
R&D in the State of São Paulo, Brazil

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Science Director
FAPESP
FW CUNY, 20181126

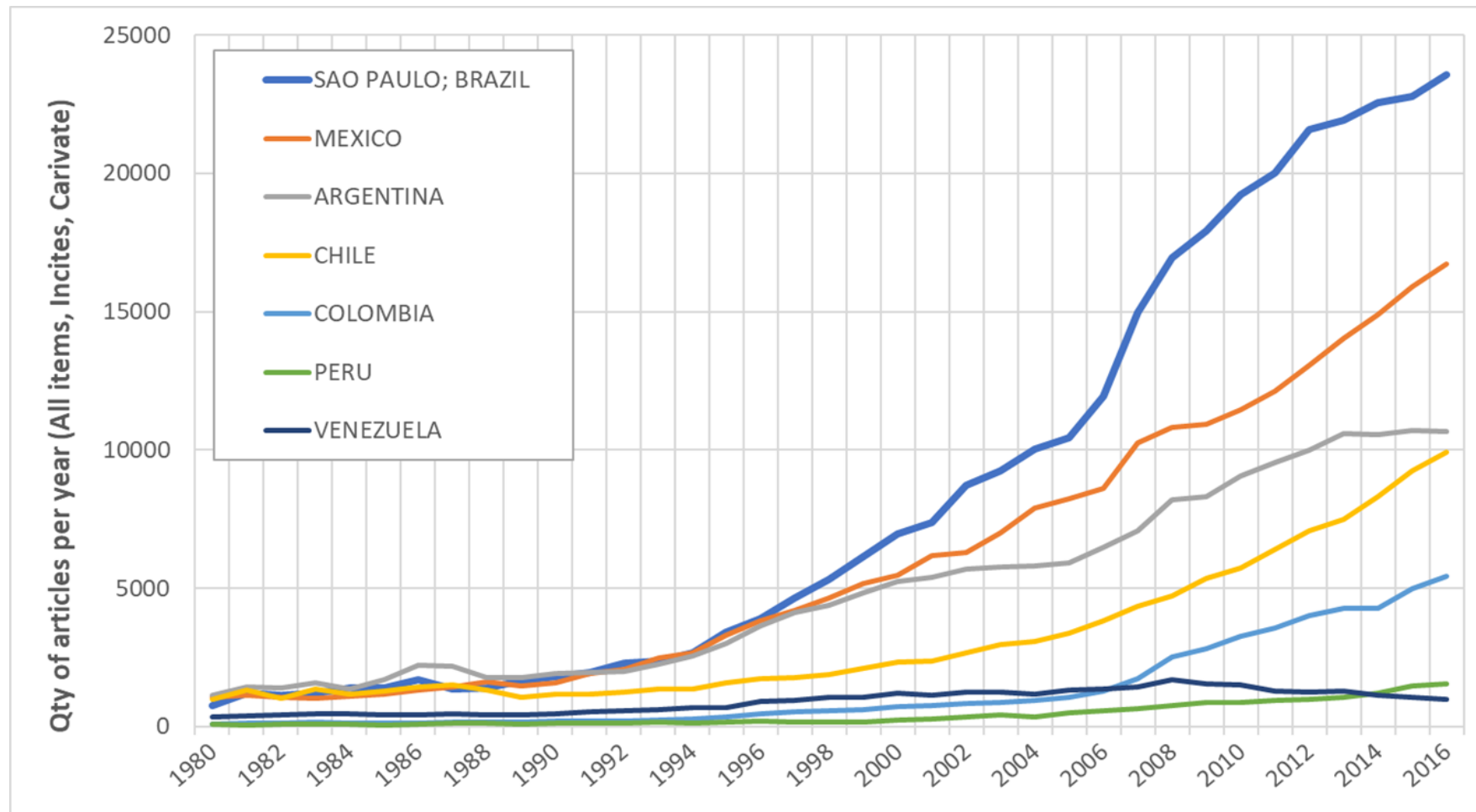
R&D in São Paulo, Brazil

- A vigorous system for S&T and Innovation
 - Stable funding for research
 - Strong research universities
 - Largest science production in Latin America
- Business-University joint research
 - Federal tax incentives
 - Support for Start-ups & University-Business joint research
 - Universities that create start-ups
 - Interest from national and multinational companies



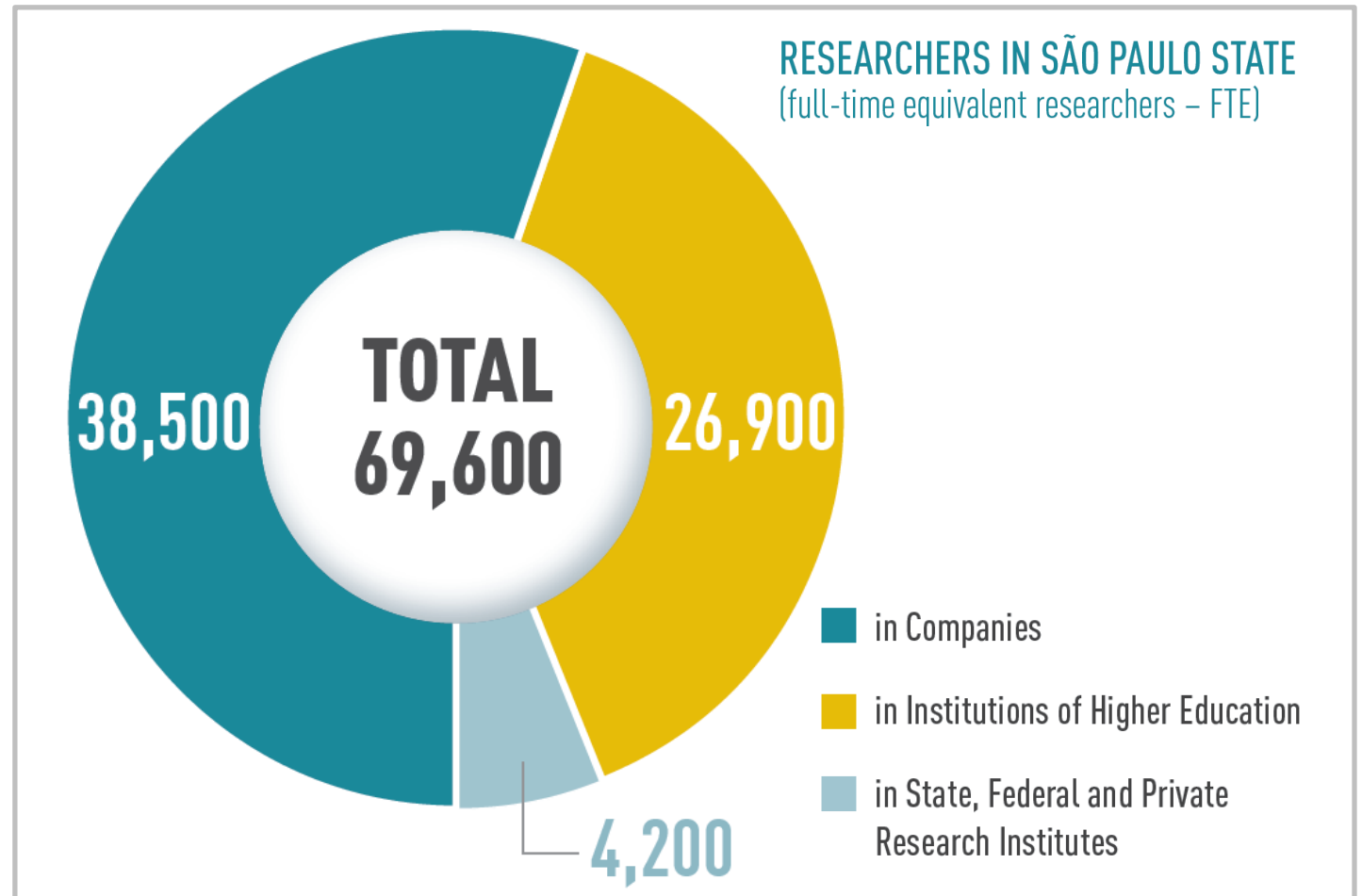
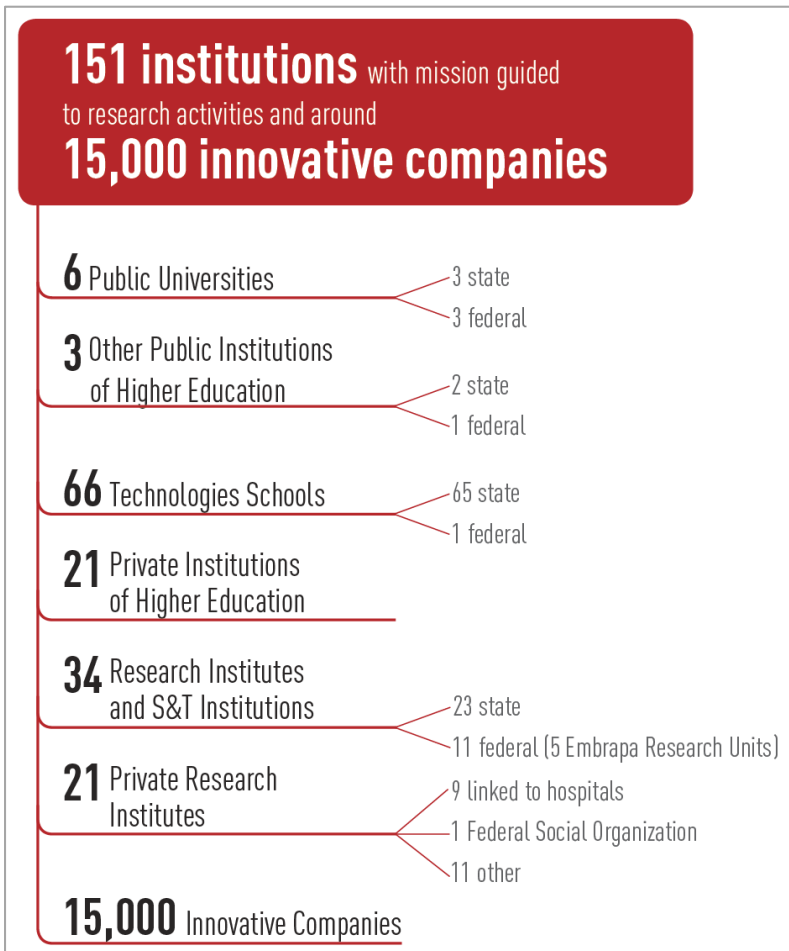
1.4% of GDP for R&D
42 Million people
32% of Brazil's GDP
43% of Brazilian science
7,288 PhDs graduated in 2017

Researchers in São Paulo, Brazil publish more than colleagues from any Latin American country

