

# **3<sup>rd</sup> Brazilian Swedish Workshop in Aeronautics and Defence**



**November 12<sup>th</sup>, 2015**



## **CISB: Aeronautics Cooperation BR-SE**

Fellipe Sabat, Project Portfolio & Partnerships Coordinator - CISB

November 12, 2015

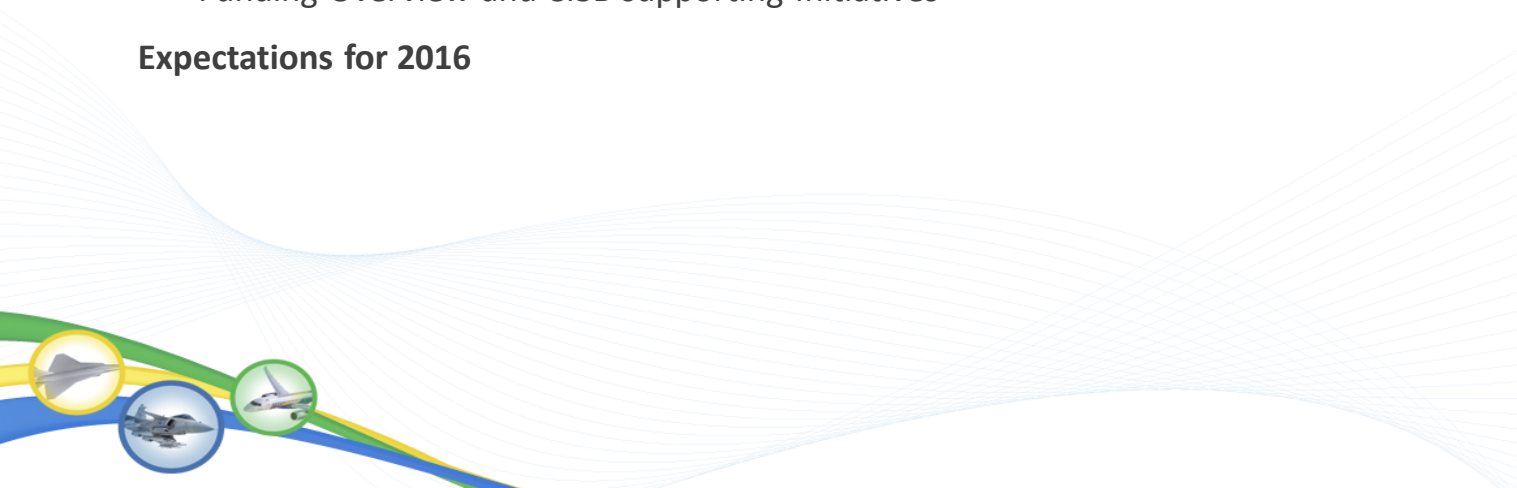
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# CISB Calls Overview

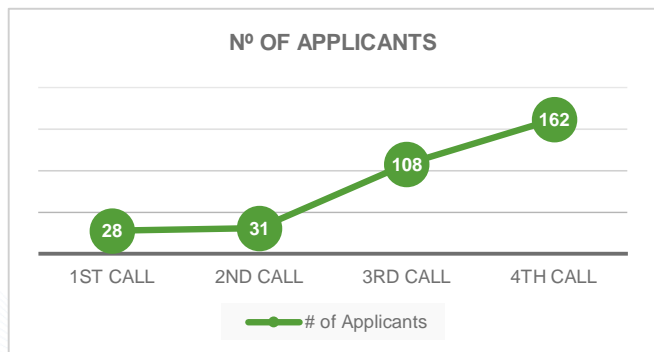


# PROGRAM CNPQ-CISB-SAAB

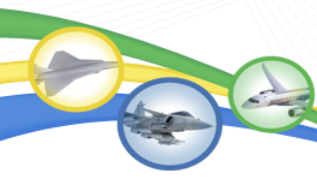
## Objective

- Foster the development of bilateral research Brazil-Sweden, University-Industry by offering **post doc** and **sandwich** doctorate **scholarships** for Brazilian researchers in Swedish Institutions

