









EMBRAPPII

Empresa Brasileira de Pesquisa
e Inovação Industrial

Brazilian Agency for Research and Industrial Innovation

Industrial Innovation in Brazil: The Role of EMBRAPII

**Jorge A. Guimarães,
President**

EMBRAPII - Creating the Conditions for



Jorge Guimarães
President

Is Brazil Ready for Innovation ?



k20677243 fotosearch.com

CHALLENGES FOR RESEARCH AND INNOVATION IN BRAZIL

Scientific production x technological development;

Lack of R&D centers in Brazilian industries;

Lack of private investment in R&D;

Low level of technological innovation ;

Need of a new funding model for R&D;

Reach up to 2% of the GDP in R&D



EMBRAPII' SYSTEM:

- Network of research centers/technological research laboratories: EMBRAPII Unities;
- Focus on strategic areas for innovation with clearer potential of technological, economical, and social impact;
- Each EMBRAPII unity:
 - i) is selected on public calls, based on its technical competences, infra-structure, and expertise in developing innovative projects with industry
 - ii) Signs a 6 years action plan, with well defined goals (#projects, funding, IP, ...)
 - iii) Receives EMBRAPII's funding in advance and can negotiate projects with potential industrial partners

Goals:

- ❑ To support Brazilian companies in developing high-skill, strategic products and technologies that can enhance their competitiveness in national and international markets
- ❑ To increase the participation of private investments in innovative R&D projects (current: 70% public - 30% private, goal: 60% industry)
- ❑ To mitigate the risk of investing in innovation
- ❑ To foster interaction of private companies and Institutes of Science and Technology
- ❑ **To focus on industrial needs**
- ❑ **To offer a fast and flexible model of operation**

Others:

Country	Organization	# Units
Germany	Fraunhofer	67
Danmark	GTS – Advanced Technology Group	9
USA	Innovation Institutes	7 (45 planned)
Finnland	TE Centres	15
France	Carnot Institutes	34
Sweden	RISE	16
UK	Catapult	17
Austria	COMET Centers	5 K1 and 17 K2 centers

Operation:

EMBRAPII provides **resources** so that its Unit may quickly contract projects with the industrial sector

Agility, flexibility and speed in use of resources and changes in project scope

No Bureacracy

- **The research project is defined directly between the industrial partner and the EMBRAPPII Unity**



Market readiness (Technology Readiness Level)

TRL 1

Basic principles
observed and
reported

TRL 2

Technology
concept and/or
application
formulated

TRL 3

Analytical and
experimental
critical function
and/or
characteristic
proof of concept

TRL 4

Component
and/or validation
in laboratory
environment

TRL 5

Component
and/or validation
in relevant
environment

TRL 6

System model or
prototype
demonstration in
a relevant
environment

TRL 7

System prototype
demonstration in
an operational
environment

TRL8

Actual system
completed and
qualified through
test and
demonstration:

TRL 9

Actual system
proven through
successful
operations



EMBRAPII

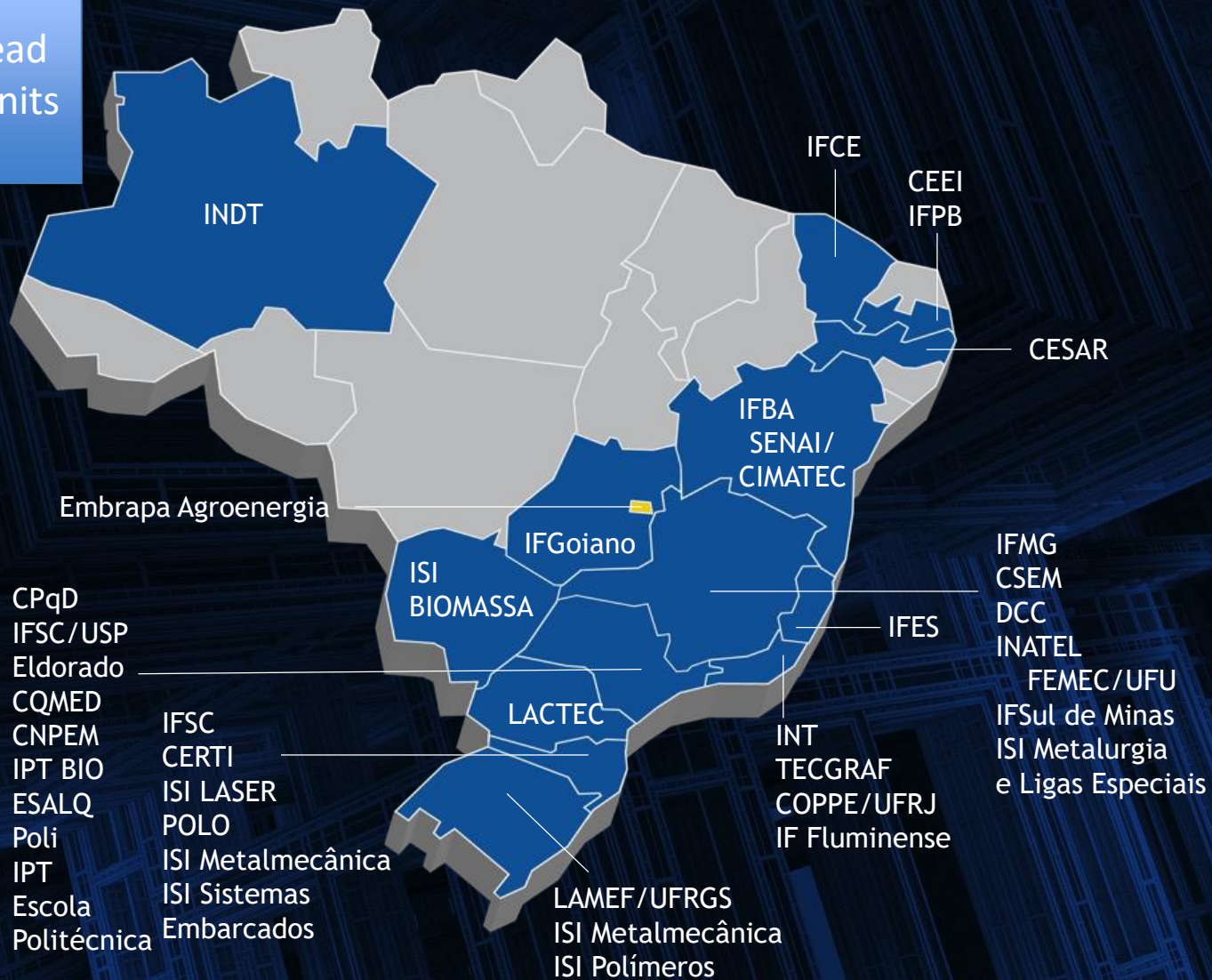
We help companies to
overcome the "Valley of Death"