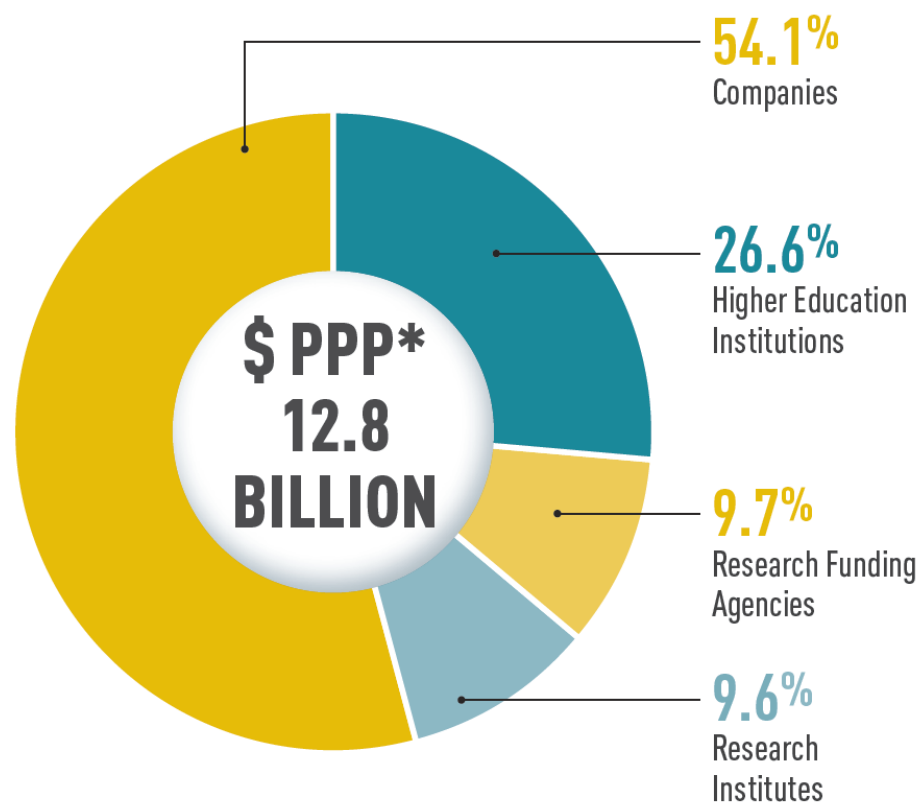


The S&T system in the state of São Paulo, 2017

151 entities, 15,000 companies, 69,600 researchers



São Paulo: R&D expenditures, 2017

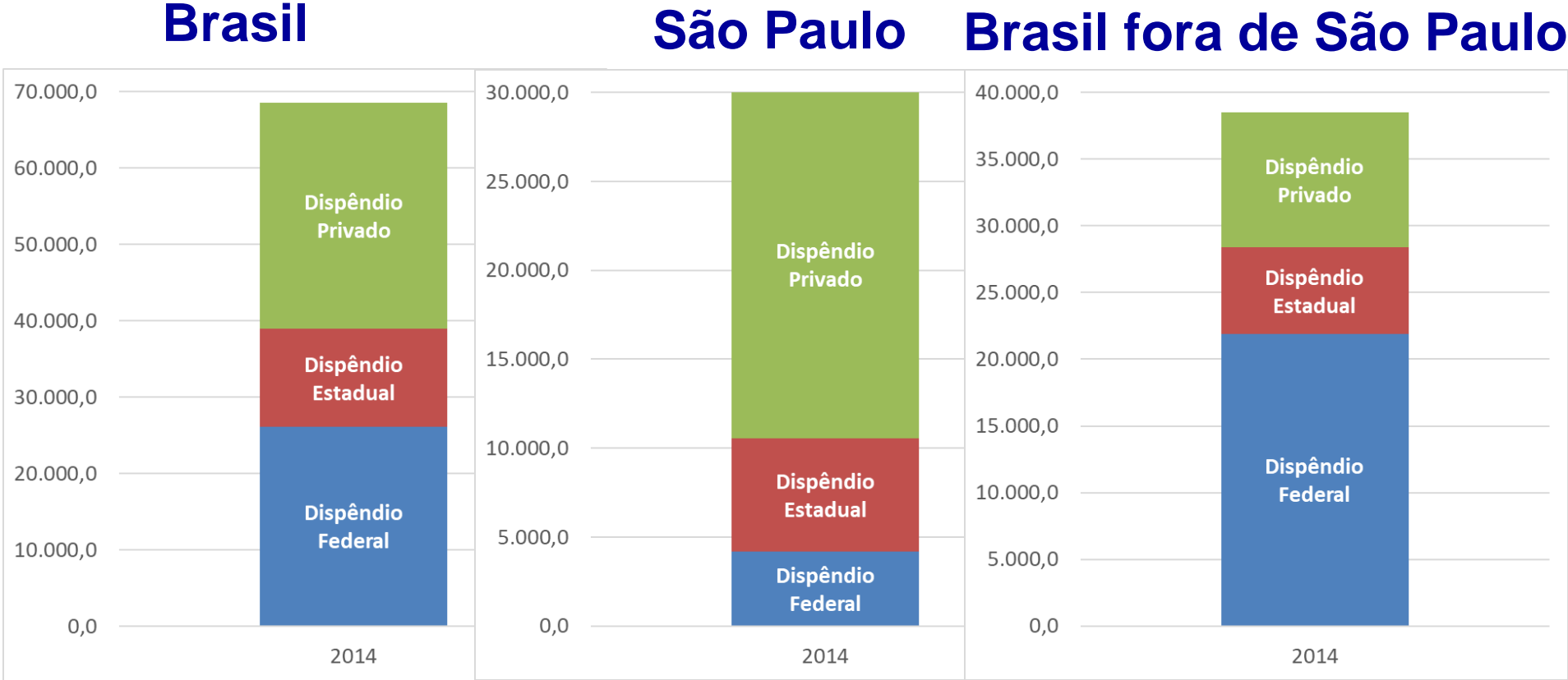


in \$ PPP million

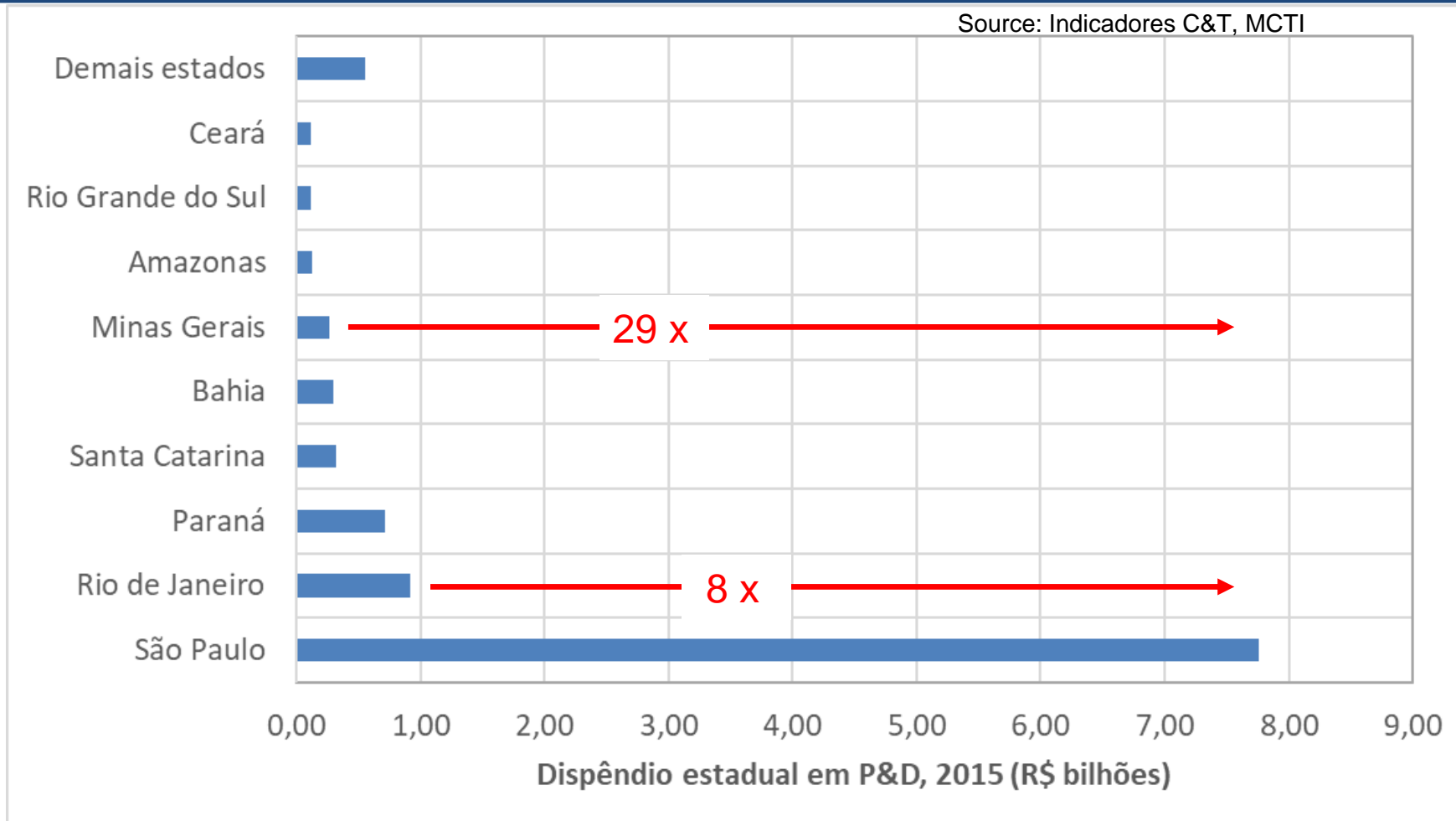
	2015	2016	2017
R&D IN SÃO PAULO STATE	12,880.7	12,885.6	12,754.8
Higher Education Institution (HEI)	3,291.1	3,497.4	3,390.8
HEI Federal	446.6	479.1	510.1
HEI State	2,574.2	2,710.2	2,574.3
HEI Private	270.3	308.1	306.4
Agencies for Research Funding	1,389.8	1,336.3	1,233.4
CNPq	258.9	178.9	156.0
Capes	364.1	399.1	370.4
Finep	178.3	215.2	182.9
FAPESP	588.5	563.1	524.1
Research Institutes	1,026.8	969.9	1,224.2
Federal Research Institutes	702.5	663.8	909.1
State Research Institutes	324.3	306.1	315.1
Companies	7,173.0	7,081.9	6,906.4

* Purchasing power parity (<http://data.worldbank.org/indicator/pa.nus.ppp>)
 Note: For the methodology used to update R&D expenditure, see
Indicators of Science, Technology & Innovation in São Paulo 2010, FAPESP, 2011.

