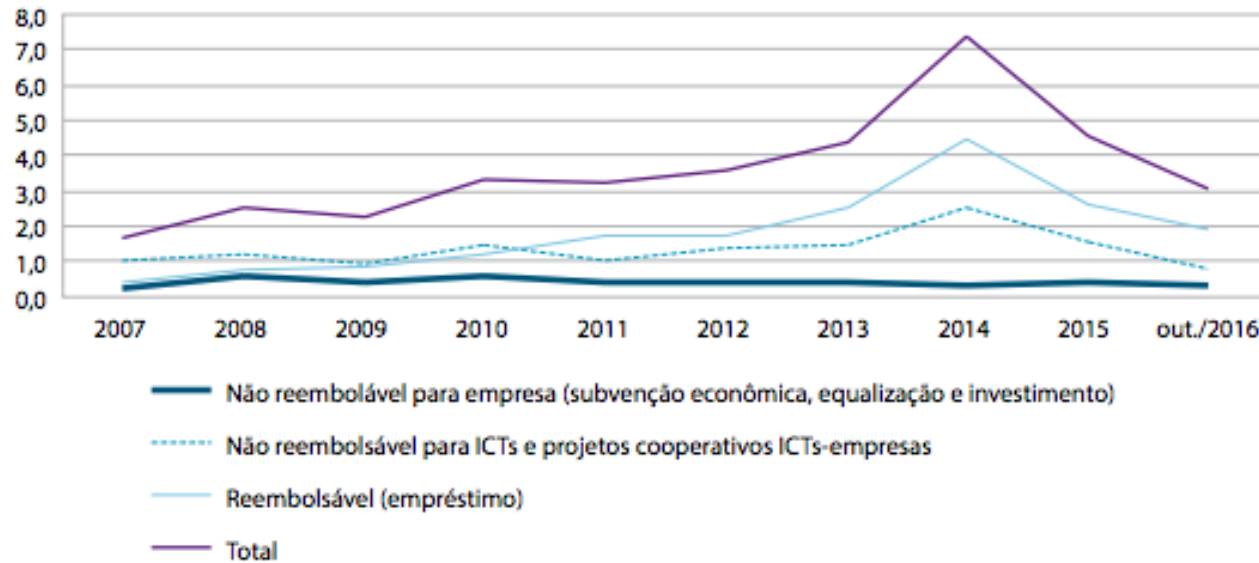
The city of Campinas (SP) grants tax incentives to startups.  
The local Service Tax (ISSQN) was reduced from 5% to 2%.  
The discount on the Property and Urban Property Tax (IPTU) may reach 100%.



# Innovation Strategic Actors:

## **FINEP (Federal, MCTIC)**

Gráfico 13 – Desembolsos da Finep, segundo modalidade de apoio 2007-2016 (em R\$ milhões)



- Funded 1967

Finep's disbursements, according to the modality of support



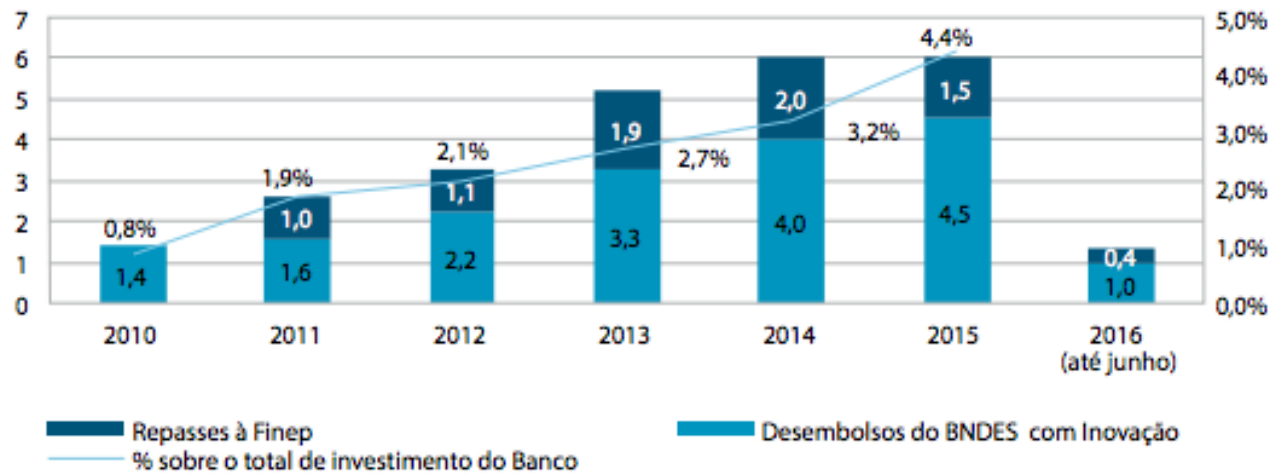
Fonte: Finep, 2016.

<http://www.congressodeinovacao.com.br/uploads/publicacoes/5937552772044.pdf>

# Innovation Strategic Actors:

## **BNDES (Federal, MDIC)**

Gráfico 10 – Desembolsos do BNDES com inovação, 2010-2016



Fonte: BNDES, 2016.

Nota: Participação dos recursos para inovação nos desembolsos totais do BNDES inclui os repasses à Finep.