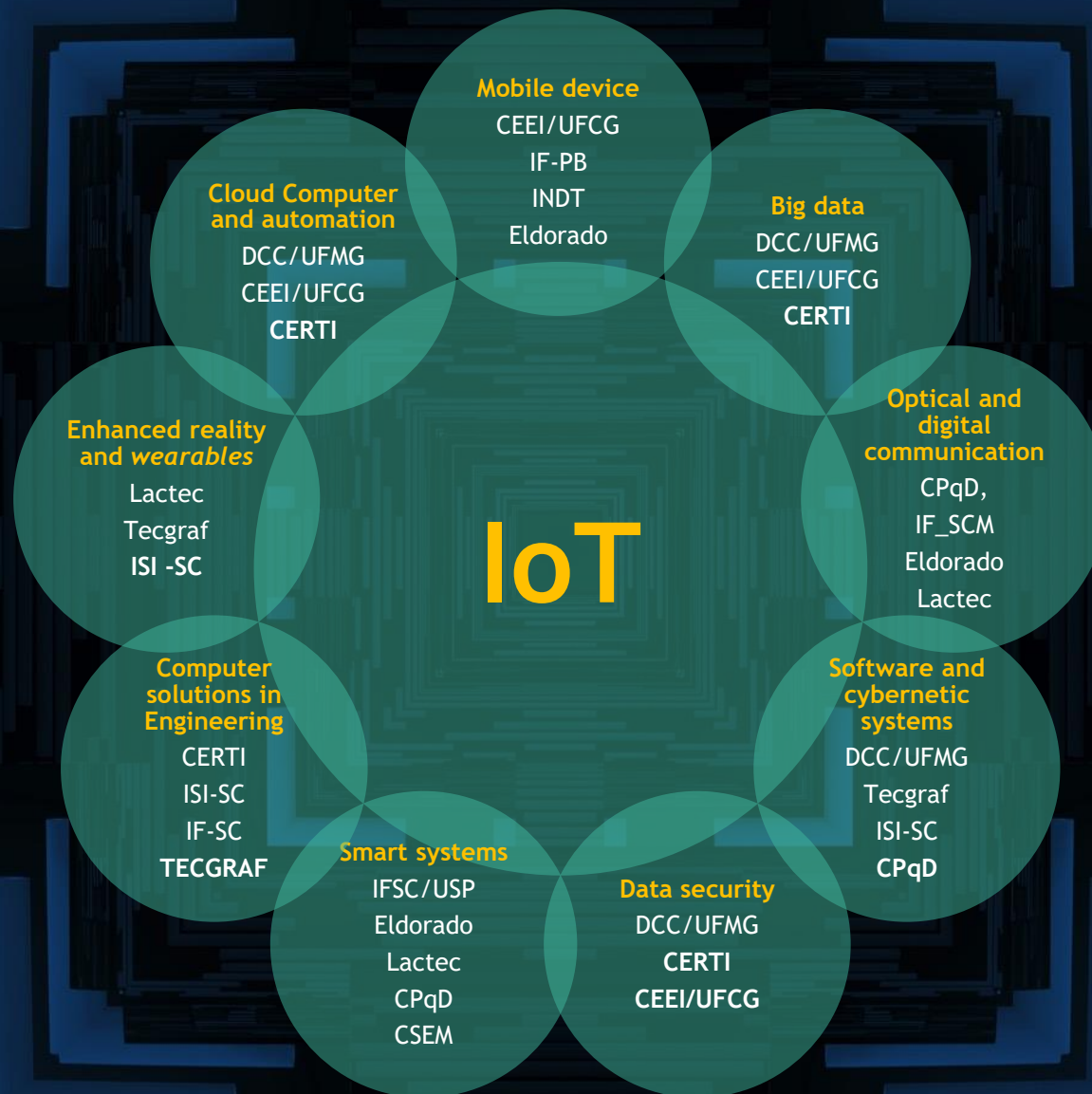
What are Embrapii's Units:

- Centers of excellence for R& and Innovation
- Technical skills and competence
- Modern facilities
- Previous experience in developing projects with industry
- Technological focus
- Competitive process of selection and accreditation