Brazil, São Paulo, Brazil outside São Paulo; 2014



Brazil: State R&D expenditures, 2015



FAPESP: São Paulo Research Foundation

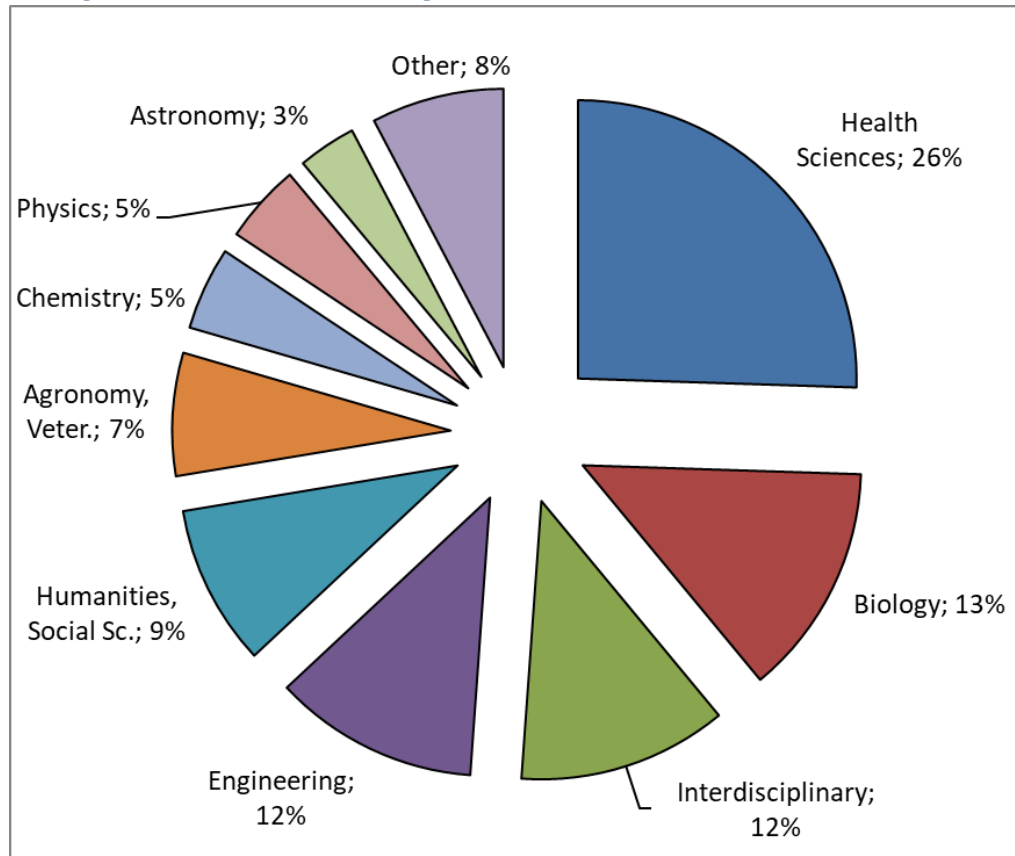
- Mission: support research in all fields
- Funded by the State of SP: 1% of all tax revenues
- All proposals are peer reviewed (26,000 in 2017)
 - Time for decision ~ 69 days; 41% success rate
- Annual budget: \$PPP 520 million in 2017
 - Fellowships
 - In Brazil: 2,500 SI, 1,100 MSc, 2,400 DrSc, 2,000 Post-docs
 - Abroad: 1,200 per year
 - Academic R&D
 - 17 Centers (10 - 11 yrs dur.), 400 Thematic (5 yrs), 300 Young Investigators (4 yrs), 2,500 Regular (2 yrs)
 - University-Industry Joint R&D: Microsoft, Vale, Petrobrás, Embraer, Boeing, etc.
 - 14 Engineering Res. Centers: 10 years joint grants FAPESP/Industry – PCBA, GSK, Natura, BG,...
 - Small business R&D (PIPE): 1,500 SBE's (254 awards in 2017, one per workday, mostly start-ups)



FAPESP expenditures by field, 2017

Total: US\$ 530 million (PPP)

Expenditures by field



Strategic programs

- BIOTA FAPESP: biodiversity research (1998)
 - 10+ univ./res. inst.; 300 PIs; 300 grants; 1,300+ students supported
- BIOEN: bioenergy (2009; focus on sugarcane bioethanol)
 - 10+ universities/res. inst.; 300 PIs; 230 grants; 500+ students
- PFPMCG: Global Climate Change (2009)
 - 10+ univ./res. inst.; 170 PIs; 150 grants; 250+ students
- e-Science and Data Science (2015)
 - 08+ univ/res. inst; 20 Pis; 15 grants; 40+ students

What we are looking for in S&T in São Paulo: impact in three dimensions

- Social impact
 - Ideas that increase well being, assist or inform public policy, increase the benefit from public goods
- Economic impact
 - Ideas that lead to new businesses
 - Ideas that increase economic competitiveness
 - Ideas that originate new industry sectors
- Intellectual impact
 - Ideas that originate more ideas
 - Ideas that make humankind wiser
 - Ideas strongly cited in the literature

Optical observation of signals associated to Gravitational Waves

THE ASTROPHYSICAL JOURNAL LETTERS, 848:L12 (59pp), 2017 October 20

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OPEN ACCESS

<https://doi.org/10.3847/2041-8213/aa91c9>



CrossMark

Multi-messenger Observations of a Binary Neutron Star Merger*

LIGO Scientific Collaboration and Virgo Collaboration, Fermi GBM, INTEGRAL, IceCube Collaboration, AstroSat Cadmium Zinc Telluride Imager Team, IPN Collaboration, The Insight-HXMT Collaboration, ANTARES Collaboration, The Swift Collaboration, AGILE Team, The 1M2H Team, The Dark Energy Camera GW-EM Collaboration and the DES Collaboration, The DLT40 Collaboration, GRAWITA: GRAvitational Wave Inaf TeAm, The Fermi Large Area Telescope Collaboration, ATCA: Australia Telescope Compact Array, ASKAP: Australian SKA Pathfinder, Las Cumbres Observatory Group, OzGrav, DWF (Deeper, Wider, Faster Program), AST3, and CAASTRO Collaborations, The VINROUGE Collaboration, MASTER Collaboration, J-GEM, GROWTH, JAGWAR, Caltech-NRAO, TTU-NRAO, and NuSTAR Collaborations, Pan-STARRS, The MAXI Team, TZAC Consortium, KU Collaboration, Nordic Optical Telescope, ePESSTO, GROND, Texas Tech University, SALT Group, TOROS: Transient Robotic Observatory of the South Collaboration, The BOOTES Collaboration, MWA: Murchison Widefield Array, The CALET Collaboration, IKI-GW Follow-up Collaboration, H.E.S.S. Collaboration, LOFAR Collaboration, LWA: Long Wavelength Array, HAWC Collaboration, The Pierre Auger Collaboration, ALMA Collaboration, Euro VLBI Team, Pi of the Sky Collaboration, The Chandra Team at McGill University, DFN: Desert Fireball Network, ATLAS, High Time Resolution Universe Survey, RIMAS and RATIR, and SKA South Africa/MeerKAT
(See the end matter for the full list of authors.)

Political Science: the inner workings of Brazilian democracy



The City University of New York

Presidential Power, Legislative Organization, and Party Behavior in Brazil

Argelina Cheibub Figueiredo and Fernando Limongi

Presidential regimes are considered to be prone to produce institutional deadlocks. In the generally shared view, influenced by the work of Juan Linz, presidentialism lacks a built-in mechanism to induce cooperation between the executive and legislative branches of the government.¹ Representatives and the president have different constituencies, and their mandates are independent and fixed. Hence the chances that the legislative and the executive powers will have the same agenda are small.

Personalized medicine

www.impactjournals.com/oncotarget/

Oncotarget, Advance Publications 2015

The use of personalized biomarkers and liquid biopsies to monitor treatment response and disease recurrence in locally advanced rectal cancer after neoadjuvant chemoradiation

Paola Carpinetti^{1,2,3}, Elisa Donnard^{1,2,3}, Fabiana Bettoni², Paula Asprino², Fernanda Koyama¹, Andrei Rozanski², Jorge Sabbaga⁴, Angelita Habr-Gama^{5,6}, Raphael B. Parmigiani², Pedro A.F. Galante², Rodrigo O. Perez^{1,5,6}, Anamaria A. Camargo^{1,2}

¹Ludwig Institute for Cancer Research, São Paulo, SP, Brazil

²Centro de Oncologia Molecular Hospital Sírio Libanês, São Paulo, Brazil

³Programa de Pós Graduação em Bioquímica, Instituto de Química, Universidade de São Paulo, SP, Brazil

⁴Centro de Oncologia Clínica, Hospital Sírio Libanês, São Paulo, SP, Brazil

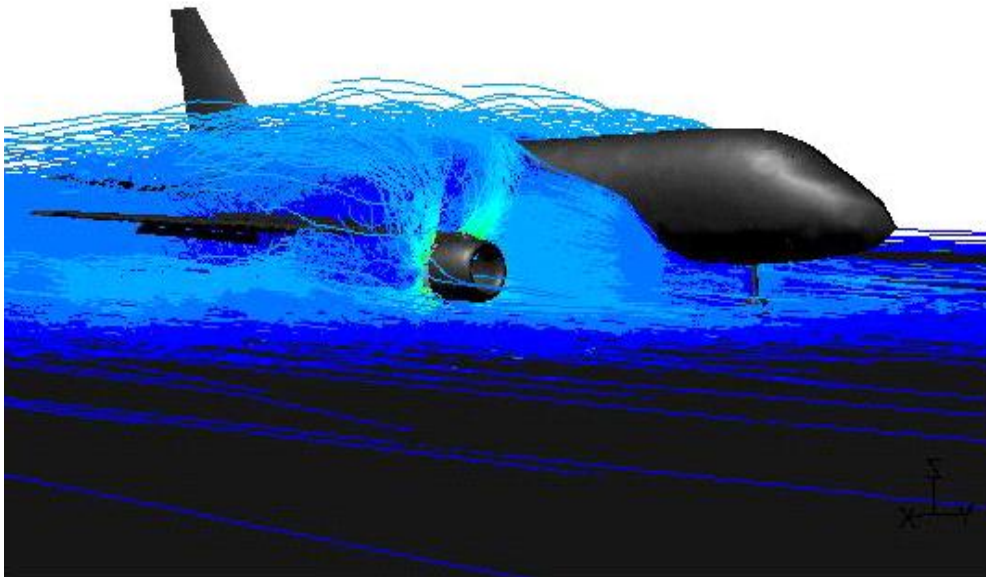
⁵Angelita & Joaquim Gama Institute, São Paulo, SP, Brazil

⁶University of São Paulo, School of Medicine, São Paulo, SP, Brazil

Correspondence to:

Anamaria A. Camargo, **e-mail:** aacamargo@mochsl.org.br

Embraer-FAPESP: R&D to build an innovative jet



Computational Fluid Dynamics (CFD)
simulation and tests

Research co-funded by FAPESP, involving
several universities



Basic research applied to real problems

FINANCIAL TIMES

Zika Virus [+ Add to myFT](#)

Brazilian team finds clue to congenital Zika syndrome

Mayana Zatz's work on twins shows a genetic component to the birth defect

Andres Schipani in São Paulo FEBRUARY 28, 2018



Soon after the [Zika epidemic](#) broke out in Brazil, Mayana Zatz — an acclaimed geneticist who, for the preceding four decades had been tracking rare genetic disorders that destroy muscles — received a surprise phone call from the scientific director of a research foundation in São Paulo.

nature
COMMUNICATIONS 

Discordant congenital Zika syndrome twins show differential in vitro viral susceptibility of neural progenitor cells

Luiz Carlos Caires-Júnior, Ernesto Goulart, Uirá Souto Melo, Bruno Silva Henrique Araujo, Lucas Alvizi, Alessandra Soares-Schanoski, Danyllo Felipe de Oliveira, Gerson Shigeru Kobayashi, Karina Griesi-Oliveira, Camila Manso Musso, Murilo Sena Amaral, Lucas Ferreira daSilva, Renato Mancini Astray, Sandra Fernanda Suárez-Patiño, Daniella Cristina Ventini, Sérgio Gomes da Silva, Guilherme Lopes Yamamoto, Suzana Ezquina, Michel Satya Naslavsky, Kayque Alves Telles-Silva, Karina Weinmann, Vanessa van der Linden, Helio van der Linden, João Mendes Ricardo de Oliveira, Nivia Rodrigues Maria Arrais, Adriana Melo, Thalita Figueiredo, Silvana Santos, Joanna Castro Goes Meira, Saulo Duarte Passos, Roque Pacheco de Almeida, Ana Jovina Barreto Bispo, Esper Abrão Cavalheiro, Jorge Kalil, Edécio Cunha-Neto, Helder Nakaya, Robert Andreatta-Santos, Luis Carlos de Souza Ferreira, Sergio Verjovski-Almeida, Paulo Lee Ho, Maria Rita Passos-Bueno & Mayana Zatz  - Show fewer authors

