The Brazil-Sweden Aeronautics Cooperation

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Program Manager
Bra-Swe R&I cooperation

innovair

THE SWEDISH STRATEGIC INNOVATION PROGRAMME FOR AERONAUTICS

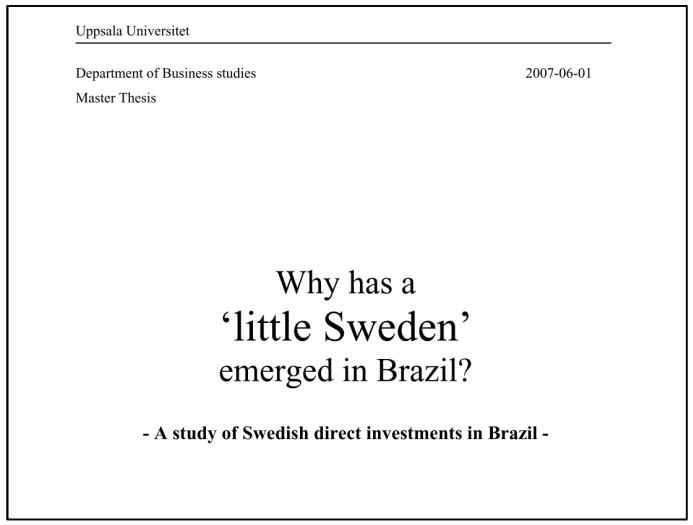
Brazil and Sweden

Population	202M	9.5M
Area (km²)	8.5M	0.45M
GDP (usd)	1.9T	460B

Swedish Industry in Brazil

- Presence over 100 years
- Over 200 companies
- Over 60K (30K Eng.) employees
- Concentration in São Paulo

Company	Employees
Ericsson	7500
Electrolux	6773
ABB	4107
Scania	3207
Volvo	2934
SAAB	2500 (est)



Uppsala Universitet

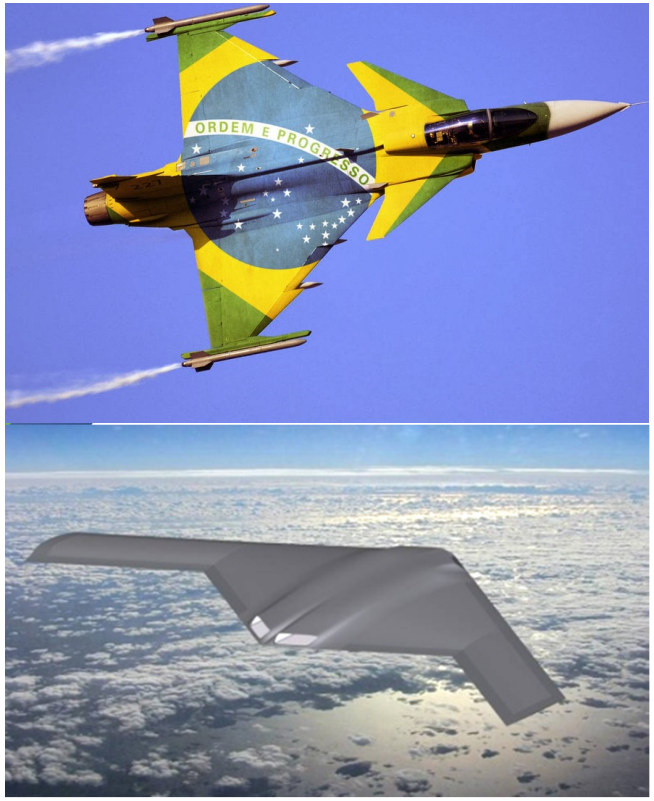
Department of Business studies 2007-06-01
Master Thesis

Why has a
'little Sweden'
emerged in Brazil?