**42 Embrapii Units
with trained
professionals in
R&D projects
working in well
equiped facilities
and labs**

Regional spread of Embrapii Units





Mechanics and Manufacturing

High performance materials

CNPEM
IPT-Mat
CSEM
INT

Artificial intelligence

DCC/UFMG
CEEI/UFMG

Big data

DCC/UFMG
CEEI/UFMG

Integrated manufacturing

Senai Cimatec
Senai Joinville

Green Chemistry and Bioeconomy

TECNOGREEN-USP
IPT-Bio
EMBRAPA; ESALQ
CNPEM; ISI-Biomassa

Industrial chemical technology

INDT
Tecgraf/PUC-Rio
IF-PB
ISI - RS

Nanotechnology

PT-Mat
CNPEM

IoT

IFSC/USP
C.E.S.A.R.
CPqD
Lactec

Smart Systems

Certi
Eldorado
Inatel
ISI - SC
IF - SC

Medical, hospital and labs equipments

Integrated manufacturing

Senai Cimatec
Senai Joinville
ISI-MG

High performance materials

CNPEM
EMBRAPA
ISI- Biomassa
ISI polímeros
IPT-Mat
CSEM

Health software and automation systems

CEEI/UFMG
Cesar
DCC UFMG
INDT
IFPB
TECGRAF

Robotics

Senai Cimatec
CERTI
Eldorado

Big data analysis

DCC/UFMG
CEEI/UFMG
TECGRAF

Sensors

IFSC/USP
ISI - Embarcados
ISI - Sensoriamento
IF BA

Biotechnology

IPT-Bio
EMBRAPA
CNPEM
CQMED

IoT

Cesar
Eldorado
CPQD
INATEL

Nanotechnology

IPT-Mat
CNPEM

Huma-machine interaction

IFSC/USP
IFBA
CPQD
DCC UFMG

Wearable devices

Eldorado
CEEI/ UFG
CERTI
IFCE

Smart systems

Certi
Eldorado
Senai Cimatec
Lactec

Embrapii Units in Universities and IFES



Biophotonics and Instrumental
·IFSC/USP- São Carlos



Software for Cybernetic Systems
·DCC/UFMG



Universidade Federal de Campina Grande
Software and Automation
·CEEI/UFCC



Computing Solutions in Engineering
·TECGRAF/PUC-Rio



Green Chemistry
·TecnoGreen/ Poli-USP



Metal-Mechanics Technologies
·FEMEC/UFU



Biological Pest Control
·ESALQ/USP



Subsea Engineering



Biopharmaceuticals and Drugs
·CQMED/Unicamp



Pipeline Technology
·LAMEF/UFRGS



Metallurgy and Materials
·IFES/Vitória



Innovative Cooling Technologies
·POLO/UFSC



Intelligent Automotive
·IFMG/Formiga



Embedded Systems and Digital Mobility
·IFCE/Fortaleza



Manufacturing Systems
·IFPB



Health Technologies
·IFBA/Salvador



Technologies for the Coffee Industry
·IFSUL de Minas



Agroindustrial Technologies
·IFGOiano



Embedded Energy Systems
·IFSC

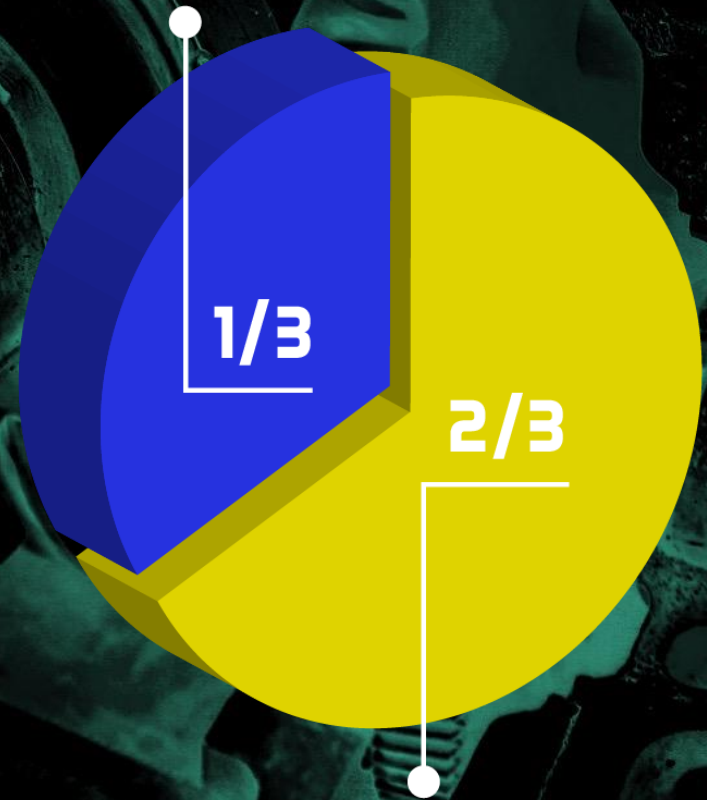


Monitoring and Instrumentation for the Environment
·IF Fluminense/Campo dos Goytacazes

Model of Financing

- Costs are shared by Embrapii, the Units and the industries
- No refunding from Embrapii's resources up to 1/3 of the cost of the project
- Industries have to fund at least 1/3 of the cost of their projects
- Embrapii's Units participate with resources or in kind

EMBRAPII
(Recursos não-reembolsáveis)



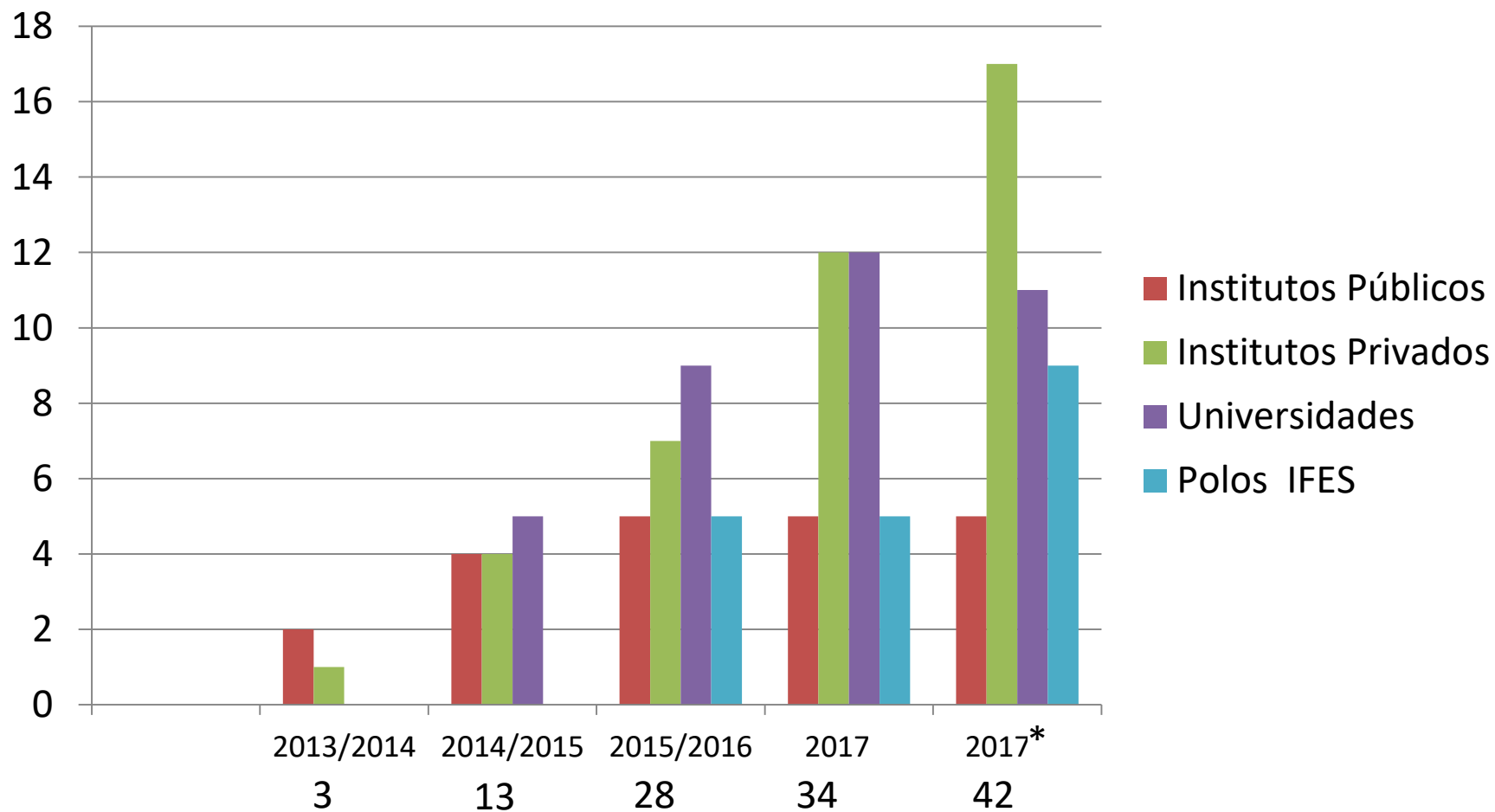
Empresas Industriais
+
Unidades EMBRAPII