## Call in numbers



- 34 Brazilian Guest Researchers** developing collaborative R&D in the most relevant Universities in Sweden
- 4th call granted 11 researchers, **6 related to the Project Portfolio**



# PROGRAM CNPQ-CISB-SAAB



- **Number of Universities in Brazil: 16 in total**

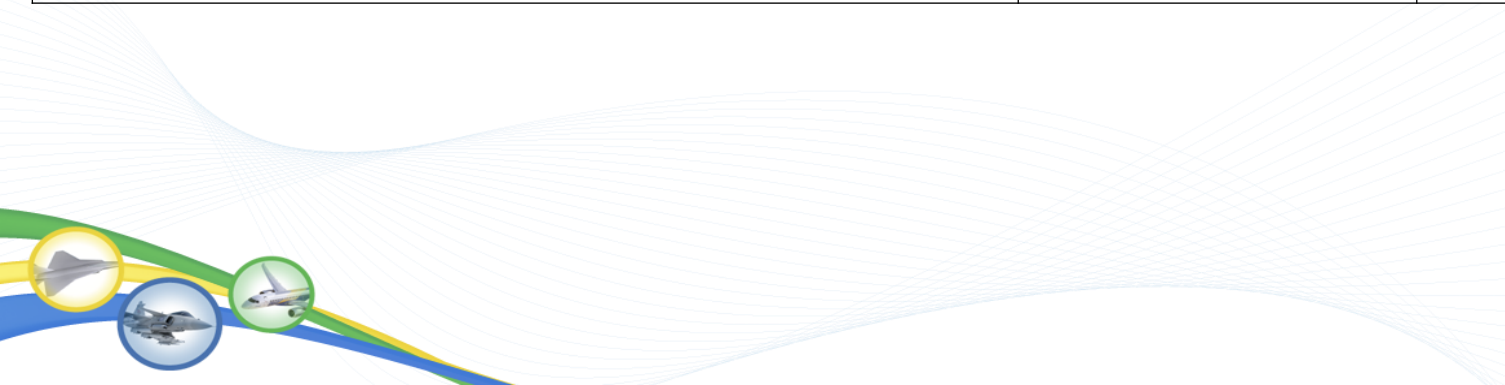
- University of Sao Paulo - **USP**
- University of Campinas - **Unicamp**
- Institute of Aeronautic Technology - **ITA**
- Federal University of ABC - **UFABC**
- FEI University Centre - **FEI**
- United Metropolitan Colleges – **FMU**
- College of Sumaré - **FACSumaré**
- Pontifical Catholic University of Rio de Janeiro - **PUC-RJ**
- Federal University of Minas Gerais - **UFMG**
- Federal University of Santa Catarina - **UFSC**
- Federal Institute of Santa Catarina **IF/SC**
- Federal University of Rio Grande do Sul - **UFRGS**
- Federal University of Santa Maria - **UFSM**
- Federal University of Para - **UFPA**
- Federal University of Alagoas - **UFAL**
- University of Brasilia – **UnB**

# CISB CALLS FOR INTERNATIONAL COLLABORATION

## Call 01.2015 - Support for International Collaboration

- **Objective:** Strengthen relations between the countries by creating a project portfolio in this areas
- **Applications:** 5 proposals
- **Approvals:** 4 projects

Project	Leader	Leader Institution
"Robustness Analysis in the Frequency Domain of Mechatronic Systems using Efficient Algorithms"	Moisés Ferber de Vieira Lessa	UFSC
"Frequency Response Analysis of the Robotic Platform of SIVOR Project"	Carlos Cesar Aparecido Eguti	ITA
"Statistical Sensor Fusion for Application in Aeronautics and Defence"	Davi Antônio dos Santos	ITA
"Data-driven fault diagnosis via causality detection methods"	Celso José Munaro	UFES



# CISB CALLS FOR INTERNATIONAL COLLABORATION

## Call 02.2015 – Senior Internship Abroad

- New category as an instrument to foster aeronautics cooperation agenda
- Scholarship info: One month in Sweden to develop new collaboration and or joint projects
- Objectives: CISB grants projects continuity and reach others Brazilian top researchers
- Applications: 6 proposals
- Approvals: 3 projects, **all involved in the portfolio**