<http://www.congressodeinovacao.com.br/uploads/publicacoes/5937552772044.pdf>

- Funded 1952

### BNDES' disbursements with Innovation:

In 2010: R\$ 1,4 bilhão

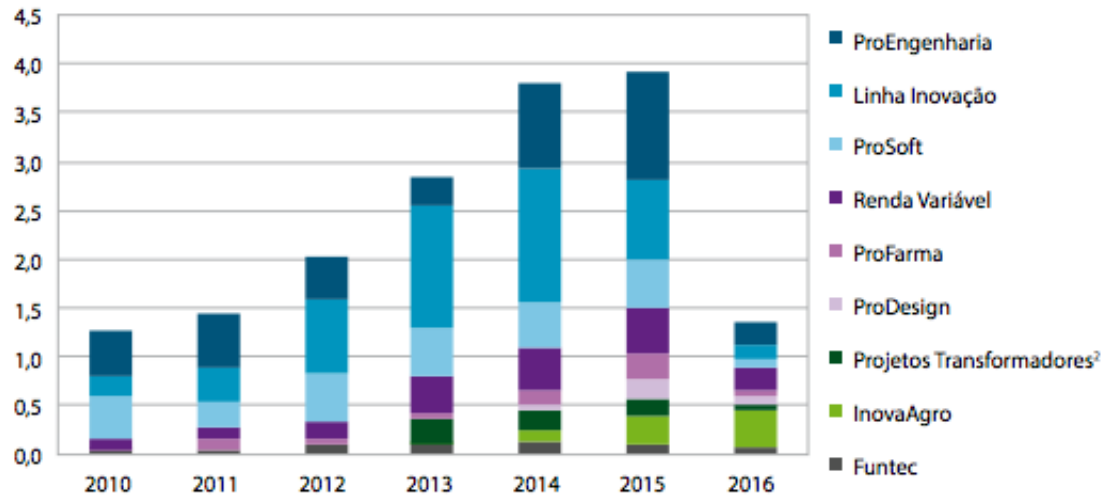
In 2015: R\$ 6 bilhões



# Innovation Strategic Actors:

## **BNDES (Federal, MDIC)**

Gráfico 11 – Desembolsos do BNDES com inovação, por tipo de programa, 2010-2016<sup>1</sup>



Fonte: BNDES, 2016.

Notas: <sup>1</sup> Não considera repasses à Finep. <sup>2</sup> Subprograma do Programa de Sustentação do Investimento (PSI), voltado a apoiar projetos de investimento capazes de criar capacidade tecnológica em setores de alta intensidade de conhecimento e engenharia.

<http://www.congressodeinovacao.com.br/uploads/publicacoes/5937552772044.pdf>

- Funded 1952

### BNDES' disbursements with Innovation:

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# Innovation Strategic Actors: CNI/SENAI (Federal+State)



The MEI (Mobilização Empresarial pela Inovação) is a group of + 200 top companies CEOs, academy deans and government members, who are engaged into the strengthening of innovation in Brazil. The movement started in 2008.

## Major targets:

To incite the incorporate innovation into companies business strategies.

To increase the effectiveness of innovation support policies in Brazil.

# Innovation Strategic Actors: **CNI/SENAI (Federal + State)**




**A Network of 26 Applied R&D Institutes**


**(Based on the Fraunhofer Model)**

# Innovation Strategic Actors:

## PE/VC Funds

Anjos do Brasil is a angel investor network dedicated to foster angel investment for supporting inovative entrepreneurs in Brazil. It was founded by Cassio Spina.



ABVCAP is a non-profit organization that represents the private equity and venture capital industry .

# Innovation Strategic Programs: Lei do Bem (Federal)

**Law 11.196 of 21/11/2005**

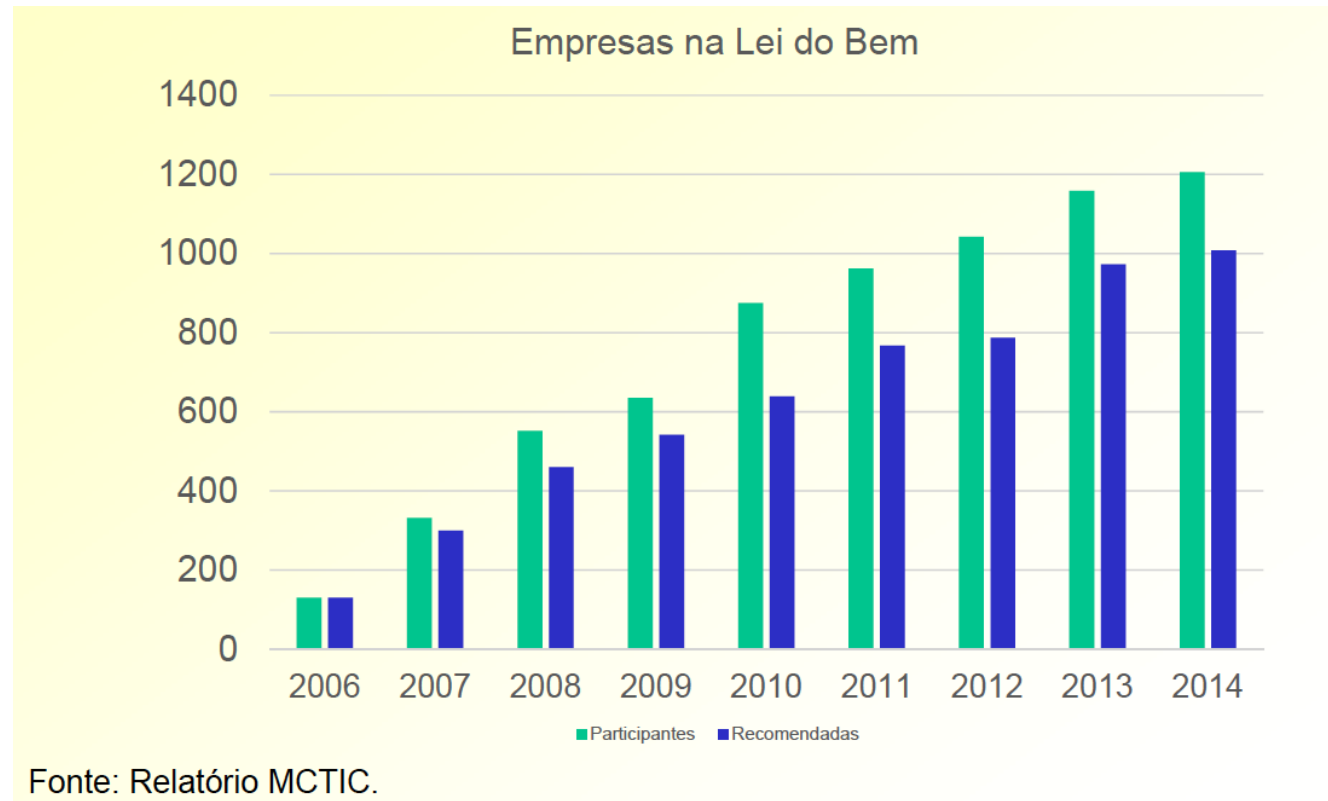
**Chapter I** – Establishes the Special Taxation Regime for the Export Platform of Information Technology Services;