Project negotiation

- No public calls
- Resources are allocated in the Units



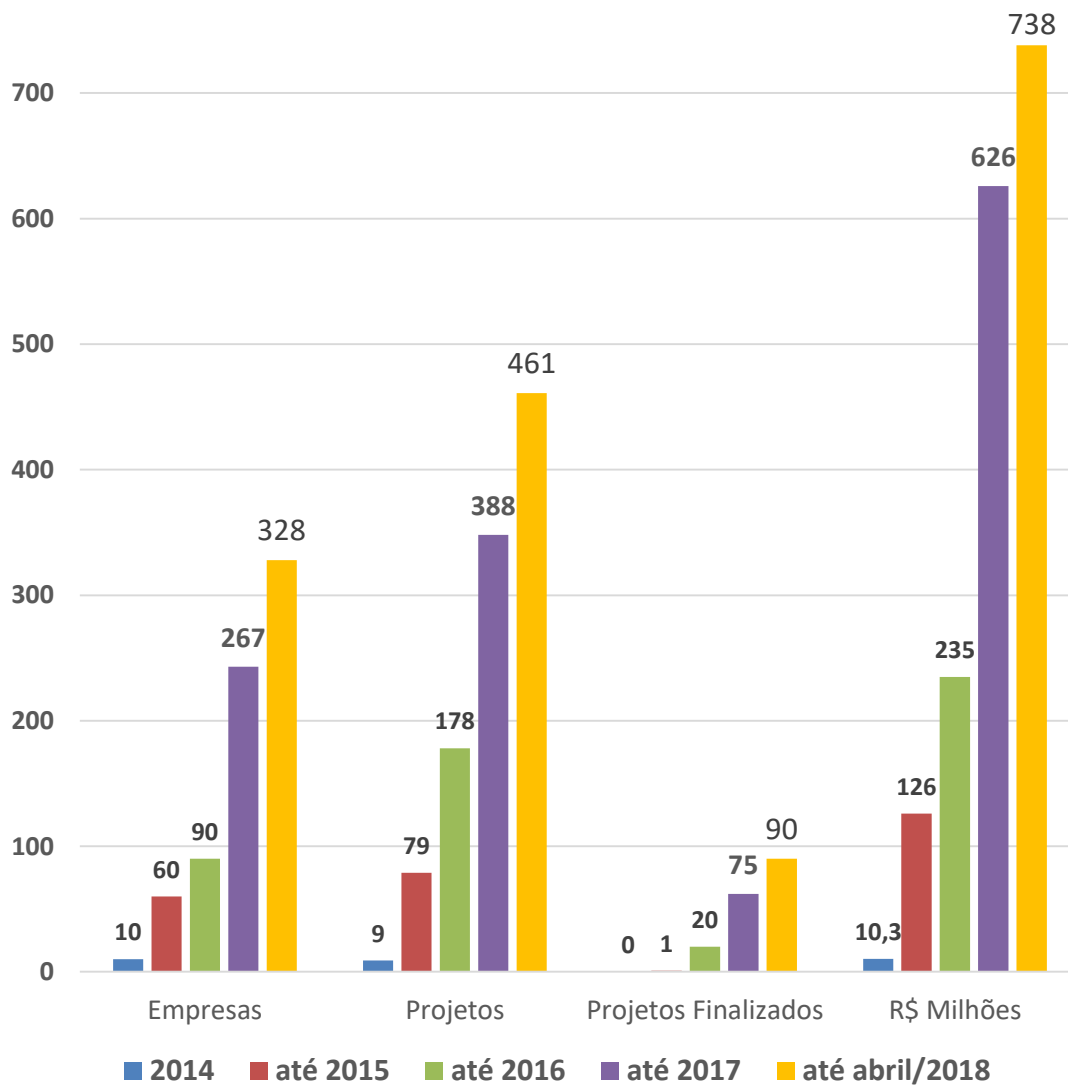
Crescimento: Unidades EMBRAP II



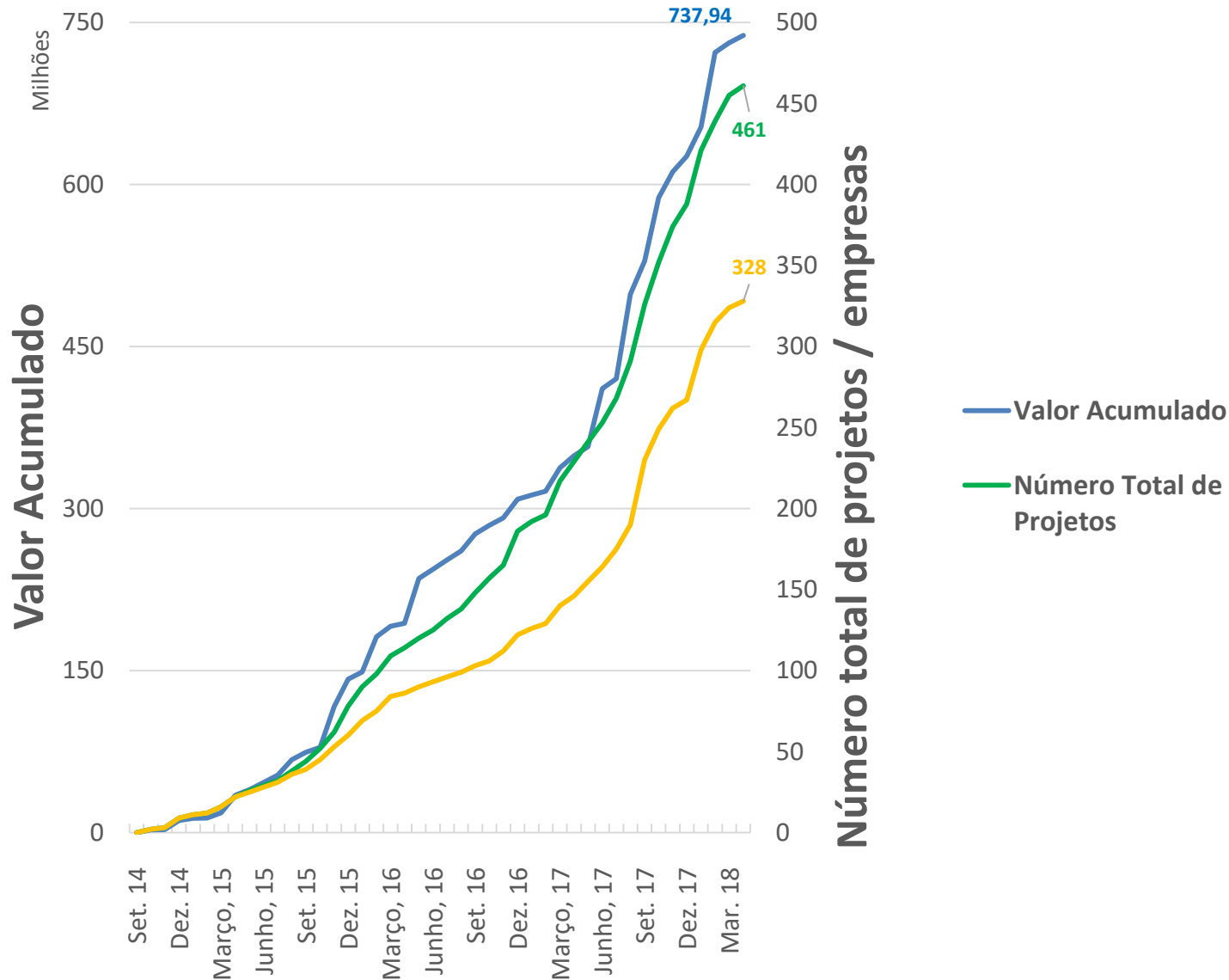
* Inclui unidades aprovadas e em processo de contratação

Crescimento do Sistema EMBRAP II

(dados acumulados)