- A study of Swedish direct investments in Brazil -

Strategic partnership

- Sweden has a key position in Brazil
- Priority for both countries
- Several agreements
- biotech, environment, innovation, aeronautics, defence and education



Cooperations in Aeronautics

FX-2 (Gripen), ~5.6B usd. SAAB and Embraer

- 36 JAS Gripen, joint design of 2-seat version
- composites factory in São Bernardo
- 300 Brazilian families to Linköping for training

Endowed professorship at ITA

- 12 months over 3 years. LiU, KTH, CTH

Key areas

design; aerodynamics; aeroacoustics; structure and materials; manufacturing; propulsion; embedded systems; security, control, autonomous systems

-2014

FX-2 project

Planning

workshops

Follow up

2015-2016

Coordinated Program

+70 projects

HLG

2017-2018

Roadmap

Increase SMEs

Larger projects

LONG TERM VISION

Joint program

More SME

Partners in a high tech programme

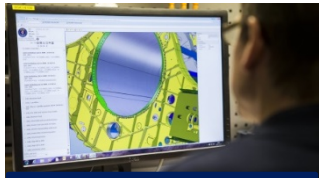
Capability to develop, produce and maintain in Brazil

DEVELOPMENT CENTRE
Gavião Peixoto

FLIGHT TEST CENTER
Gavião Peixoto

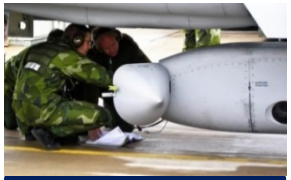
FIGHTER PRODUCTION
São Bernardo do Campo & Gavião Peixoto