Cranial reconstruction with Additive Manufacturing



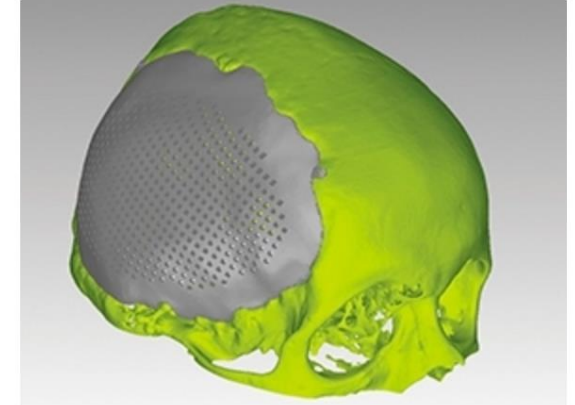
Journal of Cranio-Maxillofacial Surgery

Volume 42, Issue 8, December 2014, Pages 1877-1884



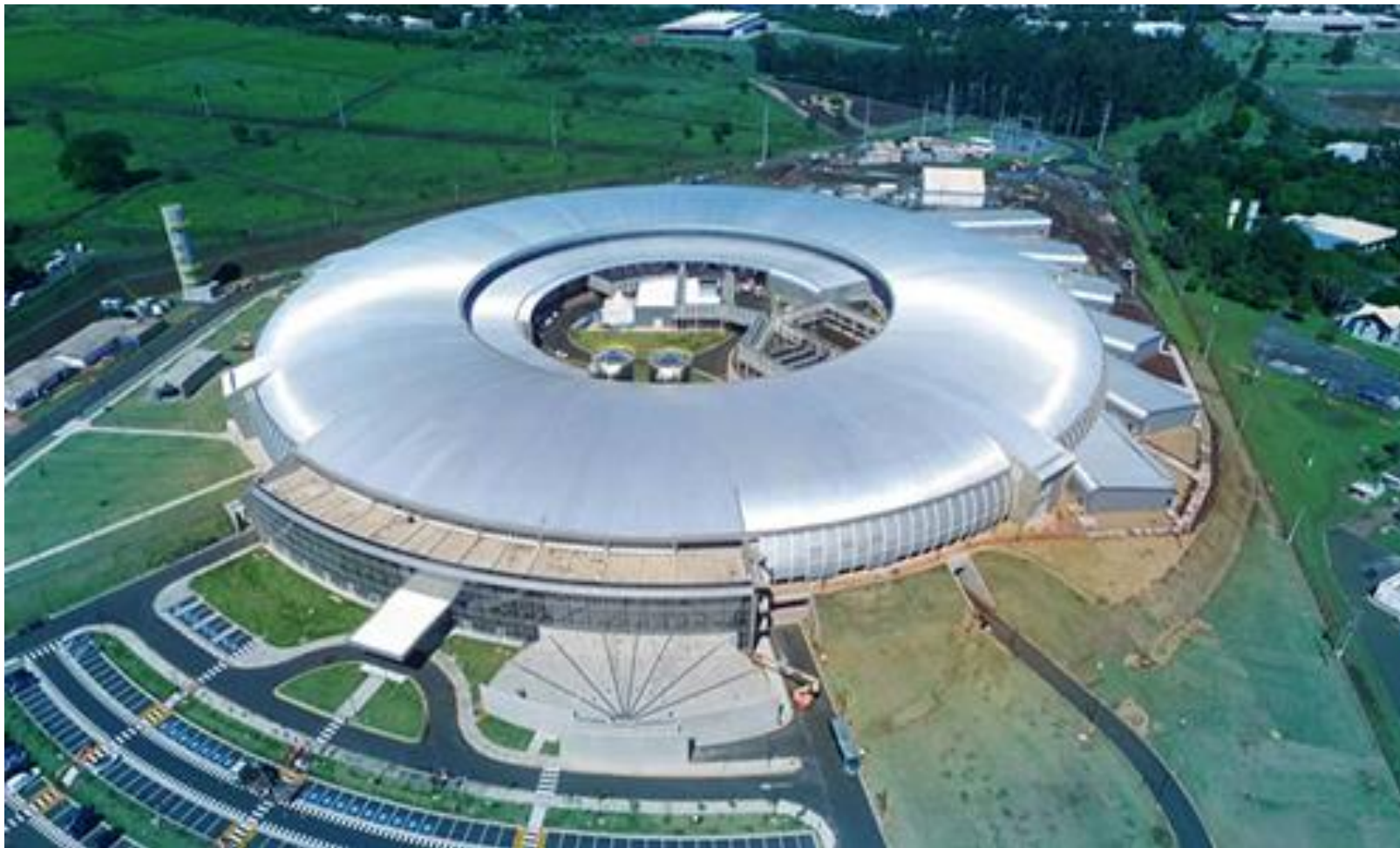
Cranial reconstruction: 3D biomodel and custom-built implant created using additive manufacturing

André Luiz Jardini ^{a, b}, Maria Aparecida Larosa ^{a, b} ✉, Rubens Maciel Filho ^{a, b}, Cecília Amélia de Carvalho Zavaglia ^{a, c}, Luis Fernando Bernardes ^{a, b}, Carlos Salles Lambert ^{a, d}, Davi Reis Calderoni ^{a, e}, Paulo Kharmandayan ^{a, e}



Projeção da prótese a partir do modelo 3D (imagem: INCT-Biofabris)

SIRIUS, Brazilian Synchrotron Light Source: LINAC and Booster inaugurated on Nov , 2018



Research about the Amazon

HOME ABOUT PROGRAM REGISTRATION DIRECTIONS PUBLICATIONS



<http://fapesp.br/amazonsymposium/category/public>

PUBLICATIONS



Science of the Amazon

The São Paulo Research Foundation (FAPESP) has been providing continuous support to research projects that stu
[...]

FAPESP-U.S. COLLABORATIVE RESEARCH ON THE AMAZON

There will be a live webcast of the symposium on October 28

at: www.wilsoncenter.org/event/fapesp-us-collaborative-research-the-amazon

The São Paulo Research Foundation (FAPESP) and the United States Department of Energy Office of Science, in partnership with the Wilson Center's Brazil Institute, cordially invite you to an all-day symposium on collaborative research projects led by scientists in the state of São Paulo, Brazil and in the U.S. targeting the discovery of new science about the Amazon.

The presentations will include the projects that are part of the Green Ocean Amazon (GOAmazon) research initiative, as well as other FAPESP partnerships.

Venue: Wilson Center – Washington – DC
One Woodrow Wilson Plaza
1300 Pennsylvania Ave. NW
Date: October 28th – 8:30AM

U.S. Secretary of Energy, [Ernest Moniz](#), will keynote the event.

GO Amazon is financed by the U.S. DOE, FAPESP and the Amazon Research Foundation (FAPEAM), among other partners.

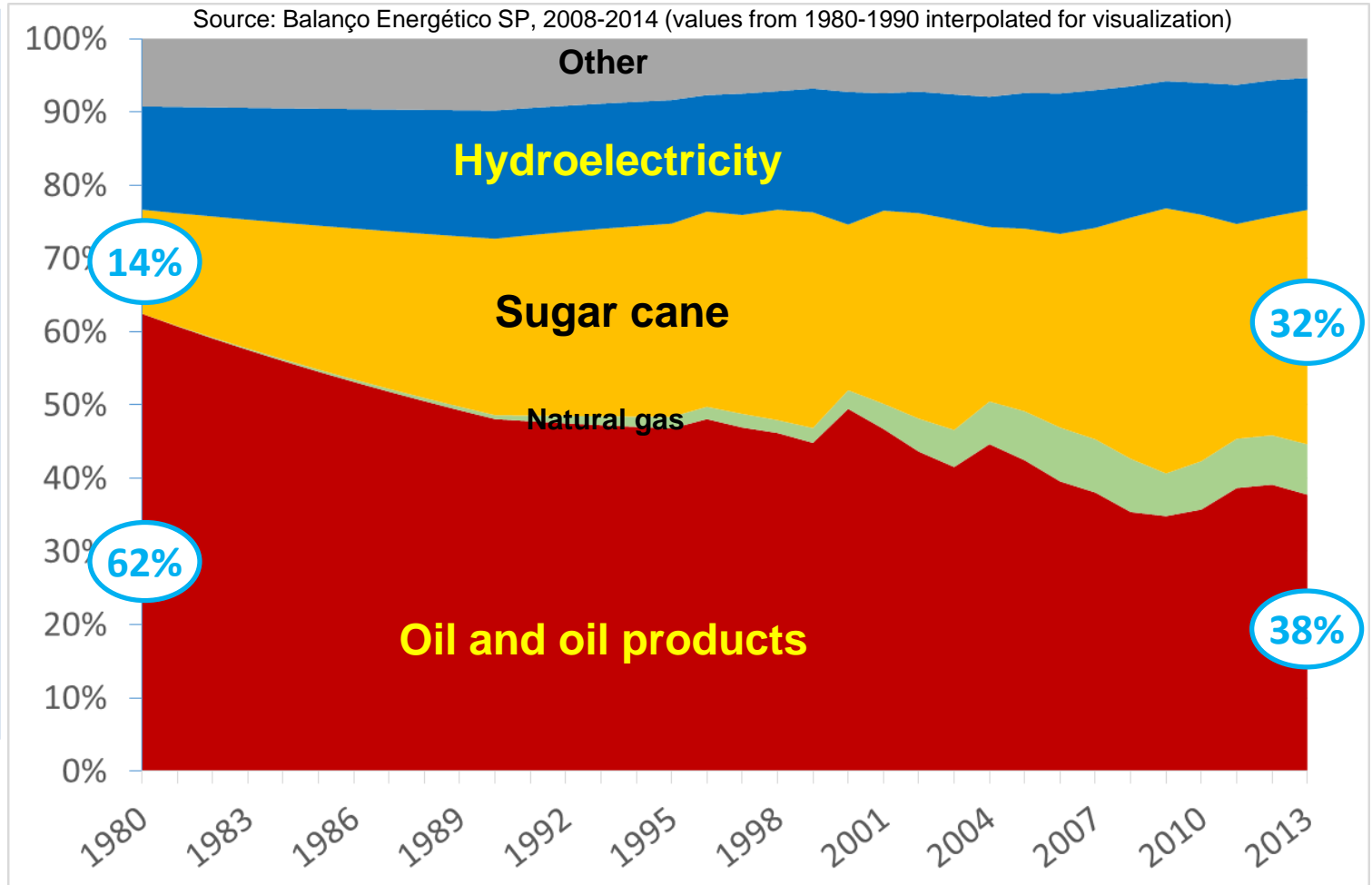
1980-2013: change in energy sources in the State of São Paulo, Brazil

State of São Paulo

- 42 million people
- 32% of Brazil's GDP
- 55% of Brazil's ethanol prod.

1980 – 2013

- Oil down from 62% to 38%
- Cane up from 14% to 32%
- Renewable at 50%



BIOEN – FAPESP’s Bioenergy research

BIOEN has an impact in the International debate about bioenergy

Plant Biotechnology
Journal



Plant Biotechnology Journal (2010) 8, pp. 263–276

doi: 10.1111/j.1467-7652.2009.00491.x

Review article

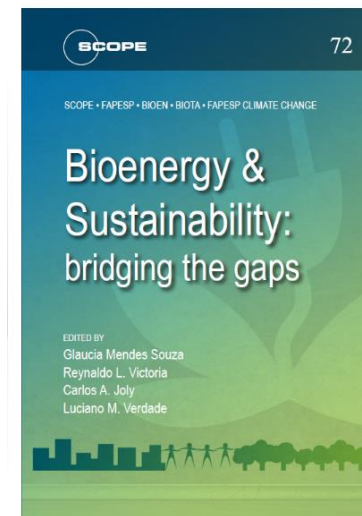
Sugarcane for bioenergy production: an assessment of yield and regulation of sucrose content

Alessandro J. Waclawovsky^{1,†,‡}, Paloma M. Sato^{1,‡}, Carolina G. Lembke¹, Paul H. Moore² and Glauca M. Souza^{1,*}

¹Departamento de Bioquímica, Instituto de Química, Av. Prof. Lineu Prestes, São Paulo, Brazil

²Hawaii Agriculture Research Center, Kuniā, HI, USA

Bioenergy & Sustainability: bridging the gaps



SCOPE Bioenergy & Sustainability is a collective effort with contributions from 137 researchers of 82 institutions in 24 countries.