**Chapter II** – Establishes the Special Regime for the Acquisition of Capital;

**Chapter III** - Creates incentives for Technological Innovation (Law of Good);

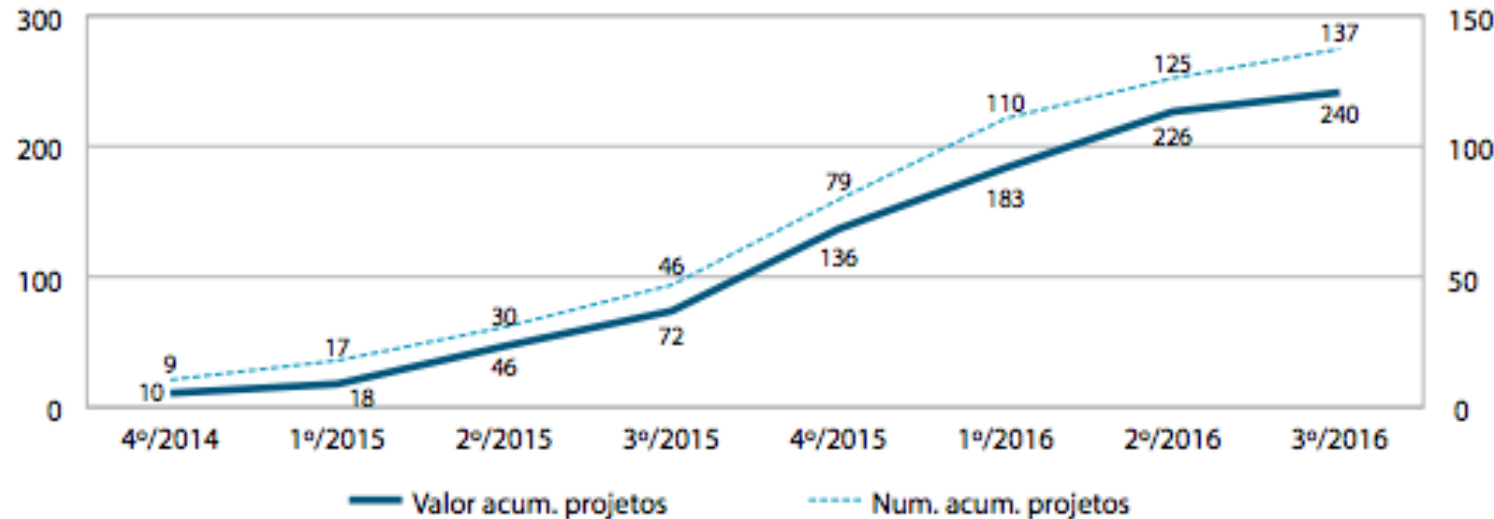
*Objective: To stimulate companies to carry out R&D activities.*

# Amount of Companies which use this Tax Incitement



# Innovation Strategic Programs: Embrapii (Federal)

Gráfico 20 – Evolução do número de projetos contratados e do valor acumulado, 2014-2016



Fonte: Embrapii, 2016.

<http://www.congressodeinovacao.com.br/uploads/publicacoes/5937552772044.pdf>

## Fraunhofer-like 1/3 – 1/3 – 1/3 Model

With little more than two years of existence, Embrapii has managed to expand its portfolio of contracted projects.