Systems Integration



Airframe Design & Aerodynamics

Simulation

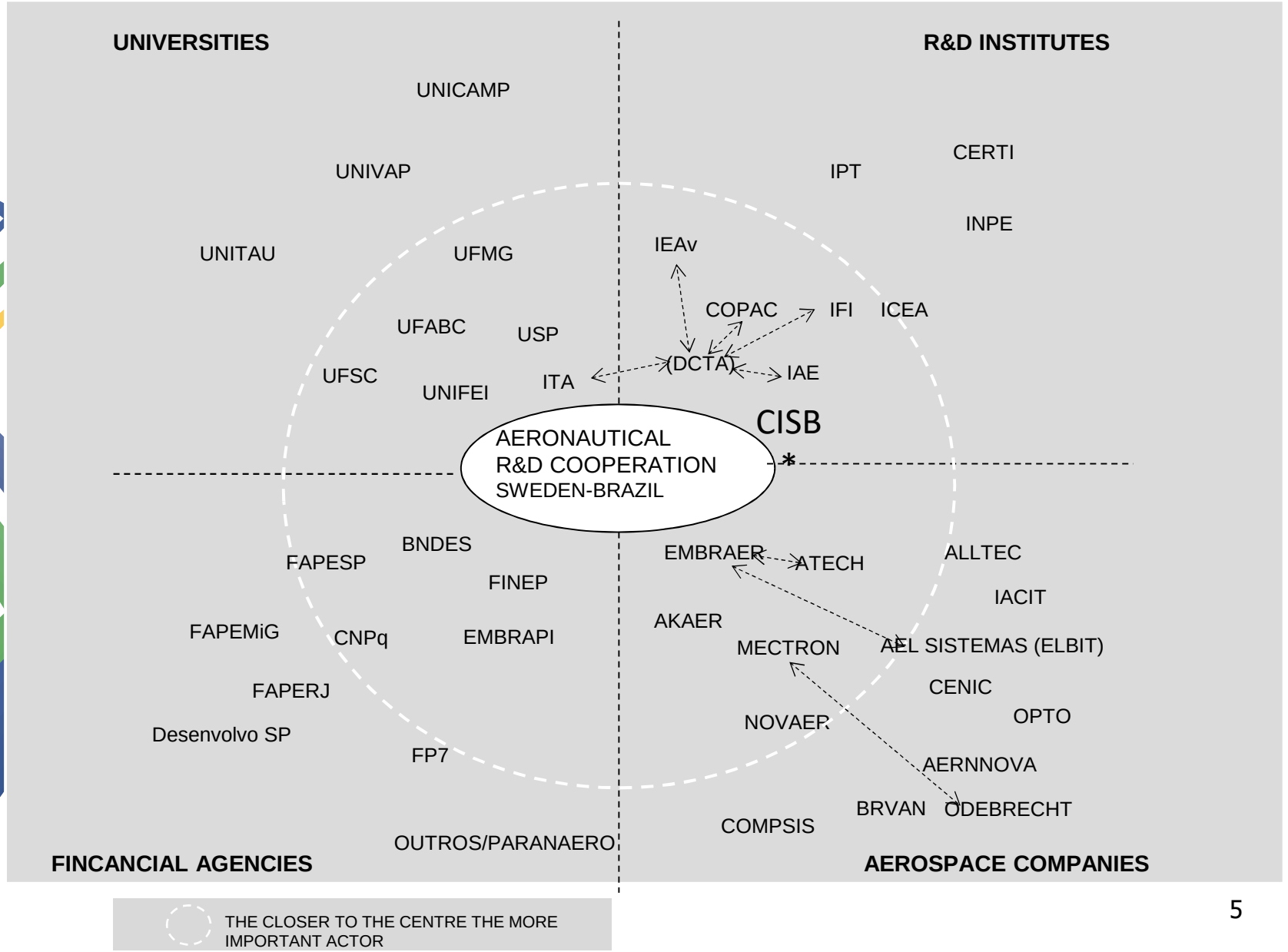


Maintenance Optimization

Weapon Integration

Future Fighter Design

The Brazilian Aeronautical R&D Landscape



The vision beyond the contract

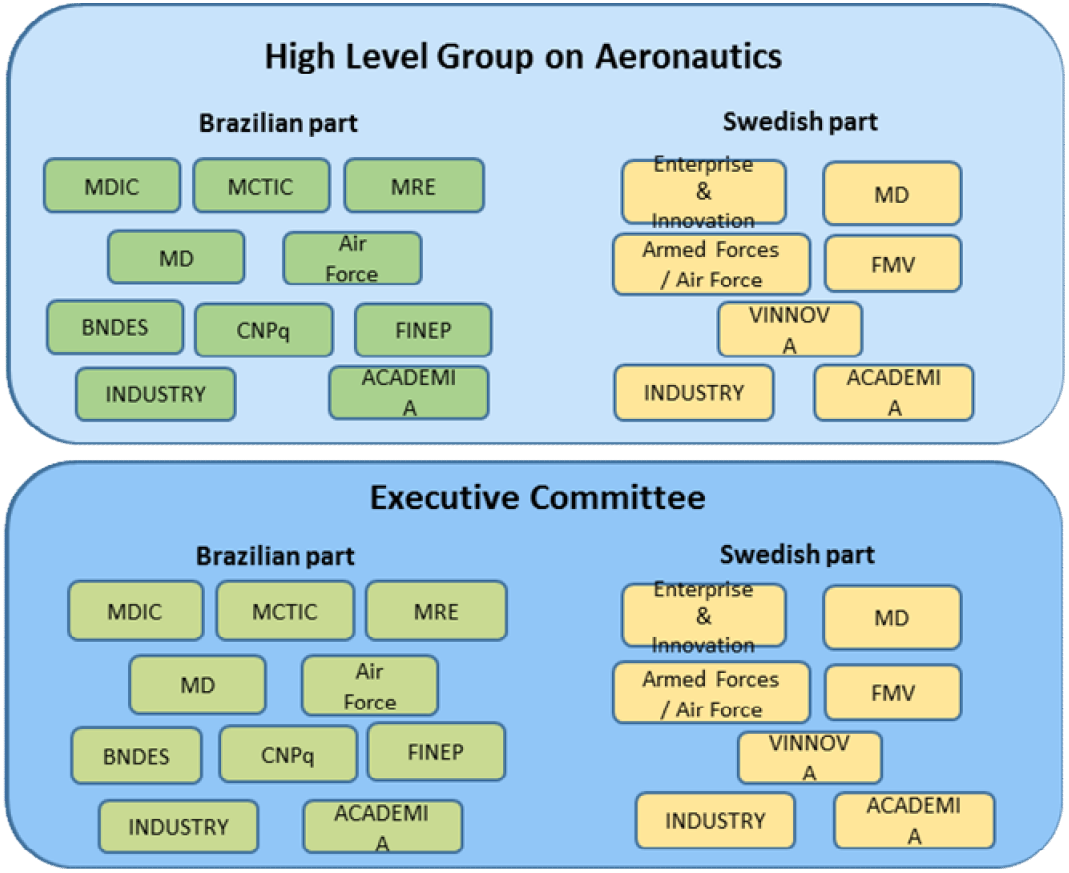
New Swedish Export Strategy