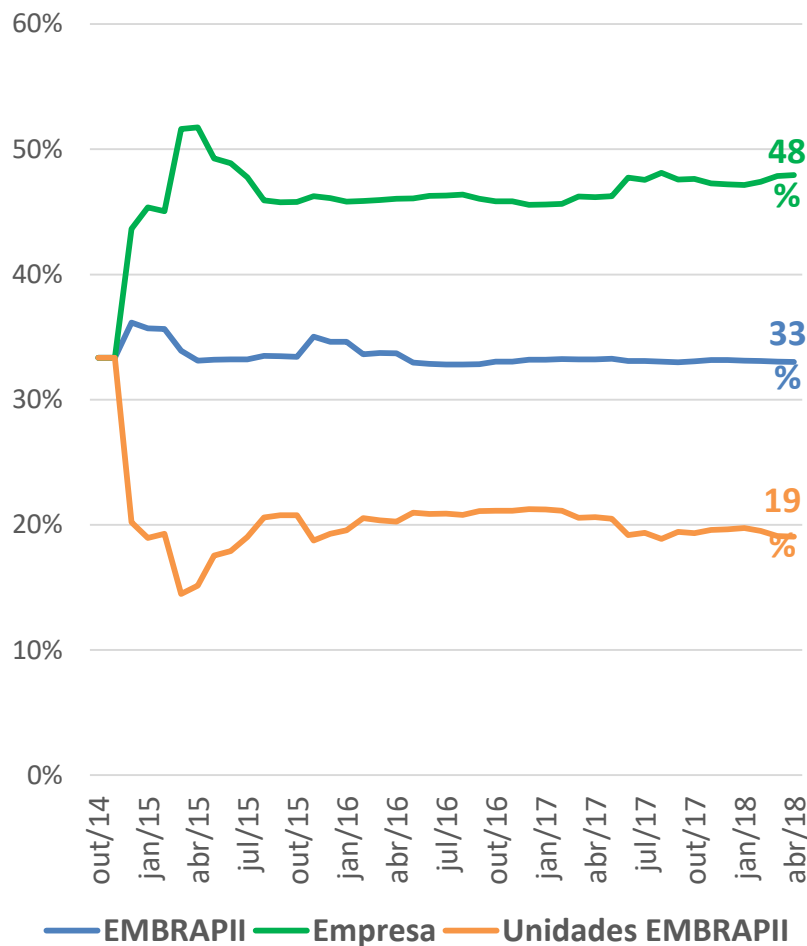


Valores acumulados de projetos e empresas - abril 2018

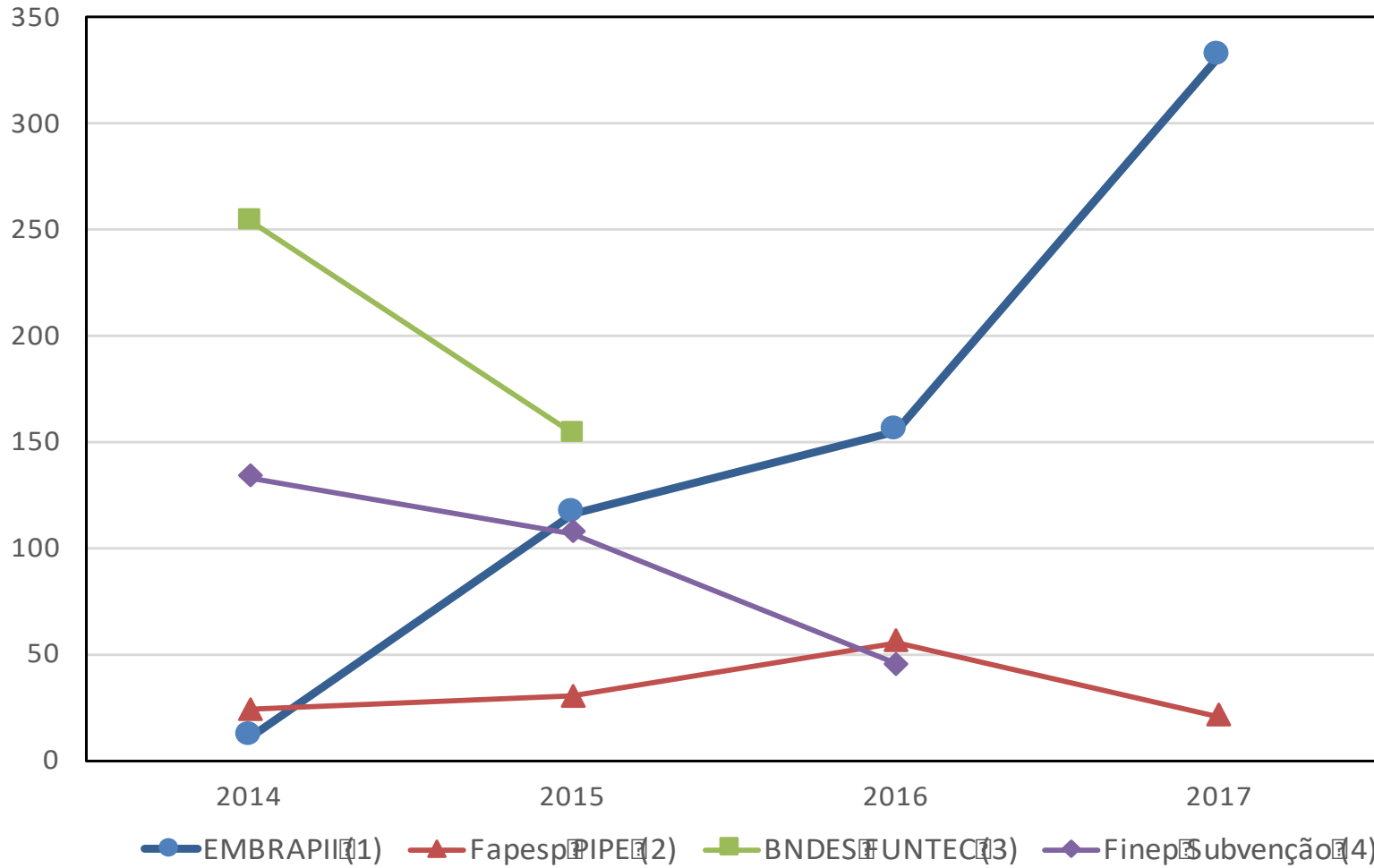