Until the third quarter of 2016:

- 137 projects
- Total amount of R\$ 240 millions



# Innovation Strategic Programs: Inovativa Brasil (Federal, MDIC+SEBRAE)

- The program **InovAtiva Brasil** was created in 2013 by the Ministry of Industry, Foreign Trade and Services (MDIC)
- Co-realization: Sebrae (since 2016)
- **415 accelerated startups** from 23 states in all regions of the country, scattered in **101 municipalities**
- Program: **four months of online training, individual mentoring and face-to-face training, and networking events with potential investors, clients and partners**
- Almost half of the selected companies were able to raise funds. In total, **R\$ 39.1 million were raised**, (in comparison to the **R\$ 5.1 million invested by the MDIC** in the program)



<http://www.inovativabrasil.com.br/inovativa-brasil-2016-bate-recorde-com-1-372-inscricoes/>

# Innovation Strategic Programs: ALI - Local Innovation Agents (Federal + State)

- Partnership between Sebrae and CNPq
- The Local Innovation Agents Program promotes the continuous practice of innovation in small companies, through proactive, free and personalized orientation

## Started 2008 with:

- 396 Local Innovation Agents
- Five thousand companies

## Six years later:

- 1400 Local Innovation Agents
- More than 55 thousand companies

<https://www.sebrae.com.br/sites/PortalSebrae/Programas/agentes-locais-de-inovacao-receba-o-sebrae-na-sua-empresa,8f51d53342603410VgnVCM100000b272010aRCRD>



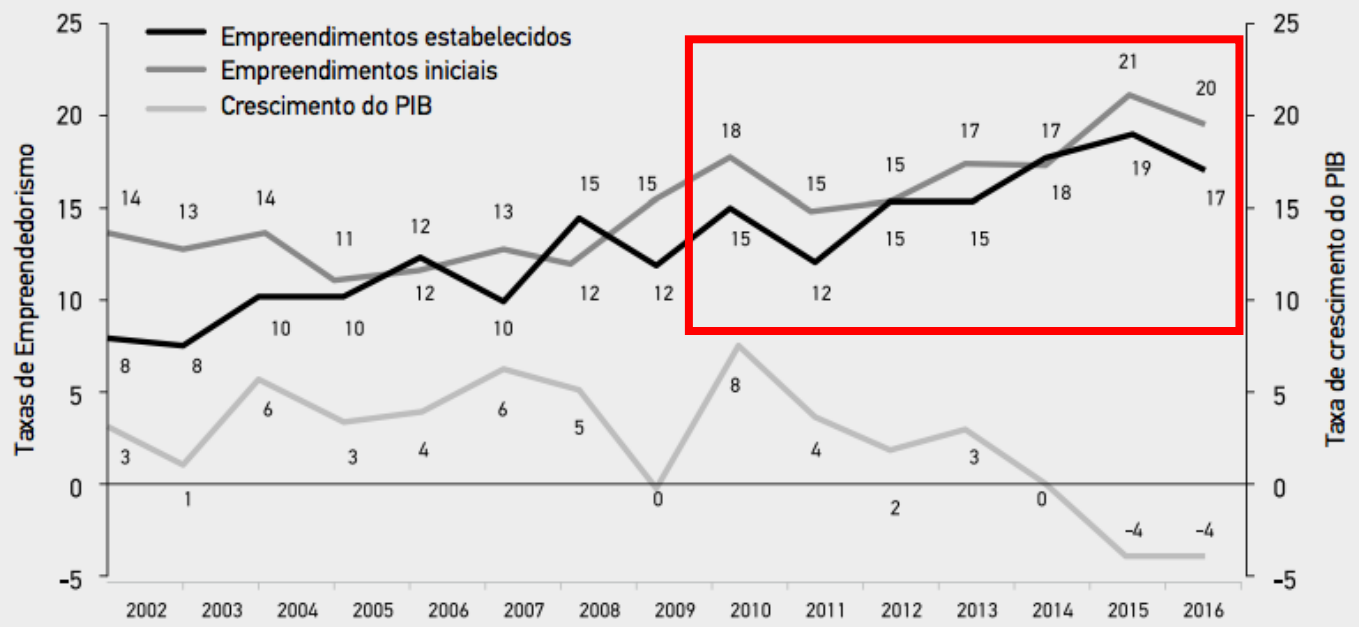


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# Culture of entrepreneurship

**Gráfico 1.5 - Taxas de crescimento do PIB e taxas<sup>1</sup> de empreendedorismo iniciais e estabelecidos no Brasil - 2002:2016**



Fonte: GEM 2016  
<sup>1</sup> Percentual da população de 18 a 64 anos.

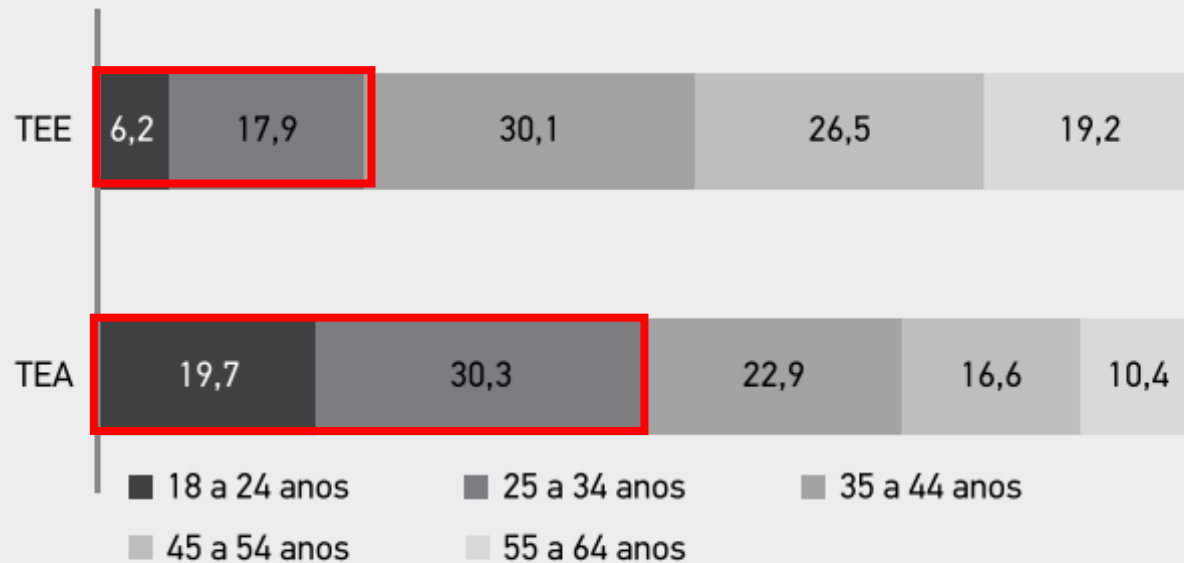
**GDP growth rates and initial and established entrepreneurship rates in Brazil**