Project	Leader	Leader Institution
"Prediction of post-cure residual stresses and distortions in the fabrication of composite structures"	Alfredo R. de Faria	ITA
"Efficient Hydraulic Hybrid Systems for Aeronautical Applications"	Victor Juliano De Negri	UFSC
"Models of Computation (MoC) supporting Adaptivity in Real Time Embedded Systems - MARTES"	Denis S. Loubach	UNICAMP



# Aeronautics Project Portfolio





# CISB ROLE with the Aeronautics Project Portfolio

- The creation of a **neutral enviroment** to foster collaboration;
- Development of a R&T **bilateral network**;
- **Consolidation** of the numbers and projects information;
- Map and indicate **funding opportunities**;
- **Follow-up** projects status;
- **Dissemination** of the portfolio to relevant stakeholders.



# GENERAL IDEA

BR-SE on going partnerships

Common R&D interest area:  
programs, work packages, technical areas, etc.

## Opportunity:

- Produce more R&D together, with no change in national cost
- Save (share) R&D cost for a given R&D task
- More visibility to Government agencies
- Easier access to funding
- Coordinated efforts
- Coordinated strategy

BR-SE projects started from workshop

Project Portfolio

Spillovers

**Sweden**

(National agenda and program update in process, to include international cooperation)

SeBra

**Brazil**

*To form a joint agenda and to have a collective voice needed for making a difference\**

*\*Leveraging on open innovation: A study of why organizations engage in open innovation collaboration.  
Author: Maria Elmquist, Tobias Fredberg and Susanne Ollila*