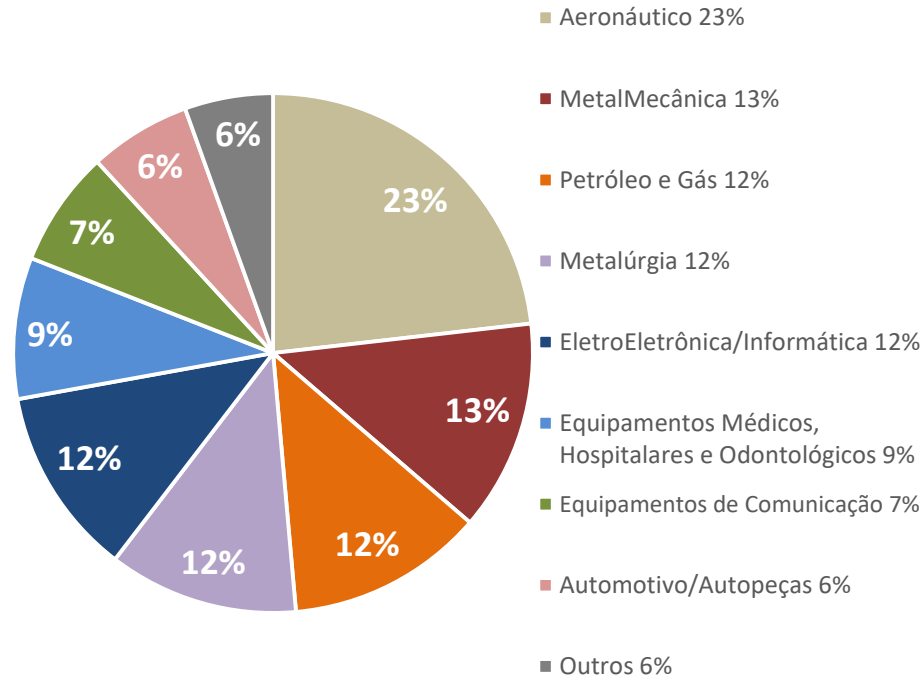
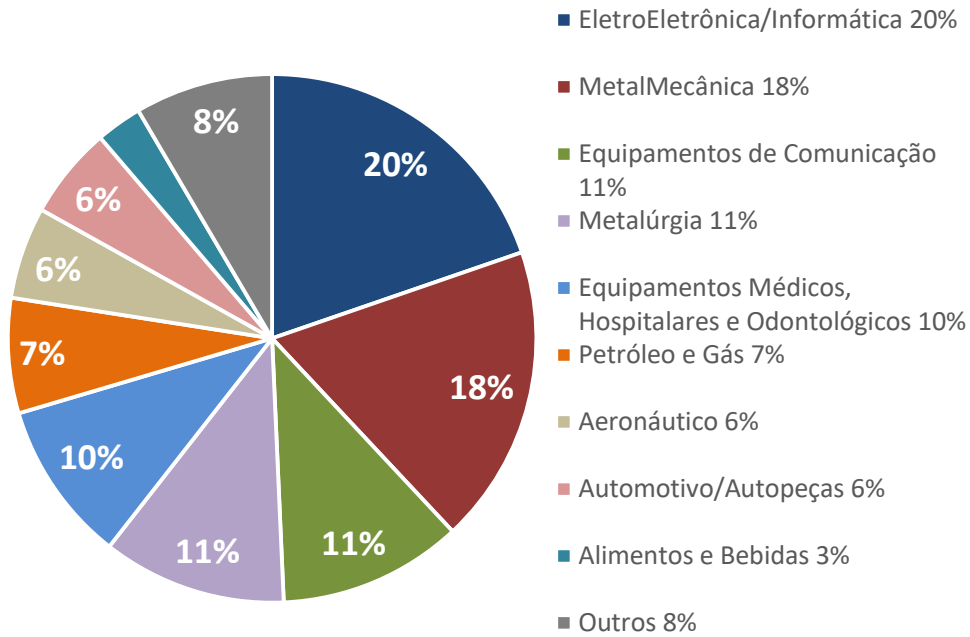
Composição de Recursos até abril 2018