- **Technology**
- **Cost**
- **Trade**
- **Co-creation**

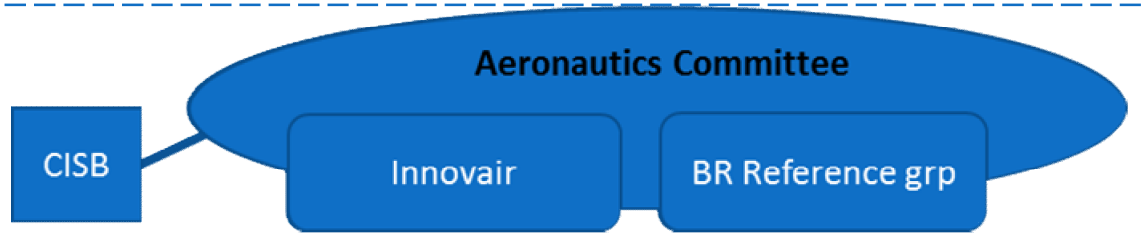
build history together

Through an efficient bilateral R&T cooperation

Current organization for the cooperation



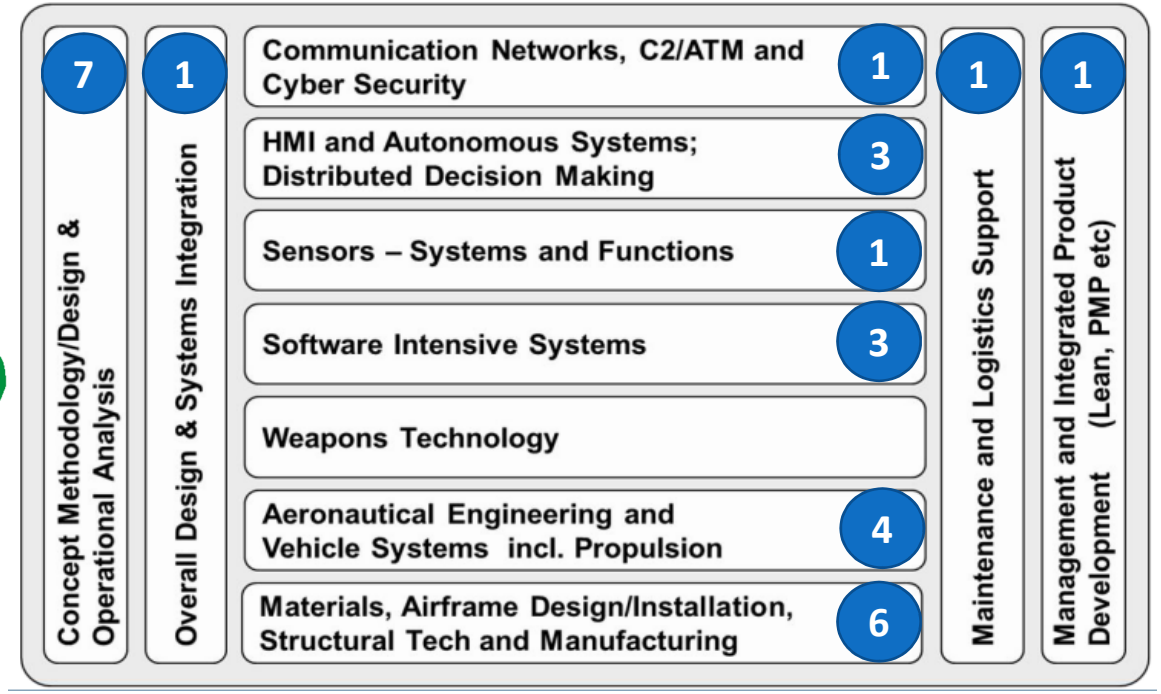
"Ad Hoc Working Group", available as support to EC