According to the Global Entrepreneurship Monitor (GEM) 2016.

[http://www.bibliotecas.sebrae.com.br/chronus/ARQUIVOS\\_CHRONUS/bds/bds.nsf/941a51dd04d5e55430088db11a262802/\\$File/7592.pdf](http://www.bibliotecas.sebrae.com.br/chronus/ARQUIVOS_CHRONUS/bds/bds.nsf/941a51dd04d5e55430088db11a262802/$File/7592.pdf)

# Culture of entrepreneurship

**Gráfico 3.4** - Distribuição percentual dos empreendedores iniciais (TEA) e estabelecidos (TEE) segundo faixa etária - Brasil - 2016



Fonte: GEM Brasil 2016

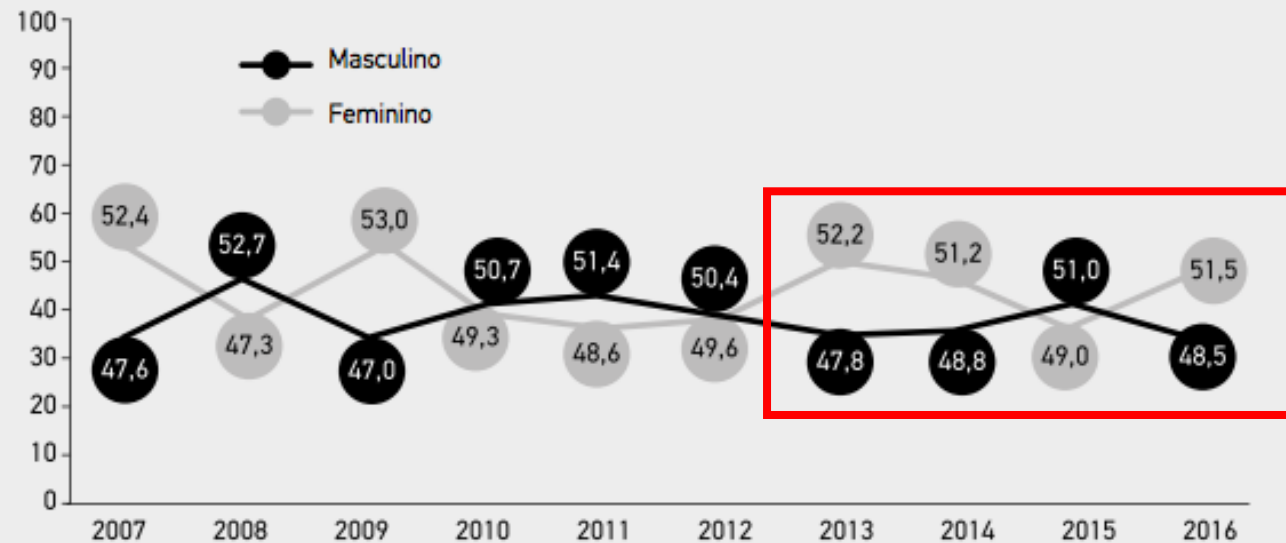
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# Culture of entrepreneurship

**Gráfico 3.1** - Distribuição percentual dos empreendedores iniciais (TEA), segundo gênero - Brasil - 2007:2016



Fonte: GEM 2016

**Percentage distribution of new entrepreneurs, by gender**

According to the Global Entrepreneurship Monitor (GEM) 2016.

[http://www.bibliotecas.sebrae.com.br/chronus/ARQUIVOS\\_CHRONUS/bds/bds.nsf/941a51dd04d5e55430088db11a262802/\\$File/7592.pdf](http://www.bibliotecas.sebrae.com.br/chronus/ARQUIVOS_CHRONUS/bds/bds.nsf/941a51dd04d5e55430088db11a262802/$File/7592.pdf)