# PORTFOLIO EVOLUTION

2014

## 1<sup>st</sup> workshop

- CISB call 01/2014
- CISB call 02/2014
- Connection

2015

## 2<sup>nd</sup> workshop

- CISB call 01/2015
- CISB call 02/2015
- Collaboration discussion

2015

## 3<sup>rd</sup> workshop

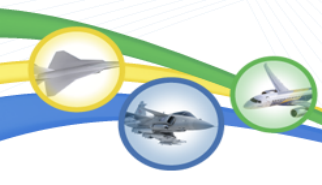
- New stakeholders
- Consolidation

2016

## 4<sup>th</sup> workshop

- Brazilian input for NFFP 7
- Results dissemination

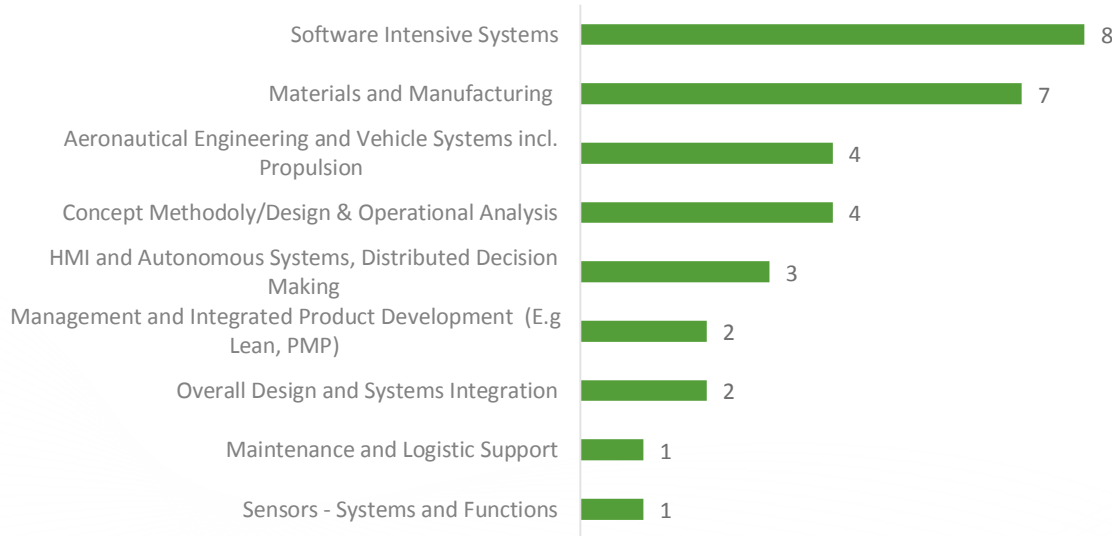
Sweden  
Oct/2016



# GENERAL NUMBERS

Number of projects : 32

## Projects Considering Clusters Division



### Examples of institutions involved:

Saab AB  
LiU - Linköping University  
ITA - Aeronautics Institute of Technology  
KTH - Royal Institute of Technology  
EMBRAER  
AKAER  
USP - EESC - University of São Paulo  
UFSC - Federal University of Santa Catarina  
LTU - Luleå University of Technology  
Chalmers University of Technology  
UFABC – Federal University of ABC  
ILA - Institute of Aeronautics Logistics  
IPT - LEL - Technological Research Institute  
UNICAMP - University of Campinas  
UFRGS - Federal University of Rio Grande do Sul  
UnB - University of Brasília  
AEL Sistemas  
Biteam AB  
DFChip  
DigitalMetal AB  
Equatorial Sistemas  
FCC - Fraunhofer Chalmers Centre  
INTELECTRON  
MDH - Mälardalen University  
LeverTech  
PUC Minas - Catholic University of Minas Gerais  
Ruhr-Universität Bochum  
Municipality of São Bernardo do Campo  
Systecon AB  
FEI - University Center  
UFES - Federal University of Espírito Santo