The framework for bilateral cooperation

High-level group & Executive Committee

Vision, agenda, areas, roadmap

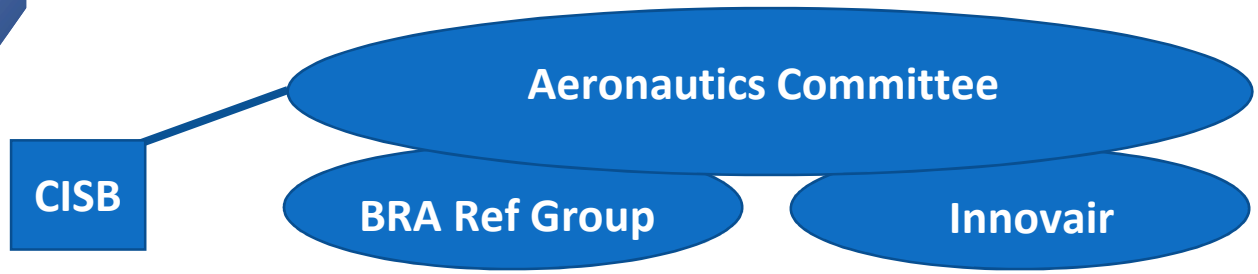


Consolidate, coordinate, disseminate

Swe-Bra Aeronautics Committee & CISB platform
& other constellations

ACB1

Developing the framework
BOTTOM UP



Matchmaking

- Annual Aero Workshops

Mobility

- Scholarships Travel Grants

Institutional

- Swe Professor Chair
- MoU, exchange, pedagogy
- Major labs

R&D Work

- Manage Portfolio
- Funding
- Agreements

Connect → Bridge → Support → Implement

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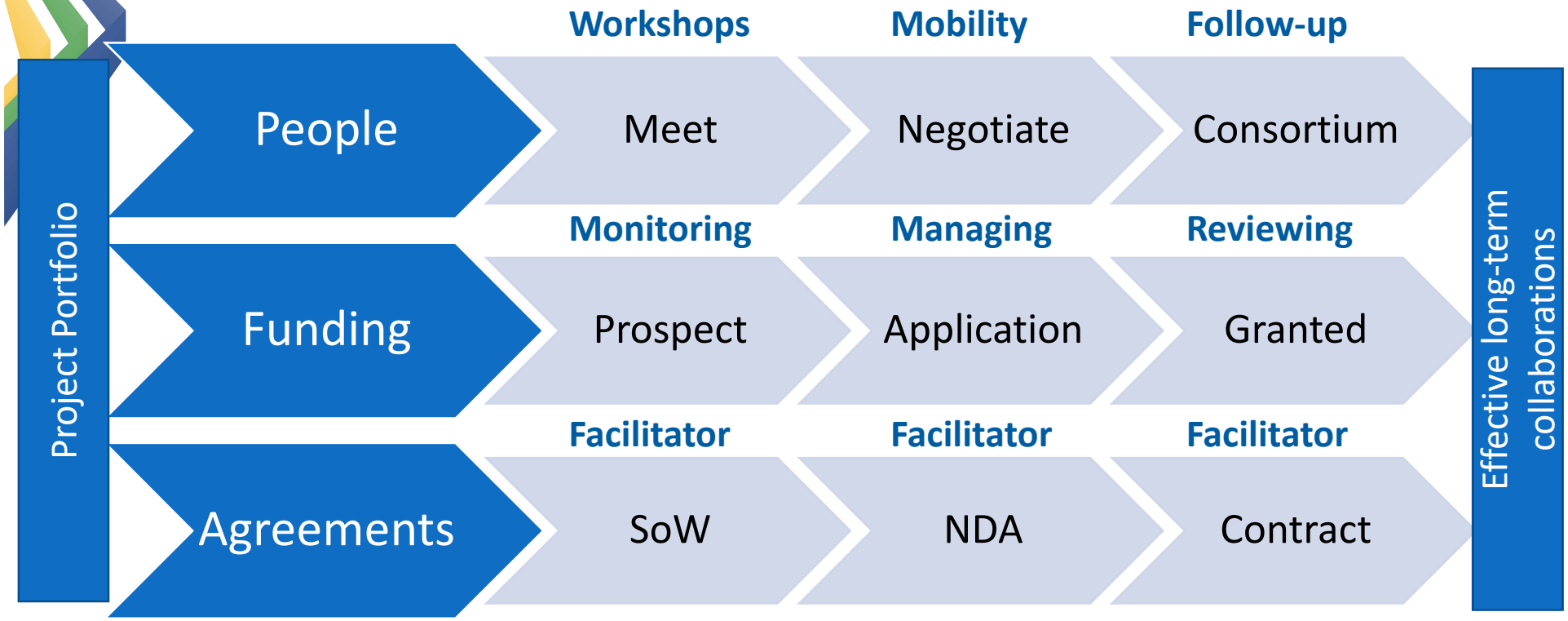
ACB1 André Carvalho Bittencourt; 2016-10-09