# Entrepreneurial City Index 2016

Entrepreneurial City Index 2016  
 by **Endeavor** Brasil

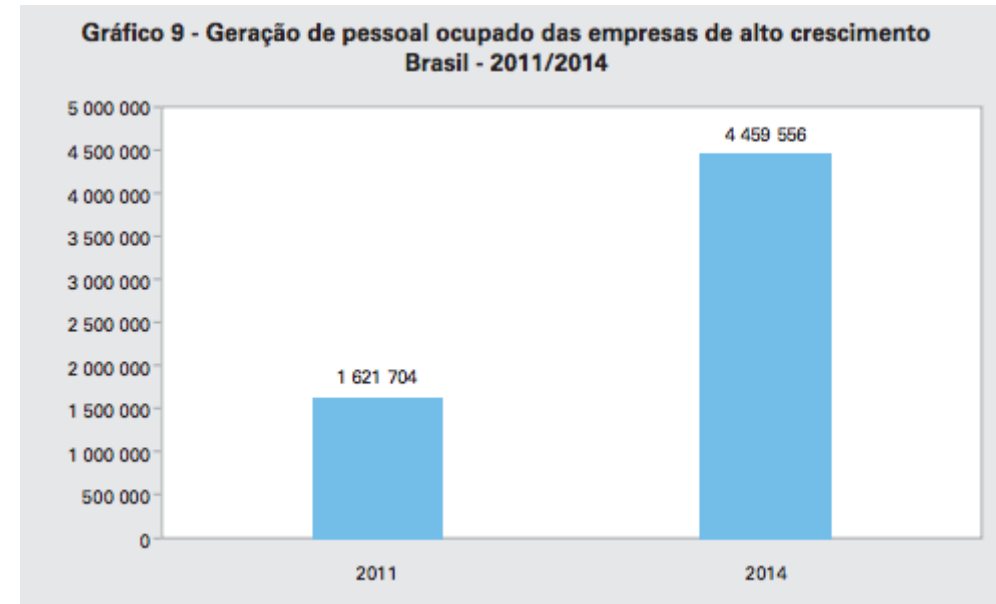
<https://d335luupugsy2.cloudfront.net/cms%2Ffiles%2F6588%2F1479379347ICE+2016+--+Links+V1.pdf>

1º	São Paulo	8,493	0	▲
2º	Florianópolis	8,324	0	▲
3º	Campinas	7,300	2	▲
4º	Joinville	6,962	5	▲
5º	Vitória	6,937	-2	▼
6º	São José dos Campos	6,864	0	▲
7º	Porto Alegre	6,751	0	▲
8º	Sorocaba	6,715	7	▲
9º	Maringá	6,440	2	▲
10º	Ribeirão Preto	6,434	2	▲
11º	Belo Horizonte	6,429	2	▲
12º	Caxias do Sul	6,396	4	▲
13º	Blumenau	6,324	7	▲
14º	Rio de Janeiro	6,228	-4	▼
15º	Curitiba	6,118	-7	▼
16º	Brasília	5,891	3	▲

# High-Impact Entrepreneurship (Endeavor/IBGE)

## In 2014:

- 2.5 million active companies with 1 or more employees in Brazil, and of this total **31 223 were high growth companies (1.3%)**.
- **These companies employed 4.4 million people**, which is equivalent to 12.7% of the total number of active enterprises with 1 or more employees, and 15.4% of all companies with 10 or more employees.
- In Brazil, between 2011 and 2014, the **number of employees in high growth enterprises rose from 1.6 million in 2011 to around 4.4 million in 2014, an increase of 2.8 million employees (or 175.0%)**.



<http://biblioteca.ibge.gov.br/visualizacao/livros/liv98819.pdf>

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# Brazil and Innovation – Some Strengths

1. Cultural diversity + Integration
2. Biodiversity
3. Renewable energy
4. Entrepreneurship and creativity



# Brazil, Strengths: Cultural Diversity



Amerindian



Afro-Brazilian



Portuguese



Italian



German



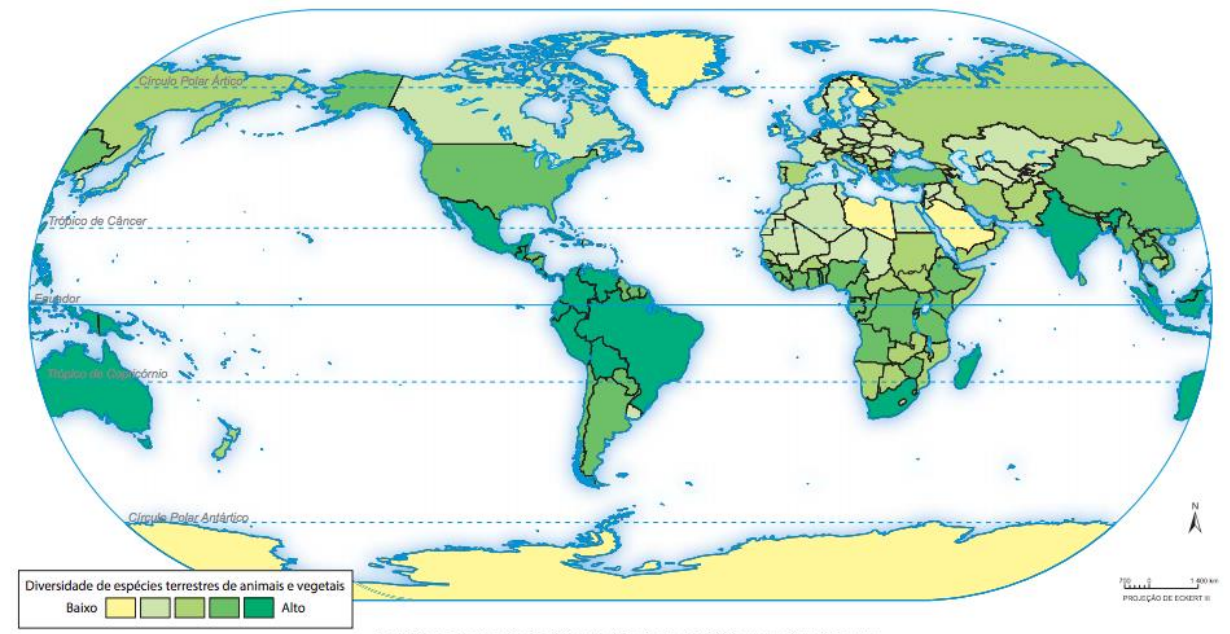
Ukrainian, Polish...