# PORTFOLIO MILESTONES OVERVIEW

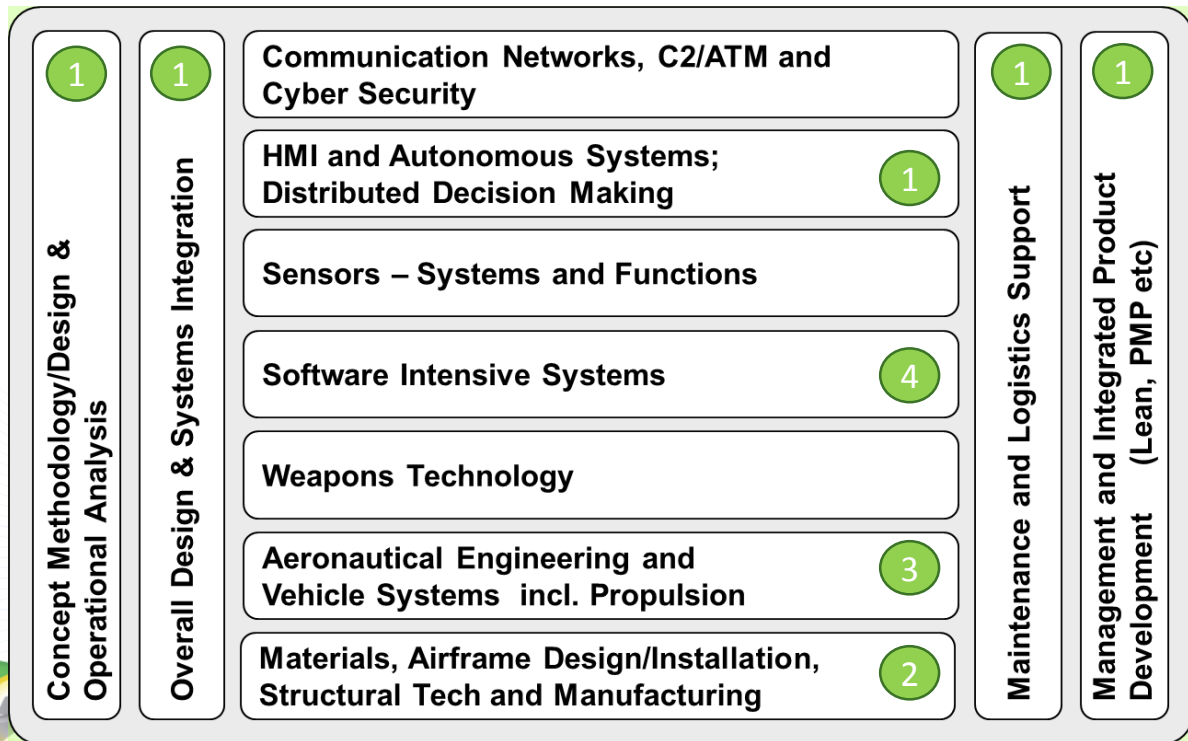
	Partners consolidation	Agreements (NDA, MoU...)	Funding (To start activities)	Project proposal	Statement of Work	Activities Start
1 Fademó						On going
2 Aero Log Lab						On going
3 Modeling and prediction of sound reducing treatments...						On going
4 Development and 3D Printing of Metallic Parts...						On going
28 EHHA - Efficient Hydraulic Hybrid Systems...						On-going
5 Dynamic Adaptive Real-time And Embedded Systems						On going
6 Snake Robot						2nd sem. 2015
7 Techniques Of Sec. & Soft. For Dev. Embedded Systems						2nd sem. 2015
8 System Safety And Reliability In Design Phase						2nd sem. 2015
9 Verification Of Fault-tolerant Embedded Systems						2nd sem. 2015
10 Hybrid Nanostructured composites ...						1st sem. 2016
11 Composite material 3D woven fabric...						1st sem. 2016
12 Creating knowledge from the differences...						1st sem. 2016
13 Design and commission a human factors Laboratory...						1st sem. 2016
14 LaFloDeS						1st sem. 2016
15 ArBaWING						1st sem. 2016
16 Prediction of post-cure Residual Stresses...						1st sem. 2016
17 Simulation of composites for the aeronautic industry...						No prediction
18 Correct-by-Construction Design...						No prediction
19 Models of Computation (MoC) supporting Adaptivity...						No prediction
20 IFRAM (Open Rotor)						No prediction
21 Robust navigation and mapping without GNSS						No prediction