Processes for project creation



Provides support in the entire process

R&I funding - joint calls

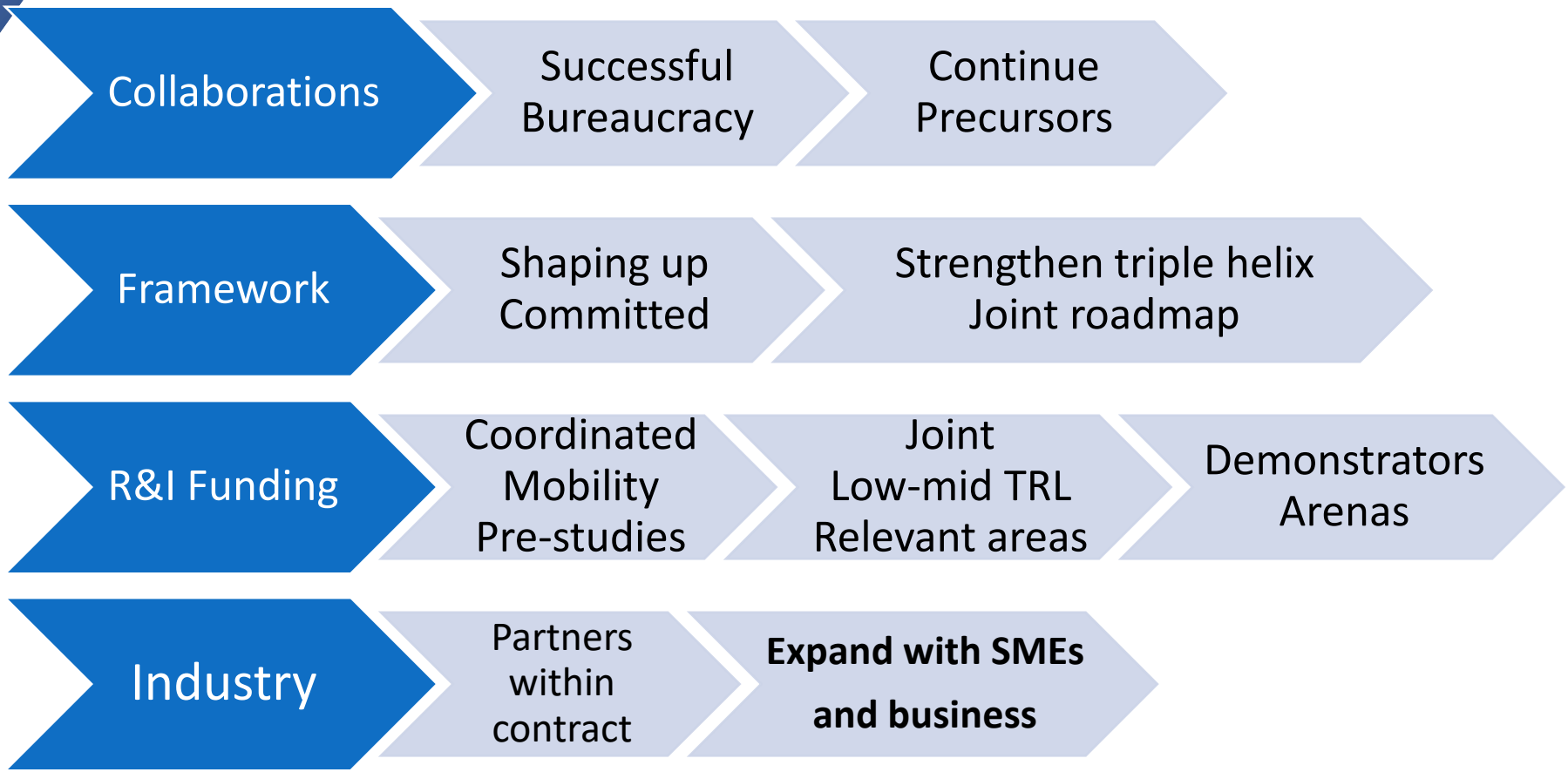
	FINEP/VINNOVA	SENAI/VINNOVA	FAPEMIG/VINNOVA
Type	(small) projects, 2+2	feasibility, 1+1, SMEs	feasibility, 1+1, MG, ind
Areas	**Aeronautics** - propulsion, sensor systems	**Aeronautics** - several, multiple use	Smart industries (AIMday + MG)
Offer	1M SEK/proj, 3 proj	250K SEK/proj, 10 proj	250K SEK/proj, 5p proj
Duration	1-2 years	3-12 months	3-12 months
Links	finep vinnova	senai vinnova	fapemig vinnova