Composição de recursos no valor total dos projetos



Contratos assinados ou valores pagos/ano para os principais programas não reembolsáveis do Brasil em R\$ Milhões





Institucional Partnerships



Partnerships in negotiation



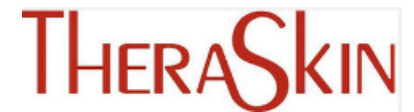


INOVAR • RESPEITAR • COMPETIR





natura
bem estar bem





CORNING



BrPHOTONICS

NOVADATA



SIEMENS



exatron



Companhia Brasileira de Alumínio



ENVISION.



FMC Technologies

TOSHIBA
Leading Innovation >>>



Padtec

Endress+Hauser 



NHS
Sistemas de Energia



ERICSSON



Fênix
Indústria de Eletrônicos Ltda
by Foxconn

Agropaulo



Innovation in the production of high level manufacturing processes



EMBRAPII

Empresa Brasileira de Pesquisa
e Inovação Industrial



Parceria Gnatus e Unidade EMBRAPII Certi

Analysis of the performance of the thermodynamics in refrigeration equipments



Parceria Coldlab e Unidade EMBRAPII Polo/UFSC

embrapii.org.br | www.facebook.com/embrapii

Development of solutions for the care of the elderly



Parceria Compalead Eletrônica e Unidade EMBRAPII CEEI/UFCG

embrapii.org.br | www.facebook.com/embrapii



Development of a imporved type of dental cement



Parceria Angelus e Unidade EMBRAP II IPT

embrapii.org.br | www.facebook.com/embrapii

Orthopedic prosthesis by selective laser fusion



Parceria Companhia Brasileira de Metalurgia e Mineração (CBMM)
e Unidade EMBRAPII IPT-Mat

embrapii.org.br | www.facebook.com/embrapii

Some Projects

RSB SPEED:
Computational Model
for 3D Seismic Imaging
for execution in
Supercomputers

Plug-in-play power
generator - CA-
module for smart
grids (Smart Grid)

Numerical Modeling
of Low Thickness
Exhaust Systems-
LTES

Applicability of 5G
networks as a
solution for IoT
applied to smart
cities, industry 4.0
and agribusiness



Senai Cimatec +
Repsol Sinopec Brasil
S.A.

IFCE + Sevenia
Inovação em
Energia Ltda.

Tecgraf/PUC-Rio +
FCA Fiat Chrysler
Automóveis Brasil
Ltda.

Tecgraf/PUC-Rio +
Ericsson
Telecomunicações
S.A.

Some Projects

Development of Solution for accompanying the Elderly



CEEI/UFMG +
Compalead
Eletrônica

Innovation Generation and Manufacturing Production Technology Processes 4.0



Certi + Gnatus

New Equipment Platform for the Neonatology segment



Certi + Fanem

Obtaining Orthopedic Prosthetics of Nb-Ti and Ti-Nb-Zr Selective Laser Fusion



IPT Mat + Companhia Brasileira de Metalurgia Mineração (CBMM)

Some Projects

Project for Research and Development of a Real-Time Monitoring Software for Image Modality and Services of SIEMENS called 'Service Operations Center'

PDV system based on CLOUD COMPUTING, with data synchronization for front-of-shop system operation temporarily in offline mode

To establish the conditions for the development of the project "3D Virtual Navigation in Gynecology"

Development of new dental cement



Certi+ Siemens Ltda.

IFCE + GERA3 Sistemas e Automação de Gestão Eireli

Tecgraf/PUC-Rio + General Electric do Brasil Ltda.