The volume is the outcome of an assessment that included a meeting held at UNESCO, Paris, in December 2013. Fifty experts discussed bioenergy sustainability across its whole lifeline and crosscutting aspects including energy security, food security, environmental and climate security, sustainable development and innovation.

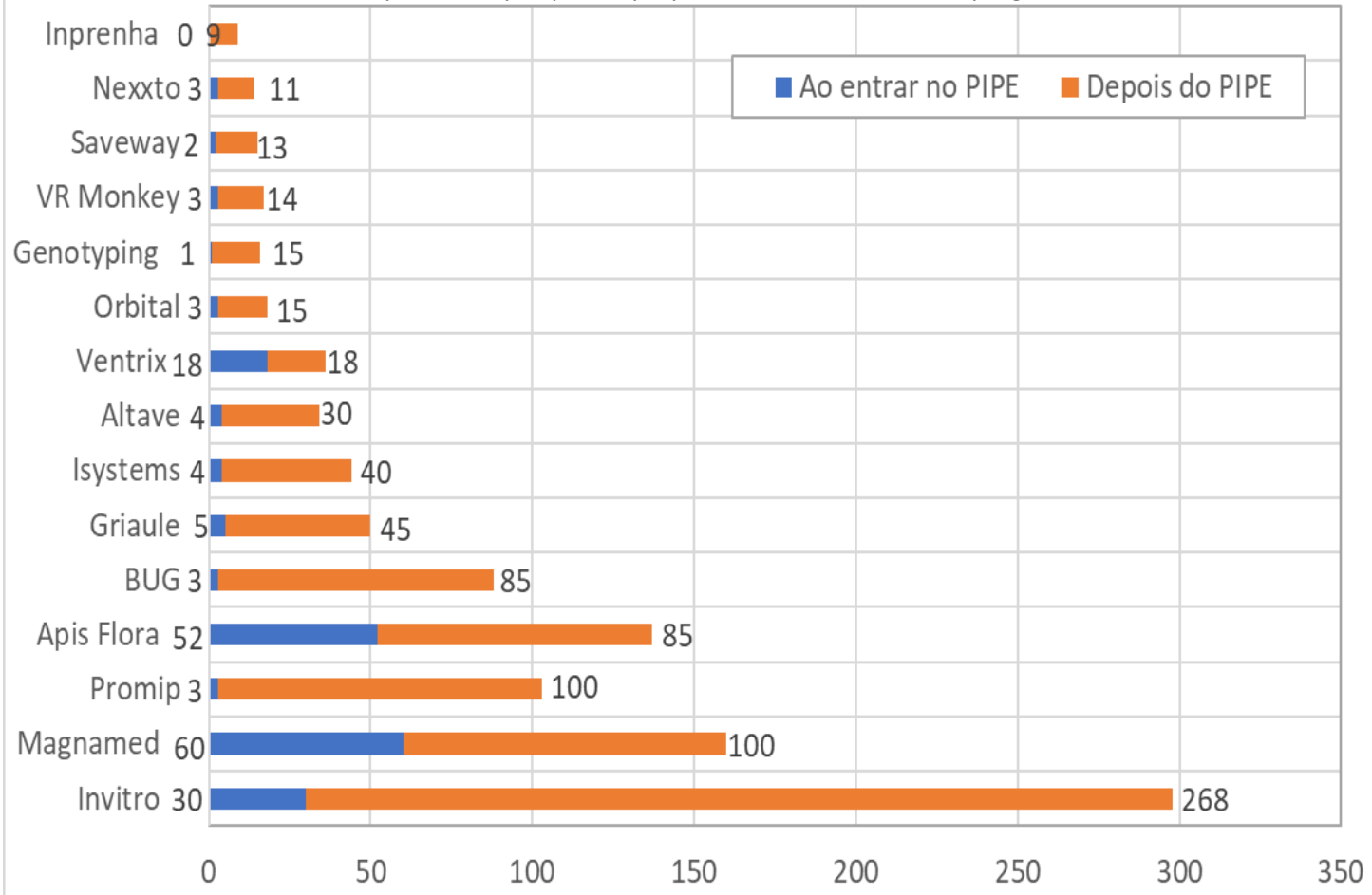
University of Campinas: 485 start-ups; 29 thousand jobs w. R\$ 3 billions in revenues (2016)



2012-2016:
34 start-ups/year

FAPESP's Small Business Innovative Research Program: increase in highly qualified jobs

<http://revistapesquisa.fapesp.br/2017/12/28/o-maior-programa-de-estimulo-a-inovacao/>



Remarkable impact in the number of jobs:

- + 40% in jobs total
- + 30% in direct contracts
 - + 60% in personnel with higher education
 - $\geq 90\%$ for personnel with graduate level

Griaule: internationally competitive biometry technology

≡ EXAME

PME

Empresa de Campinas ganha licitação de US\$ 75 milhões do Pentágono

A brasileira Griaule vai fornecer o sistema de certificação dos dados biométricos de 55 milhões de cidadãos no Iraque e 30 milhões no Afeganistão.

Por **Mariana Desidério**

🕒 8 nov 2018, 14h42 - Publicado em 7 nov 2018, 08h04



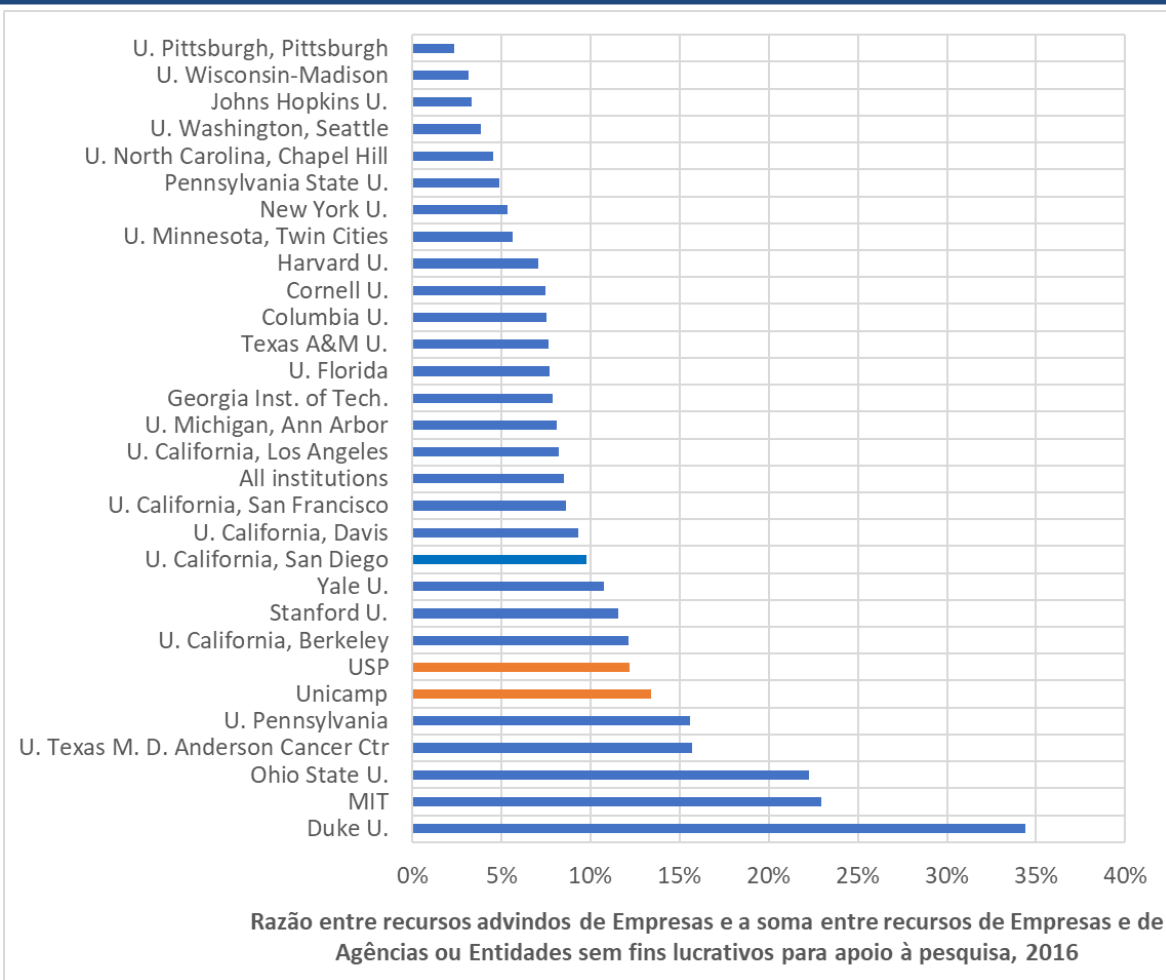
Centers Programs at FAPESP: Advancement of Knowledge and Industry Collaboration

- A long-term plan for Advanced Research
- Center is hosted in a university/institute,
- Center Director is a professor/researcher
 - Adjunct Director is a researcher from the company as a visiting professor at the university
 - Other company researchers participate as visiting professors
- 10-years contract
- Cost sharing: FAPESP: Industry: University ~ 1:1:2
 - US\$ 0.5 – 4 million per year from FAPESP and Company, plus labor and infrastructure costs by university