*Important evolution in the number of **joint calls**!*
Small calls to measure and adjust mechanisms

Important dates

- March – Gripen spillover study
- April 5, Gavião, Swe King visits Gripen Dev center
- **April 4-7, Rio, LAAD Security and Defence fair**
- **April 24-25, Stockholm, Bra-Swe def and ind coop**
- **May 31, São José, Bra-Swe Aero Seminar**
- **KC-390 to Sweden before mid summer**
- **Oct 22-27, Sweden, Bra Aero industry in Swe**
- Oct 26, Stockholm, 2nd meeting HLG

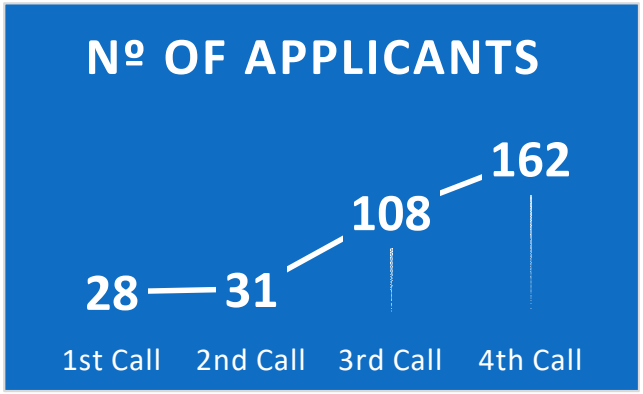
Summary and ways forward



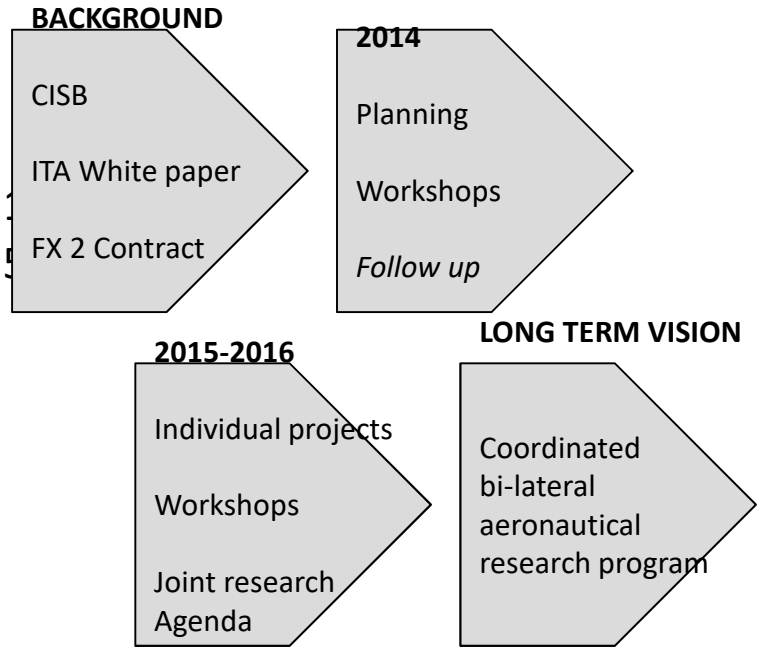
How can we best support initiatives with SMEs?

R&I funding - periodic calls

	5th CISB/SAAB	CAPES/STINT	VINNMER
Opens	February 24, 2017	October	September
Type	Mobility, 2+1	mobility, 1+1	mobility, individual
Areas	Aeronautics - several	multiple	multiple
Offer	max. 10 schol. (PhD, postdoc)	200K SEK/year	50% of salary
Duration	6 months	Max **4 years**	up to 1,5 year
Links	cisb	stint	vinnova



Overview for the collaboration



FX-2 (Gripen), ~5.6B usd

36 JAS Gripen (8 dual seat)
Dev and production in Brazil
2.3K direct jobs up to 15K indirectly
350 on-the-job training

Summary so far

- Great number of actors involved
- Over 70 projects initiated
- Focus on R&I
- High-level commitment