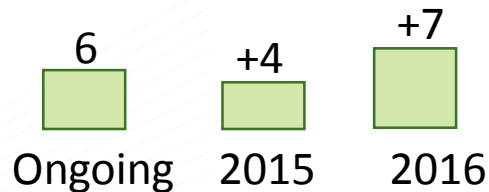
Advanced	On going	To start
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# GENERAL NUMBERS

## Numbers Considering R&D Clusters



- Grand Total: 32 Projects
- Number of projects with predicted start: 17 ●
- Predicted Portfolio Growth



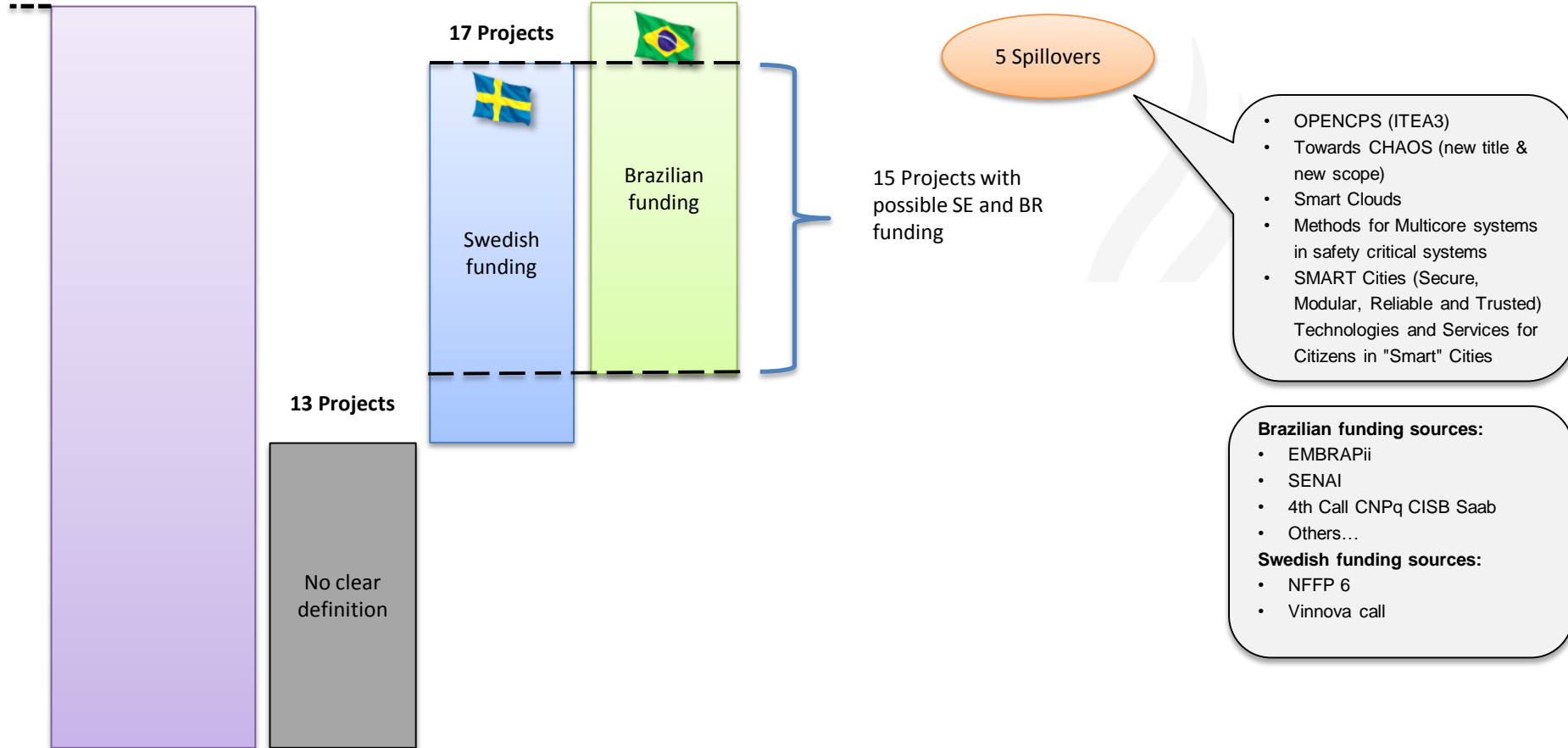
- Low TRL

# Funding Overview



# FUNDING OVERVIEW

32 in total





# CISB INITIATIVES

- **SENAI Partnership:**

CISB has been intermediating partnerships with project leaders and SENAI's innovation institutes. The goal is to build joint work packages and apply for funding in SENAI call for innovation projects. The partnerships would also support possible applications in SENAI's new call "Innovation without borders"

- **Meeting with CONFAP, FAPESP and FAPEMIG:**

The goal was to disseminate information about the cooperation built, to brazilian key actors and articulate possibilities of support from the FAPs agencies.

- **Monitoring Calls for Projects:**

CISB has been mapping and suggesting possibilities of funding in Brazil to support the development and execution of the projects under it's umbrella.



# Expectations for 2016



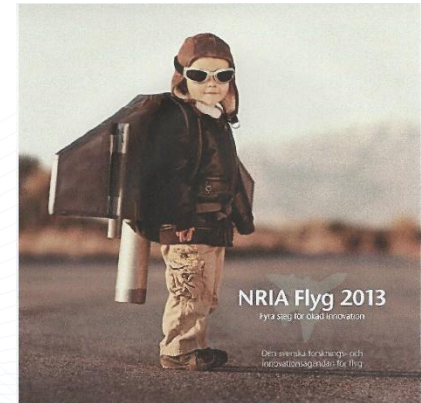
# CNPQ-CISB-SAAB 5th Call

- Negotiation with CNPq initiated in August
- Open in Q1 2016 (Expectation)
- Aeronautics related research



# Expectations for the Portfolio

- Project leaders raising funds from existing calls
- Secure start of projects
- Increase engagement of Brazilian academia and industry
- Increase the Portfolio
- connect in initiatives connected to NFFP 7 and WASP
- Increase number of spillovers
- Disseminate information and influence the development of strategy similar to INNOVAIR in Brazil (Long Term)



# See you in Sweden

Fellipe Sabat, PP&P Coordinator

[Fellipe.sabat@cisb.org.br](mailto:Fellipe.sabat@cisb.org.br)

Phone: 11 43149466