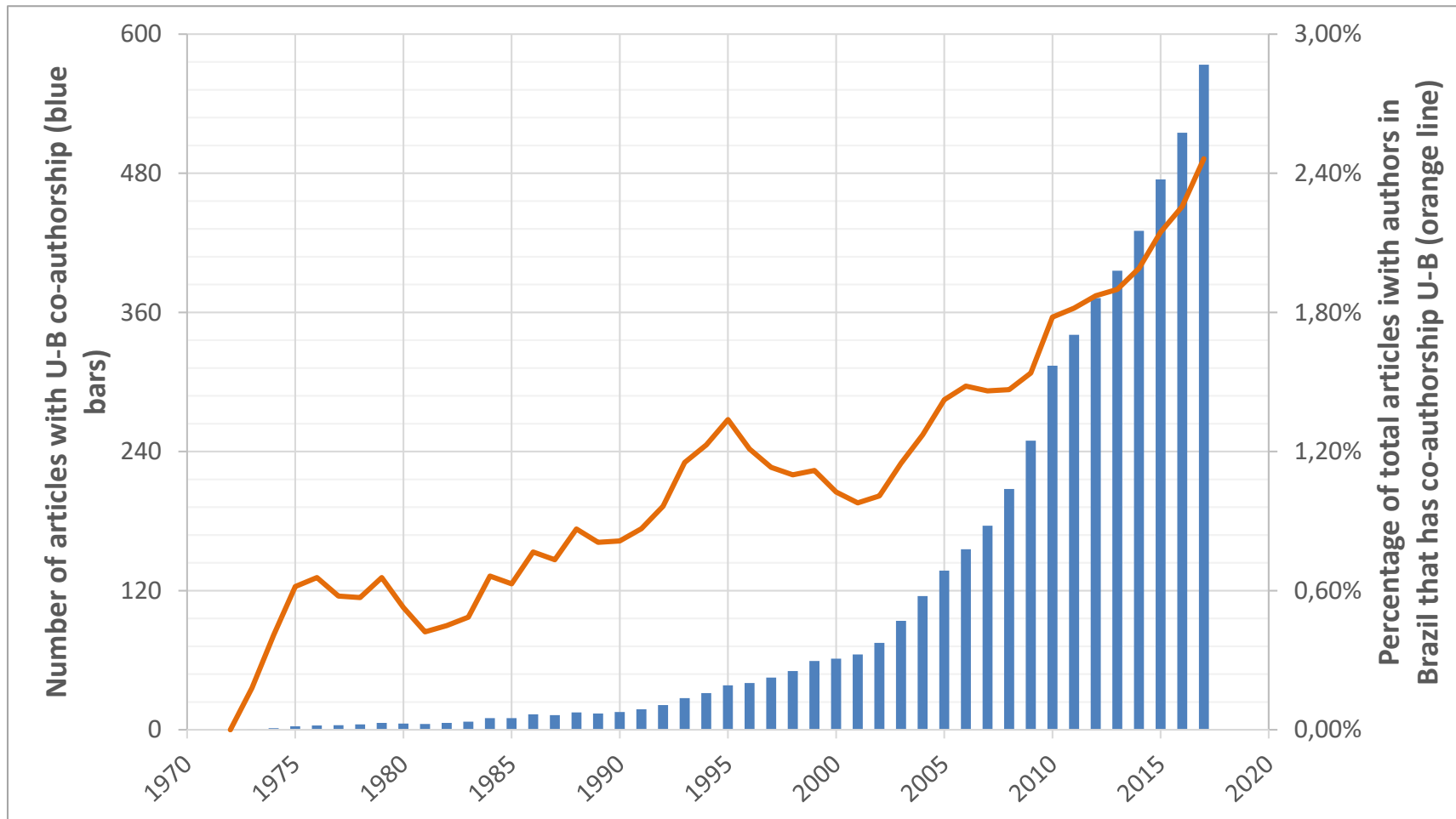
Engineering Research Centers: R\$ 1,01 bilhões in contracts; FAPESP+Business+Univ./Inst.

Centro	Empresa/ Univ /Inst. Pq.	FAPESP (est 10 anos)	Empresa (est 10 anos)	Instituição (est 10 anos)
Biofuel automobile engines	Peugeot-Citroen Unicamp e outras	R\$ 11 M	R\$ 8 M	R\$ 15 M
Green Chemistry	GSK Ufscar e outras	R\$ 12 M	R\$ 57M	R\$ 42M
Target discovery	GSK Inst. Butantan	R\$ 26 M	R\$ 23M	R\$ 67M
Natural Gas	Shell/BG Poli, USP e outras	R\$ 46 M	R\$ 58M	R\$ 42M
Human well-being	Natura Inst. Psicologia, USP+	R\$ 9 M	R\$ 10M	R\$ 22M
Agriculture, Climate Change, and Gene Editing	EMBRAPA Unicamp	R\$ 25 M	R\$ 33M	R\$ 45M
New Energy (1 hub, 4 spokes)	Shell/BG Unicamp, IPEN, USP-SC	R\$ 42 M	R\$ 65 M	R\$ 158 M
Oil and Gas Reservoirs	Equinor (Statoil) Unicamp	R\$ 34 M	R\$ 26 M	R\$ 125 M

Business funding for university research

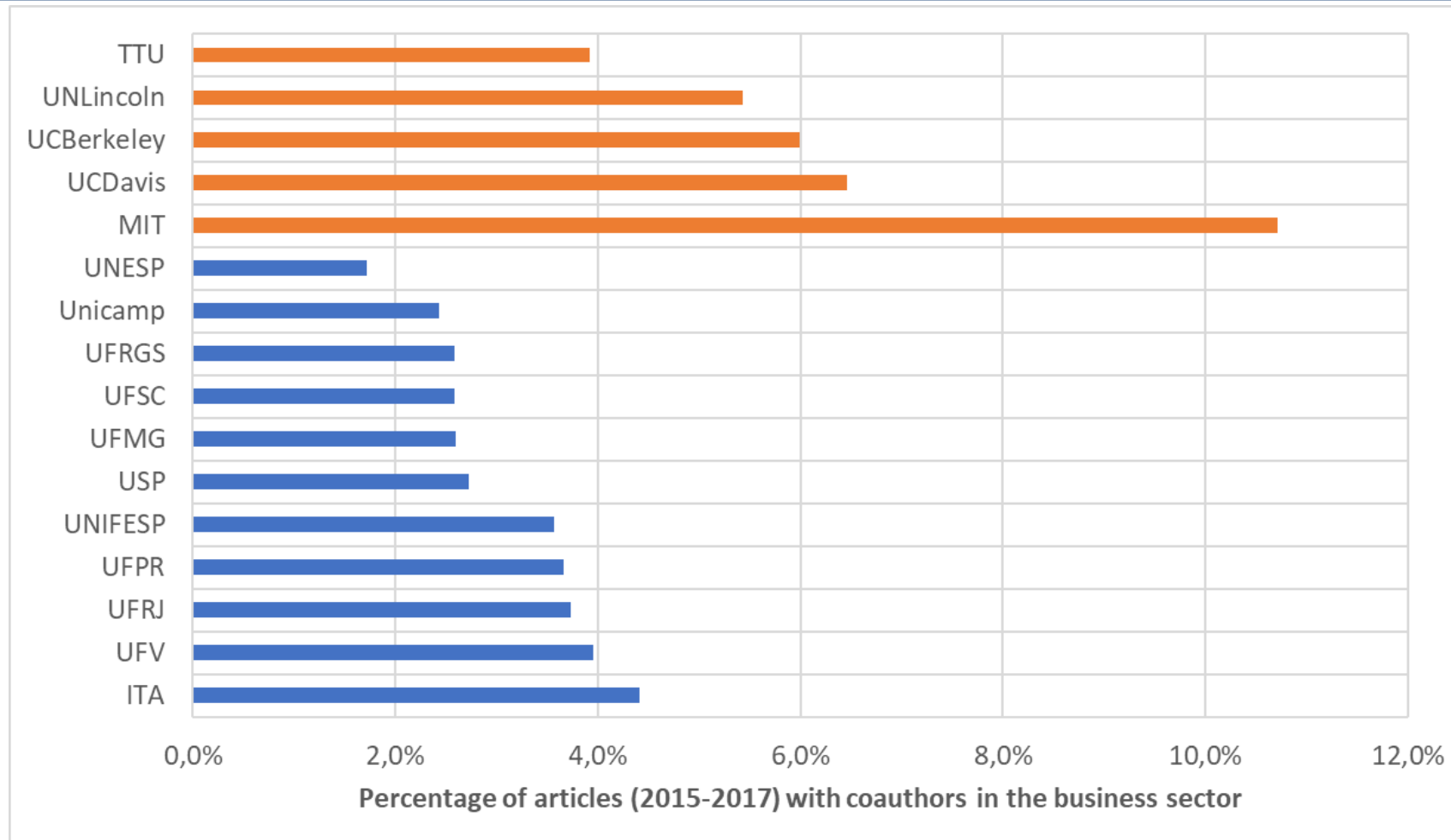


Collaboration: University-Business research collaboration in the state of São Paulo, Brazil

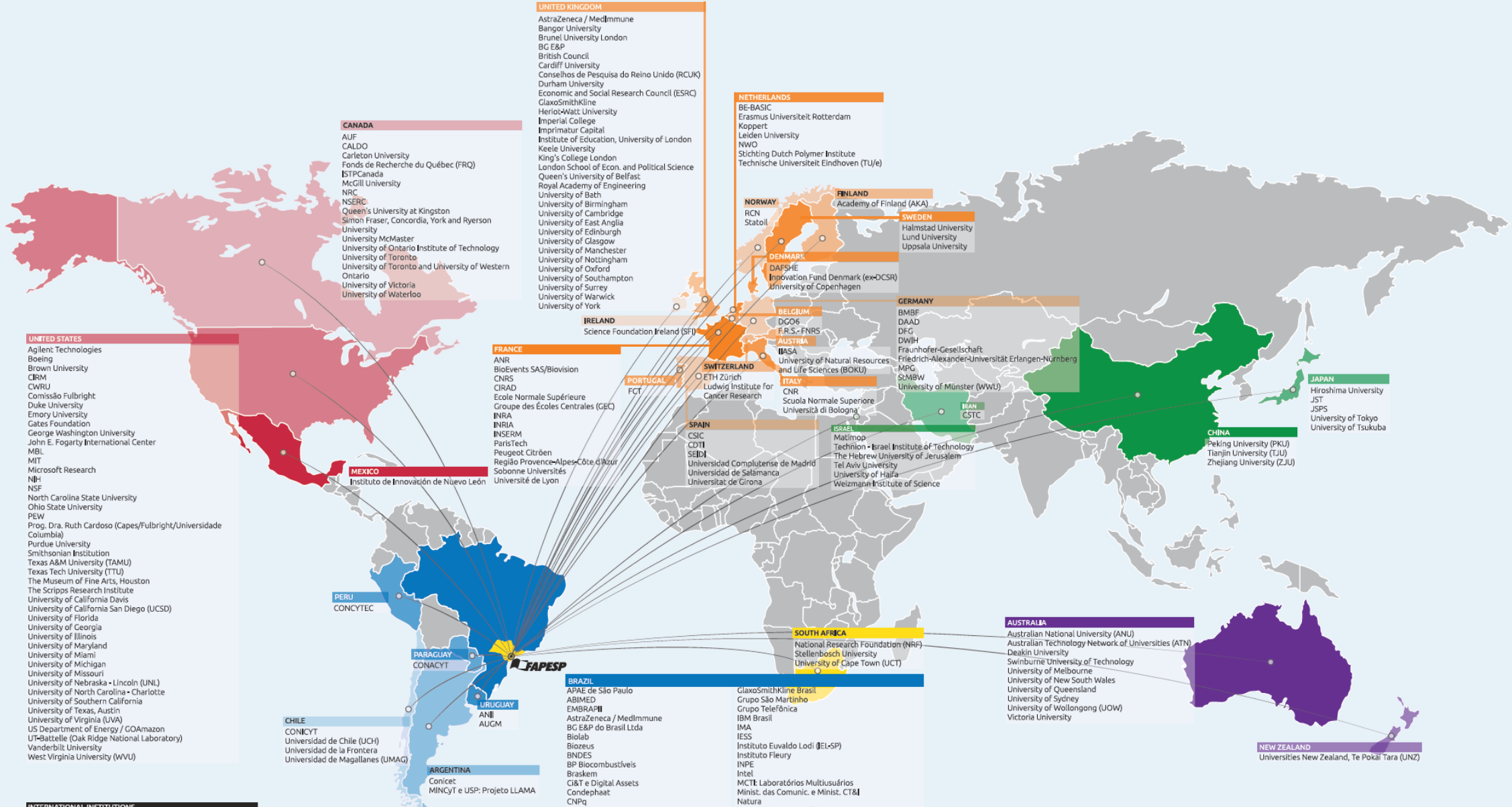


- Main partners**
- Petrobras
 - Novartis
 - Pfizer
 - Roche
 - GSK
 - IBM
 - Vale/ITV
 - Merck
 - Eletrabras
 - AstraZeneca
 - Fibria
 - Westat
 - Janssen
 - Embraer
 - Bayer
 - Monsanto
 - Agilent
 - Braskem
 - Boehringer Ingelheim
 - Sanofi