For 2017-2018

- A joint roadmap
- More participation of industry

FORÇA AÉREA BRASILEIRA
SAAB
EMBRAER
akaer
AEL SISTEMAS
atech
MECTRON Organização Odebrecht
INBRA AEROSPACE

TRANSFER OF TECHNOLOGY MODEL

- Theoretical and On-the-Job-Training in Sweden
- ~350 Engineers trained in Sweden
- Development and Manufacturing in Brazil

Gripen Design & Development Network in Gavião Peixoto

FORÇA AÉREA BRASILEIRA

SAAB

EMBRAER

COPAC

DCTA

akaer

AEL SISTEMAS

atech

MECTRON Organização Odebrecht

INBRA AEROSPACE

Results - Triple benefits

*Triple Helix provides a relatable **context**,*
*where **strategy** and **effort** are naturally aligned.*

Academy	Industry	Government
Internationalization	Shared R&D costs	Efficient R&D funding
Collaboration	Access to talents & market	Knowledge economy
Access to funds	Innovations	Multiplicative effects

Long-term, high-tech nature of R&D in Aeronautics promotes
low-mid TRL** R&D and **multiplicative effects

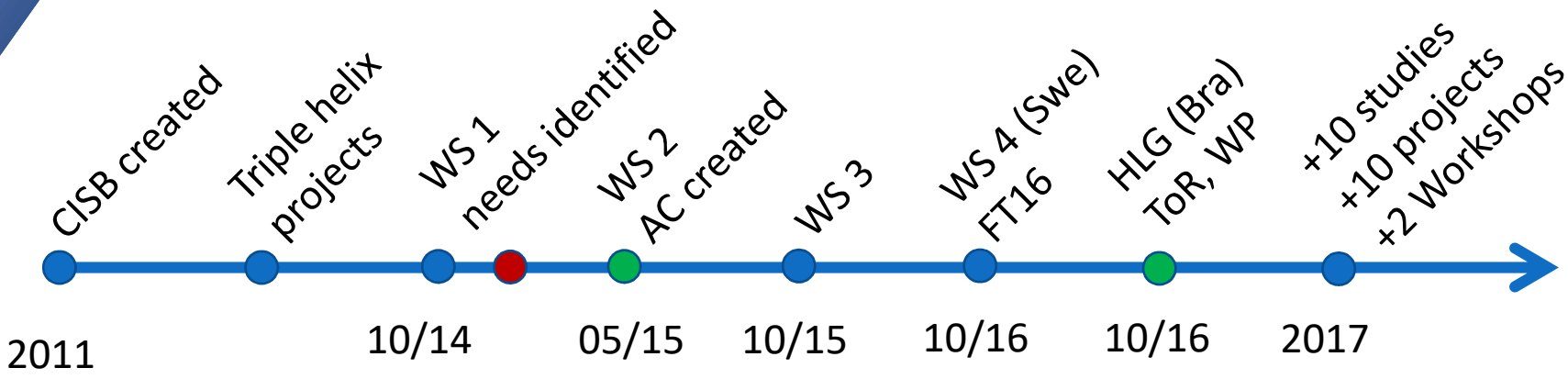
Results - Triple benefits

*Triple Helix provides a relatable **context**,*
*where **strategy** and **effort** are naturally aligned.*

Academy	Industry	Government
54 int. missions **42% Brazilians in FT16** **17/8 Bra/Swe univ.**	Shared R&D costs	**3 joint calls**
41 joint publications	Access to talents & market	Knowledge economy
33 CISB scholarships **59 calls monitored**	**+70 initiatives** **28 ongoing** **19 in project portfolio**	**New areas** **Mining, Innovation, Pedagogy, Water**

Long-term, high-tech nature of R&D in Aeronautics promotes
low-mid TRL** R&D and **multiplicative effects

History for the Aero cooperation



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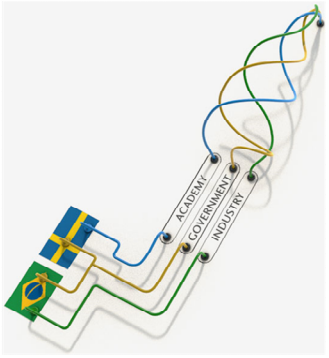
CISB — SWEDISH BRASIL INNOVATION (SINCE 2011)



CISB.ORG.BR

Supports creation of R&I initiatives

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