Japanese

# Brazil, Strengths: Cultural Biodiversity

 Nível de Biodiversidade



Fonte: Groombridge, B.; Jenkins, M. D. World atlas of biodiversity: Earth's living resources in the 21st century. Berkeley: Univ. of California Press; Cambridge, UK: United Nations Environment Programme - UNEP, World Conservation Monitoring Centre, 2002. Disponível em: <<http://www.archive.org/details/worldatlasofbi02groom>>. Acesso em: abr. 2016.

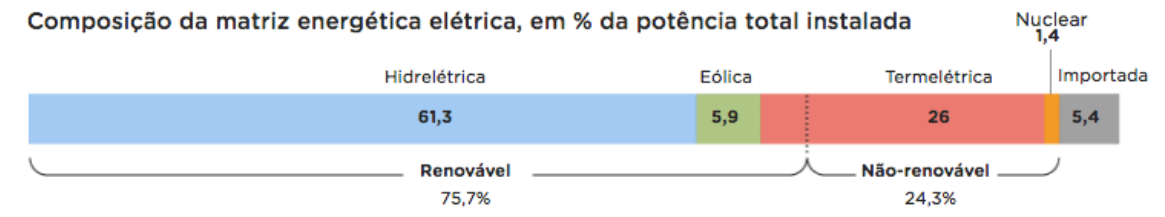
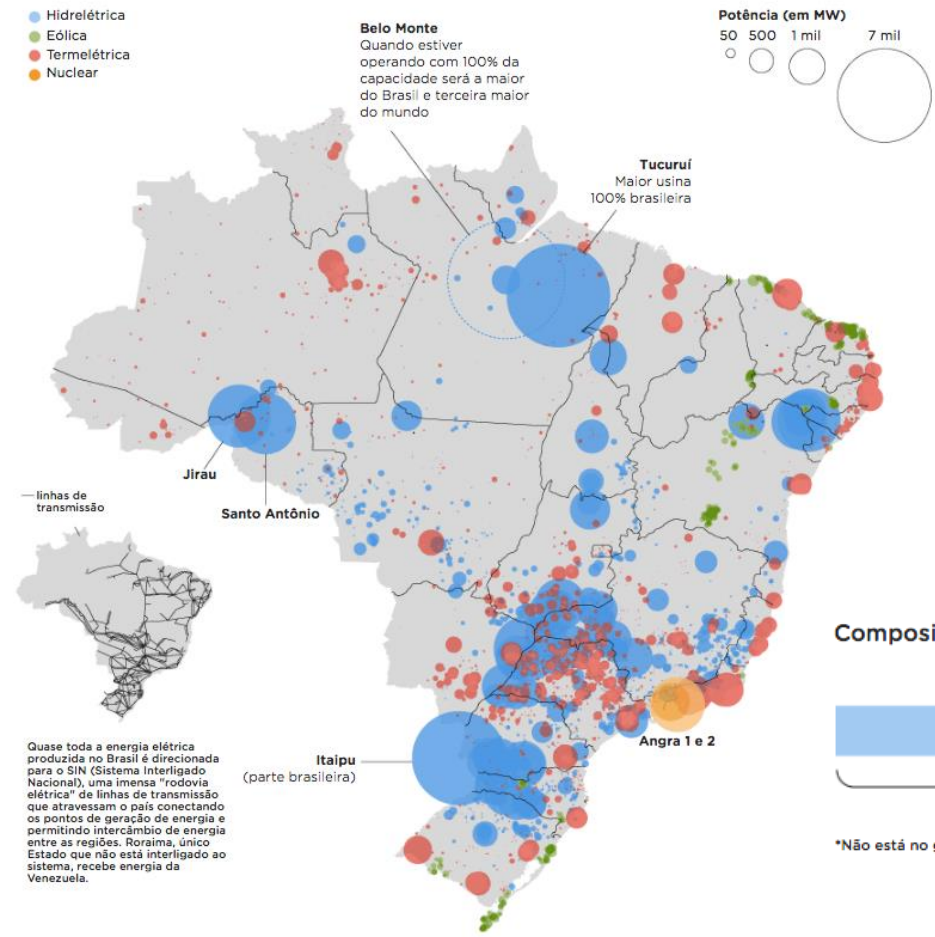
Source: IBGE (Brazilian Institute of Geography and Statistics)

[http://atlascolar.ibge.gov.br/images/atlas/mapas\\_mundo/mundo\\_biodiversidade.pdf](http://atlascolar.ibge.gov.br/images/atlas/mapas_mundo/mundo_biodiversidade.pdf)

[www.ibge.gov.br](http://www.ibge.gov.br)

0800 721 8181

# Brazil, Strengths: Renewable Energy



\*Não está no gráfico a energia solar, que corresponde a 0,02% da matriz energética

# Brazil, Strengths: Entrepreneurship



**Two in three young Brazilians (25-35 years of age) plan to become entrepreneurs in the coming years.**

Source: Federação das Indústrias do Estado do Rio de Janeiro (Firjan), January, 2017.