University-Business co-authorship in scientific articles



INTERNATIONAL RESEARCH COLLABORATION



- CANADA**
- AUF
 - CALDO
 - Carleton University
 - Fonds de Recherche du Québec (FRQ)
 - ISTPCanada
 - McGill University
 - NRC
 - NSERC
 - Queen's University at Kingston
 - Simon Fraser, Concordia, York and Ryerson University
 - University McMaster
 - University of Ontario Institute of Technology
 - University of Toronto
 - University of Toronto and University of Western Ontario
 - University of Victoria
 - University of Waterloo

- UNITED KINGDOM**
- AstraZeneca / MedImmune
 - Bangor University
 - Brunel University London
 - BG E&P
 - British Council
 - Cardiff University
 - Conselhos de Pesquisa do Reino Unido (RCUK)
 - Durham University
 - Economic and Social Research Council (ESRC)
 - GlaxoSmithKline
 - Heriot-Watt University
 - Imperial College
 - Imprimatur Capital
 - Institute of Education, University of London
 - Keele University
 - King's College London
 - London School of Econ. and Political Science
 - Queen's University of Belfast
 - Royal Academy of Engineering
 - University of Bath
 - University of Birmingham
 - University of Cambridge
 - University of East Anglia
 - University of Edinburgh
 - University of Glasgow
 - University of Manchester
 - University of Nottingham
 - University of Oxford
 - University of Southampton
 - University of Surrey
 - University of Warwick
 - University of York

- NETHERLANDS**
- BE-BASIC
 - Erasmus Universiteit Rotterdam
 - Koppert
 - Leiden University
 - NWO
 - Stichting Dutch Polymer Institute
 - Technische Universiteit Eindhoven (TU/e)

- NORWAY**
- RCN
 - Statoil

- FINLAND**
- Academy of Finland (AKA)

- SWEDEN**
- Halmstad University
 - Lund University
 - Uppsala University

- DENMARK**
- DAFSHE
 - Innovation Fund Denmark (ex-DCSR)
 - University of Copenhagen

- FRANCE**
- ANR
 - BioEvents SAS/Biovision
 - CNRS
 - CIRAD
 - Ecole Normale Supérieure
 - Groupe des Ecoles Centrales (GEC)
 - INRA
 - INRIA
 - INSERM
 - ParisTech
 - Peugeot Citroën
 - Région Provence-Alpes-Côte d'Azur
 - Sobonne Universités
 - Université de Lyon

- IRELAND**
- Science Foundation Ireland (SFI)

- PORTUGAL**
- FCT

- SWITZERLAND**
- ETH Zürich
 - Ludwig Institute for Cancer Research

- BELGIUM**
- DGO6
 - F.R.S.-FNRS

- AUSTRIA**
- University of Natural Resources and Life Sciences (BOKU)

- ITALY**
- CNR
 - Scuola Normale Superiore
 - Università di Bologna

- SPAIN**
- CSIC
 - CDTI
 - SEDI
 - Universidad Complutense de Madrid
 - Universidad de Salamanca
 - Universitat de Girona

- GERMANY**
- BMBF
 - DAAD
 - DFG
 - DWIF
 - Fraunhofer-Gesellschaft
 - Friedrich-Alexander-Universität Erlangen-Nürnberg
 - MPG
 - StMBW
 - University of Münster (WWU)

- ISRAEL**
- Malimop
 - Technion - Israel Institute of Technology
 - The Hebrew University of Jerusalem
 - Tel Aviv University
 - University of Haifa
 - Weizmann Institute of Science

- INDIA**
- CSTC

- JAPAN**
- Hiroshima University
 - JST
 - JSPS
 - University of Tokyo
 - University of Tsukuba

- CHINA**
- Peking University (PKU)
 - Tianjin University (TJU)
 - Zhejiang University (ZJU)

- MEXICO**
- Instituto de Innovación de Nuevo León

- PERU**
- CONCYTEC

- PARAGUAY**
- CONACYT

- URUGUAY**
- ANII
 - AUCM

- CHILE**
- CONICYT
 - Universidad de Chile (UCH)
 - Universidad de la Frontera
 - Universidad de Magallanes (UMAG)

- ARGENTINA**
- Conicet
 - MINCYT e USP: Projeto LLAMA

- BRAZIL**
- APAE de São Paulo
 - ABIMED
 - EMBRAPPI
 - AstraZeneca / MedImmune
 - BG E&P do Brasil Ltda
 - Biobab
 - Biozeus
 - BNDES
 - BP Biocombustíveis
 - Braskem
 - Cl&T e Digital Assets
 - Condephaat
 - CNPq
 - CAPES
 - COPAG
 - DeInI Indústrias de Base
 - Embraer
 - Finep
 - Facepe
 - Fapemig
 - Fapeam
 - Fapej
 - Fapema
 - Fund. Grupo Boticário de Proteção à Natureza
 - Fund. Maria Cecília Souto Vidigal
 - Fundação Padre Anchieta
 - Fundação Seade

- GlaxoSmithKline Brasil
- Grupo São Martinho
- Grupo Telefônica
- IBM Brasil
- IMA
- IESS
- Instituto Eivaldo Lodi (IEL-SP)
- Instituto Fleury
- INPE
- Intel
- MCTI, Laboratórios Multiusuários
- Minist. das Comunic. e Minist. CT&I
- Natura
- Nossa Caixa Desenvolvimento
- Odebrecht Agroindustrial (ex-ETH Bioenergia)
- Ouro Fino Saúde Animal
- Oxileno
- Padtec
- Peugeot Citroën
- Sabesp
- SECOV-SP
- Statoil
- Secretaria de Estado de Energia - Rede ER
- Vale (com Fapemig e Fapespa)
- Vitae: Apoio à Cultura, Educação e Promoção Social
- Whirlpool

- SOUTH AFRICA**
- National Research Foundation (NRF)
 - Stellenbosch University
 - University of Cape Town (UCT)

- AUSTRALIA**
- Australian National University (ANU)
 - Australian Technology Network of Universities (ATN)
 - Deakin University
 - Swinburne University of Technology
 - University of Melbourne
 - University of New South Wales
 - University of Queensland
 - University of Sydney
 - University of Wollongong (UOW)
 - Victoria University

- NEW ZEALAND**
- Universities New Zealand, Te Pokai Tara (UNZ)

- INTERNATIONAL INSTITUTIONS**
- Belmont Forum
 - European Research Area (ERA)
 - EU-CELAC IC (ex-ERA.Net - LAC)
 - M-ERA.NET
 - EU-LIFE
 - G3
 - Global Alliance for Chronic Diseases (GACD)
 - GloPID-R
 - IAI, Inter-American Institute for Global Change Research
 - IANAS, The Inter American Network of Academies of Science
 - IUPAC, International Union of Pure and Applied Chemistry
 - Trans-Atlantic Platform for the Social Sciences and Humanities
 - European Union (Horizon 2020)

FAPESP: International research collaboration

- Vision
 - Make the State of São Paulo an internationally recognized research hub
- Collaboration entails sending and receiving scientists
 - There is internationally competitive research in São Paulo that attracts qualified foreign researchers
- Collaboration is much more than researcher mobility
 - FAPESP targets full research projects, with multi-year duration, conceived, written, presented and developed together
 - Complex objectives, international competitiveness

FAPESP: International Research Collaboration

- Joint funding agreements
 - Research Funding Agencies/Associations
 - Full projects, up to 10 years duration
 - Universities
 - Mobility of PIs (always) and students (sometimes) aiming at preparing joint proposals
- Unilateral FAPESP initiatives
 - All grants have funds for inviting foreign researchers
 - Visiting Researcher Grant
 - Scholarships Abroad for São Paulo based researchers, BPE
 - Scholarship for International Research Visits, BEPE (up to one year)
 - São Paulo Schools of Advanced Science (SPSAS)
 - FAPESP Week
 - São Paulo Excellence Chair, SPEC
 - Astronomy, LHC, Neutrinos, Bioenergy, Climate Change

FAPESP International Research Collaboration: bringing foreign scientists to SP

- Post doctoral fellowships (671 new awards in 2015)
 - Stipend, travel, some research money
- Young Investigator Awards (60 new awards in 2015)
 - Stipend, travel, full research support in a 4-year grant
- Visiting scientists
 - 275 in 2010 (travel, stipend; 2 weeks to 12 months)
- São Paulo Schools of Advanced Science (SPSAS)
 - Each one brings 50-100 young Dr students from abroad
- São Paulo Excellence Chairs (SPEC)
 - For senior level scientists from abroad: full research grant for staying 12 weeks per year in SP for 3-5 years

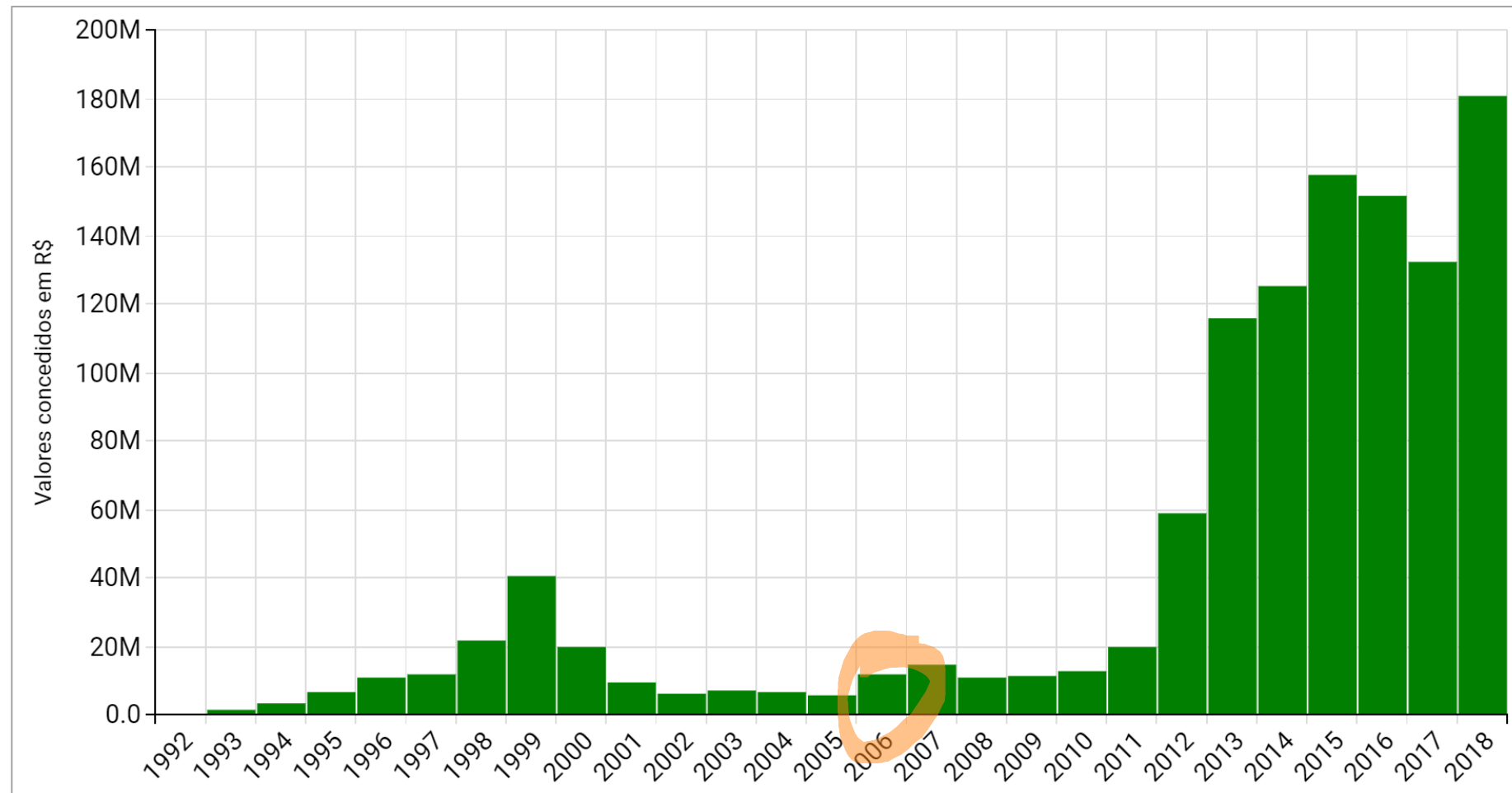
Opportunities for foreign scientists in SP: Young Investigator Awards