IPT + Angelus

Intelligent system for monitoring hospital bed



EMBRAPII

Empresa Brasileira de Pesquisa e Inovação Industrial



SENAI/CIMATEC e CONECTI TECNOLOGIA DE INFORMAÇÃO LTDA

embrapii.org.br | www.facebook.com/embrapii

Intelligent system for commercialization of dental products



Parceria Gnatus e Unidade EMBRAPII Certi



Thank you!

www.embrapii.org.br



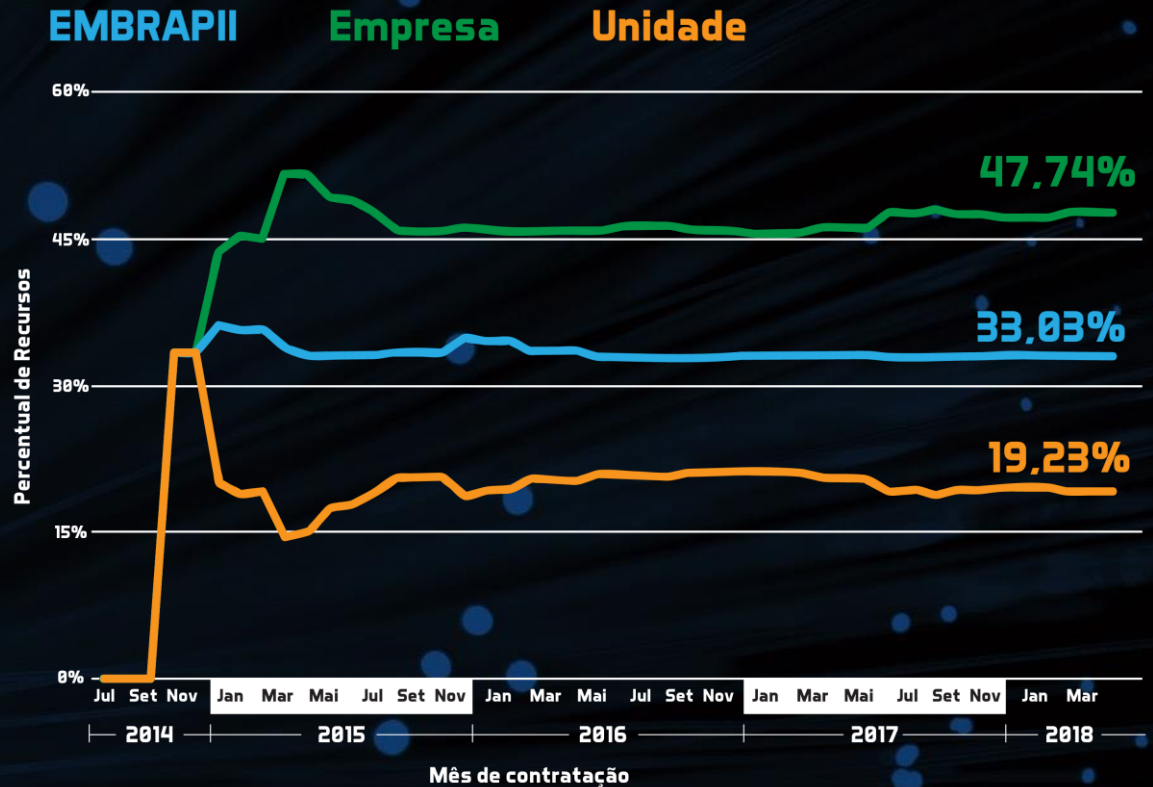
Edifício Armando Monteiro Neto - SBN, quadra 01, bloco I, 13º e 14º andares, Asa Norte, Brasília, DF
Telefone: (61) 3772-1000

Embrapii's funding by source

Lower the financial risks to industries

Leverage of industry's investment

EMBRAPII
Companies
Units



Some Projects

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**Senai Cimatec +
Repsol Sinopec Brasil
S.A.**

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**Plug-in-play power
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**IFCE + Sevenia
Inovação em
Energia Ltda.**

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Numerical Modeling
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S.A.**

**IFCE + Sevenia
Inovação em
Energia Ltda.**

**Tecgraf/PUC-Rio +
FCA Fiat Chrysler
Automóveis Brasil
Ltda.**

Some Projects

Development of
Solution for
accompanying the
Elderly



CEEI/UFMG +
Compalead
Eletrônica

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CEEI/UFMG +
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Eletrônica

Innovation Generation
and Manufacturing
Production Technology
Processes 4.0



Certi + Gnatus

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Processes 4.0



Certi + Gnatus

New Equipment
Platform for the
Neonatology
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Certi + Fanem

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Certi+ Siemens Ltda.

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Certi+ Siemens Ltda.

IFCE + GERA3 Sistemas e Automação de Gestão Eireli

Tecgraf/PUC-Rio + General Electric do Brasil Ltda.

Some Projects

Algorithm for
predict
stability
of emulsions



COPPE/UFRJ +
Oxiteno

Some Projects

Algorithm for
predict
stability
of emulsions



COPPE/UFRJ +
Oxiteno

High Dispersion Silicas



Senai Polímeros+
Rhodia Brasil

Some Projects

Algorithm for
predict
stability
of emulsions



COPPE/UFRJ +
Oxiteno

High Dispersion Silicas



Senai Polímeros+
Rhodia Brasil

TRC for Footwear
Outsoles



Senai Polímeros+
Kraton Polymers

EMBRAP II's mission

To foster the innovation of products and processes in Brazil through R&D projects with industrial companies

How to accomplish its mission?

- create and offer PD&I institutions as research centers for the companies

lowering the financial risks industrial companies in R&D

- responding to the demands of the private sector
- promoting collaboration among Institutions of Science and Technology, industrial companies and the network of Embrapii Units
- offering easy and flexible way of contracting R&D projects with private companies, with continuous flow of funding (no calls for project funding)

Some industrial Partners



Some industrial Partners



Embrapii Units in Universities and IFES



Biophotonics and Instrumental
·IFSC/USP- São Carlos



Software for Cybernetic Systems
·DCC/UFMG



Universidade Federal de Campina Grande
Software and Automation
·CEEI/UFCG



Computing Solutions in Engineering
·TECGRAF/PUC-Rio



Green Chemistry
·TecnoGreen/ Poli-USP



Metal-Mechanics Technologies
·FEMEC/UFU



Biological Pest Control
·ESALQ/USP



Subsea Engineering



Biopharmaceuticals and Drugs
·CQMED/Unicamp



Pipeline Technology
·LAMEF/UFRGS



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Innovative Cooling Technologies
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Manufacturing Systems
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Health Technologies
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Technologies for the Coffee Industry
·IFSUL de Minas



Agroindustrial Technologies
·IFGoiano



Embedded Energy Systems
·IFSC



Monitoring and Instrumentation for the Environment
·IF Fluminense/Campo dos Goytacazes

Institutional partnerships in order to facilitate loans or grants to industrial companies