SOURCE: <http://www.portaldaindustria.com.br/agenciacni/noticias/2017/01/dois-em-cada-tres-jovens-pensam-em-abrir-o-proprio-negocio-no-brasil/>

# Brazil, Challenges: A country of continental dimensions



## Largest Countries in the World By Area:

- 1) Russia
- 2) Canada
- 3) United States
- 4) China
- 5) Brazil
- 6) Australia
- 7) India

# Brazil, Challenges: Legal Framework is recent

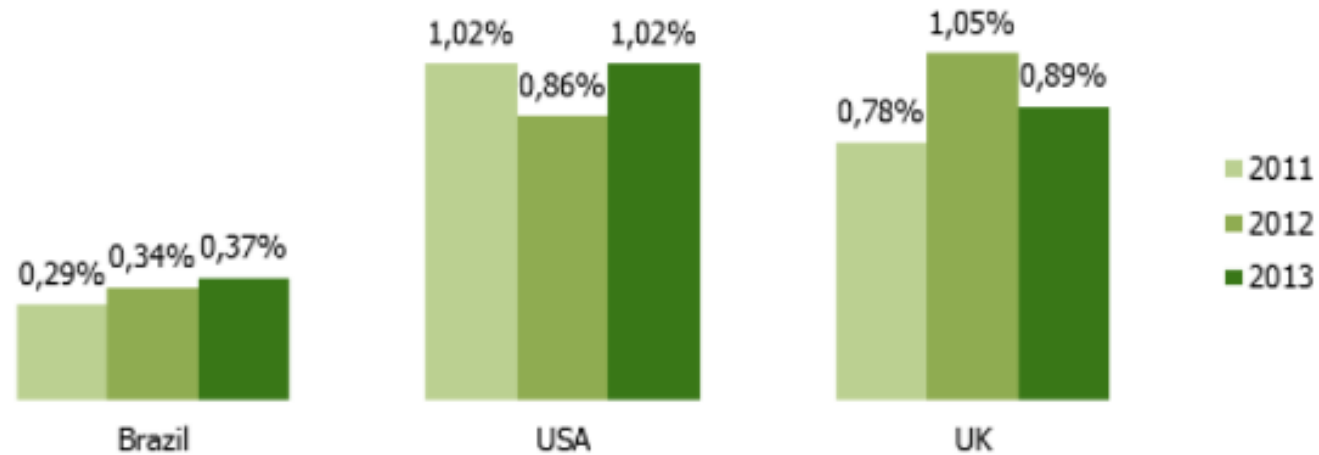
**Table 4. Brazil's Significant S&T and Innovation Policies Since 2003, Purpose and Implementation Barriers**

Year	Policy	Purpose	Implementation Barriers
1999	Sectoral Funds for Science and Technology	Funds science, technology, and innovation in 15 thematic areas	<ul style="list-style-type: none"> <li>Funding limited to universities and research institutes</li> <li>Solely managed by MCTI</li> </ul>
2003–2006	Industrial, Technological and Foreign Trade Policy ( <i>A Política Industrial, Tecnológica e de Comércio Exterior</i> , PITCE)	Aims to grow exports, promote innovation capacity in firms, regional development, and capital goods; targets specific priority areas	<ul style="list-style-type: none"> <li>Does not create a governance structure</li> <li>Created by MDIC but depends largely on MCTI funding instruments to execute</li> </ul>
2005	Law of Goods	Provides fiscal incentives to firms conducting R&D and hiring graduate students	<ul style="list-style-type: none"> <li>Does not address longer-term strategies of firms in the productive sector</li> <li>Targets those that would invest in R&amp;D without fiscal incentives</li> </ul>
2006*	Law of Innovation	Public-private partnerships for technology commercialization	<ul style="list-style-type: none"> <li>Lack of funding (initially) by MCTI to implement the law</li> </ul>
2006^	Economic Subvention Program	Provides grants for innovative projects provided directly to firms; targets strategic sectors	<ul style="list-style-type: none"> <li>Lack of coordination and opposition among agencies</li> <li>Solely managed by MCTI through FINEP</li> </ul>
2007–2010	Action Plan for Science, Technology and Innovation for National Development (PACTI)	Coordination of national innovation system and increase private R&D spending	<ul style="list-style-type: none"> <li>Lack of transparency in developing targets</li> <li>Several targets, including R&amp;D expenditures, not met</li> </ul>
2008–2010	Production Development Policy (PDP)	Increasing exports and small businesses; provides direct funding to 25 strategic sectors	<ul style="list-style-type: none"> <li>Created by MDIC, uncertain how well it strengthens MCTI and MDIC relations</li> <li>Short-term goals coincide with election cycle</li> <li>Development of goals lack transparency, some targets are merely projections of current trends</li> </ul>
2011–2014	Greater Brazil Plan	Promotion of domestic industry (via increased protectionist measures)	<ul style="list-style-type: none"> <li>Newest policy, too early to see impacts</li> <li>Carries over many of the same and unmet targets from PITCE and PDP</li> </ul>

2016 - New Brazilian Legal Framework for Science, Technology and Innovation

# Brazil, Challenges: Access to VC/PE

Total Investments made by VC/PE funds as a ratio of GDP



Source: KPMG/ABVCAP; IMF; EMPEA

# Thank you for your attention!



## Filipe M. Cassapo

- BA in Computer Science Engineering from the Université de Technologie de Compiègne (France)
- Specialized in Cognitive Science and Epistemology
- MSc in Applied Computer Science from the Catholic University of Paraná (PUC/PR)

**Experience:** Knowledge Management Process Leader of the Brazilian National Quality Foundation (FNQ), Knowledge Manager at Votorantim Industrial, and IT Manager at Siemens

**Currently:** Executive Manager of the International Innovation Center of the Federation of Industries in Paraná, Brazil, and Director at Anpei.