- Targets researchers with 2-5 years post-doctoral experience outside Brazil
 - Open to Brazilians and non-Brazilians
- 4-years grant, extendable for 1-year
 - Typical value ranges from US\$ 200 th to US\$ 2 million
 - Fellowship for PI (including travel and installation)
 - Equipments
 - Consumables
 - Travel
 - Fellowships for students
- 6,647 proposals, 1,542 awards since 1997
 - 507p/52a in 2017 (1 award every week)
- Info at <http://www.fapesp.br/en/4479>
- **Starting 2018: Young Investigator Award II → 5 years more for outstanding YI in YIA I**

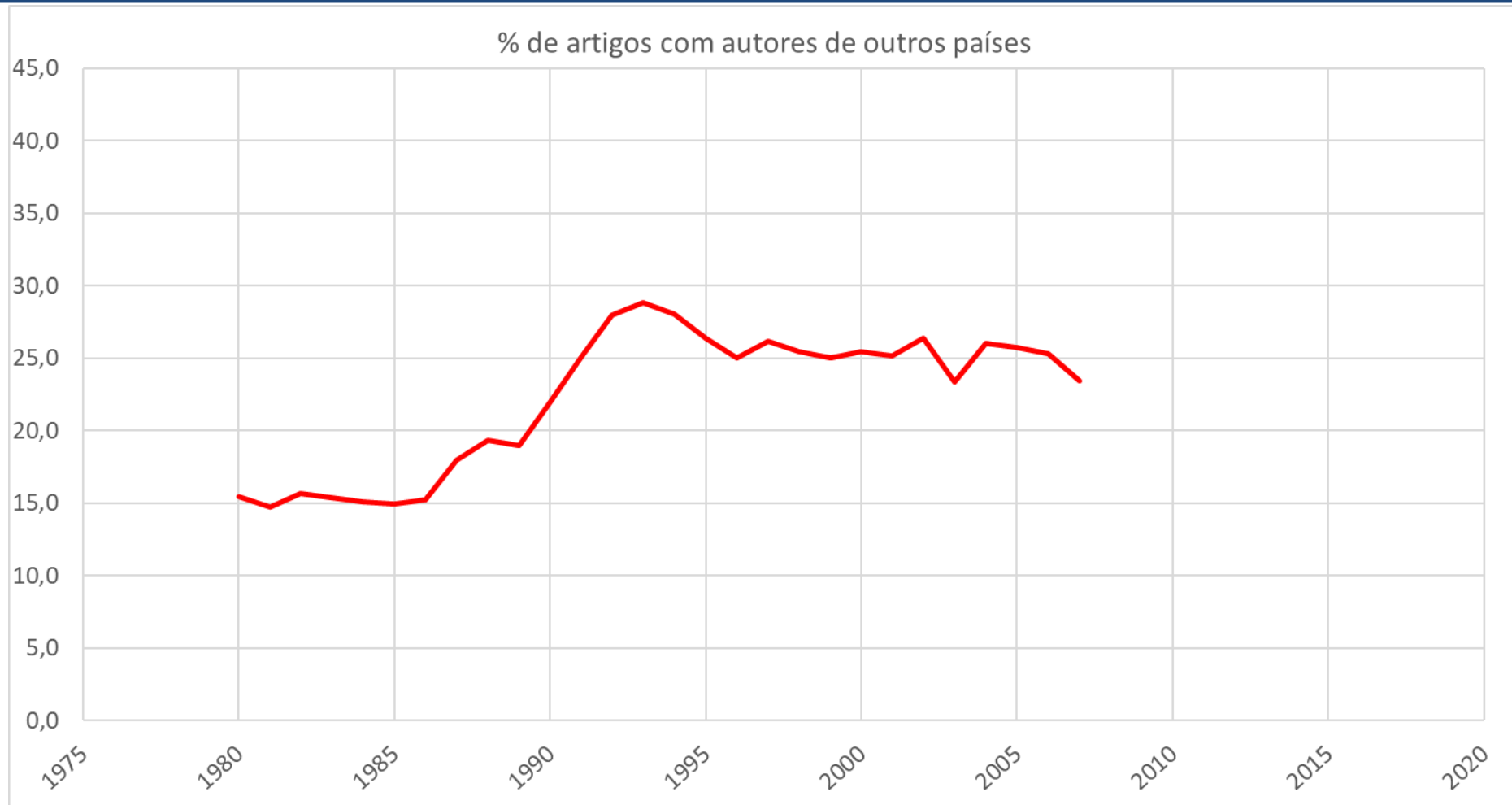
FAPESP: value awarded to grants with (true) international research collaboration

- Agreements with Funding Agencies and Universities
- Projects are conceived jointly
- Peer review selection
- Proposals compete with all other proposals on the table (no set-asides)

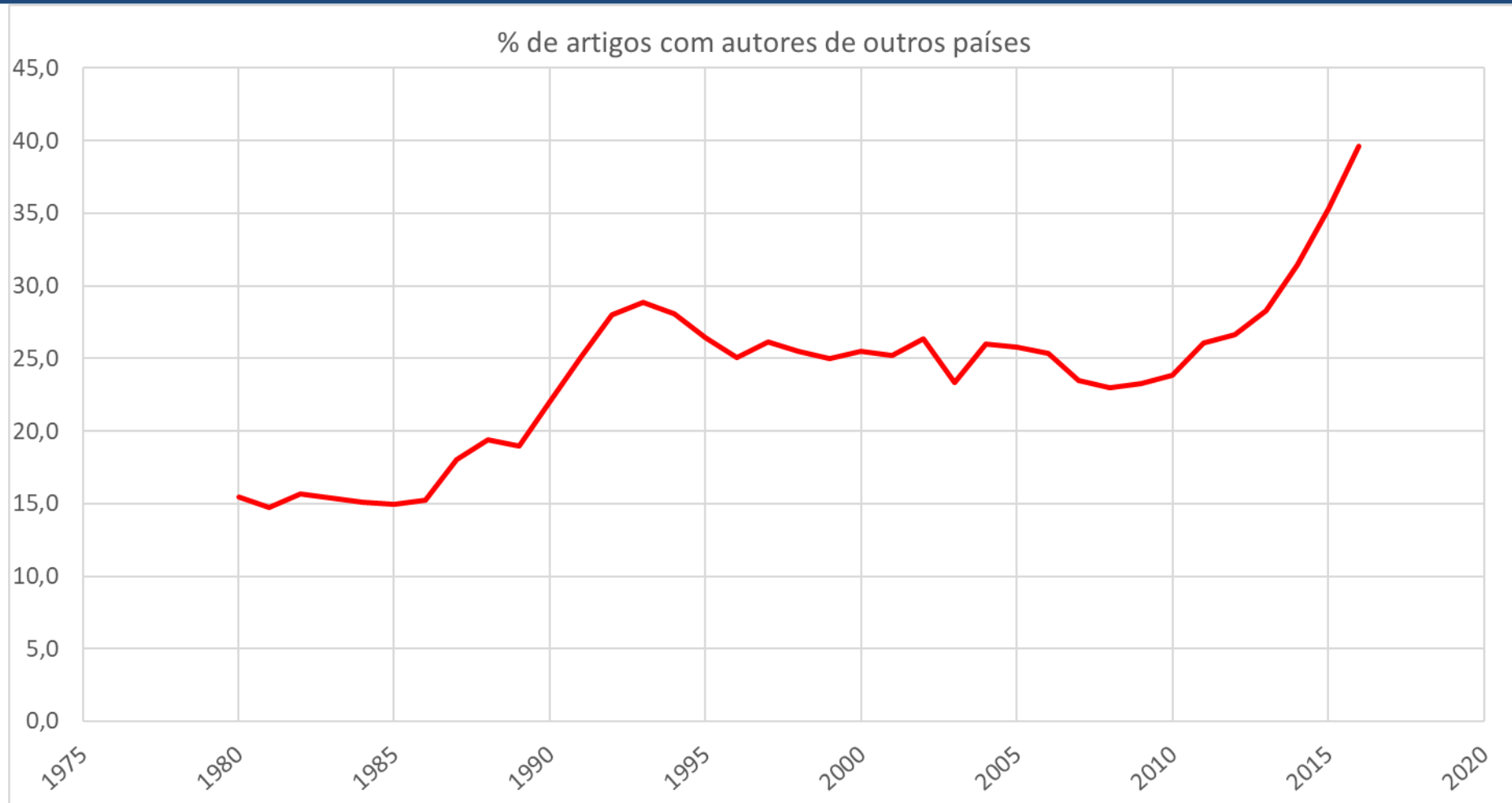
- Plus unilateral FAPESP schemes: visitors, students abroad; Young Investigators



São Paulo: % articles with international co-authors



São Paulo: % articles with international co-authors



FAPESP Week: display S&T in São Paulo and collaborations

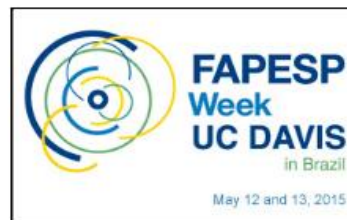
2016 Symposiums



2013 Symposiums



2015 Symposiums



2012 Symposiums



2014 Symposiums



2011 Symposium



R&D in the State of São Paulo, Brazil

Conclusion

- 70,000 researchers
- Strong efforts in Academia and in Business
- A strong base in basic science and graduate schools
- Growing portfolio of applied research
- Collaboration:
 - Geographic dimension: International and regional agreements
 - Institutional dimension: university-business joint research

To know about research in São Paulo: FAPESP Newsletter – in English

<http://agencia.fapesp.br/en/>

The screenshot displays the homepage of the Agência FAPESP website in English. The header includes the logo 'Agência FAPESP' and navigation links for 'NEWS', 'VIDEOS', and 'SUBSCRIBE'. A central feature titled 'Milky Way expanded from inside out' features a dark, star-filled image of the galaxy with text stating: 'Study by team including Brazilian scientists published in *The Astrophysical Journal Letters* shows that formation of the galaxy's stars began in the center and then spread outwards.' To the left, there is a 'FAPESP Week 2016' announcement and a call to action: 'For the latest news in Brazilian scientific research, Subscribe to Agência FAPESP'. Below the main feature, there are several news snippets: 'Interview with Andre Geim | Nobel Prize in Physics 2010', 'Respirator mask reduces effects of pollution on the heart', 'Novel biomarker technique gauges field success of insect that parasitizes crop pests', 'Washington seminar scrutinizes reduction in Brazilian inequality', and 'Dengue Zika Chikungunya'. At the bottom, there are links for 'Agência FAPESP in social media' and 'Newsletter Agência FAPESP'.

Three dimensions for impact

- Social impact
 - Ideas that increase well being, assist or inform public policy, increase the benefit from public goods
- Economic impact
 - Ideas that lead to new businesses
 - Ideas that increase economic competitiveness
 - Ideas that originate new industry sectors
- Intellectual impact
 - Ideas that originate more ideas
 - Ideas that make humankind wiser
 - Ideas strongly cited in the literature

