



Portuguese Activities in Space

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Outline



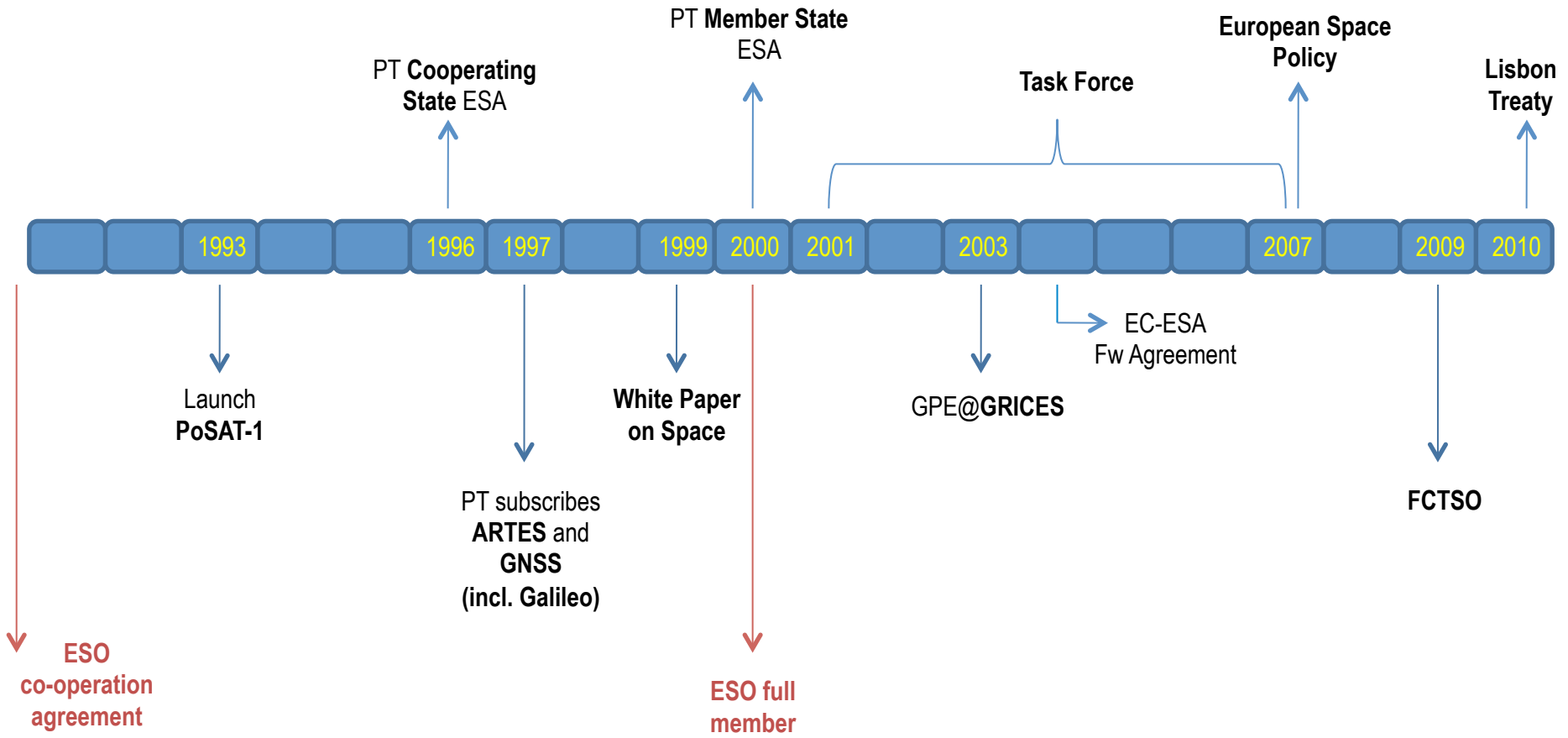
1. Portugal in Space
2. Portugal in ESA
3. Participation of Industry and Academy
4. Major National Missions in ESA
5. Return to Portugal through FP6 e FP7 Space
6. Facilities

Further information at the FCT Space Office* Web:

www.fct.pt/apoios/cooptrans/espaco/index.phtml.en

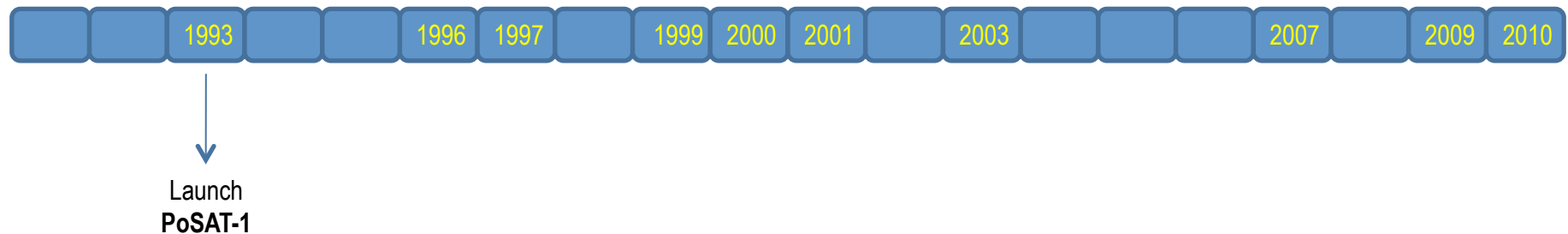
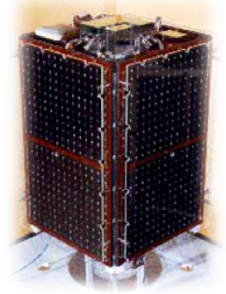
*Special thanks

1. Portugal in Space - Milestones



Source: ESA e FCT Space Office

1. Portugal in Space



- First Portuguese satellite
- Ariane 4
- 5M€ (2M€ Consortium of companies and national universities: EFACEC, INETI, IST, Alcatel, ...; 3M€ PEDIP)
- Until 2006 used in UN peacekeeping operations and data transfer between military

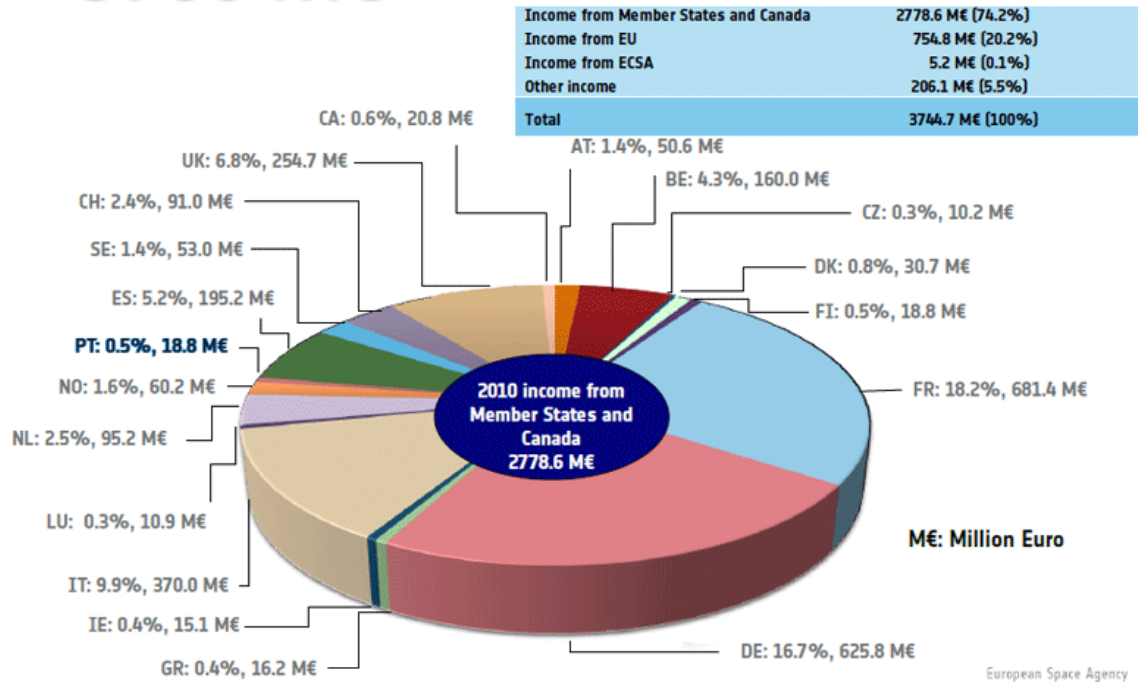
Source: ESA e FCT Space Office

2. Portugal in ESA



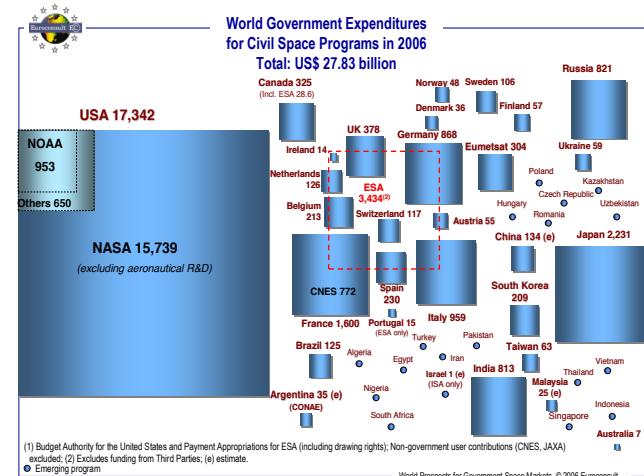
ESA Budget (2010)

~ 3700 M€



European Space Agency

ESA Budget (in 2006) the global picture



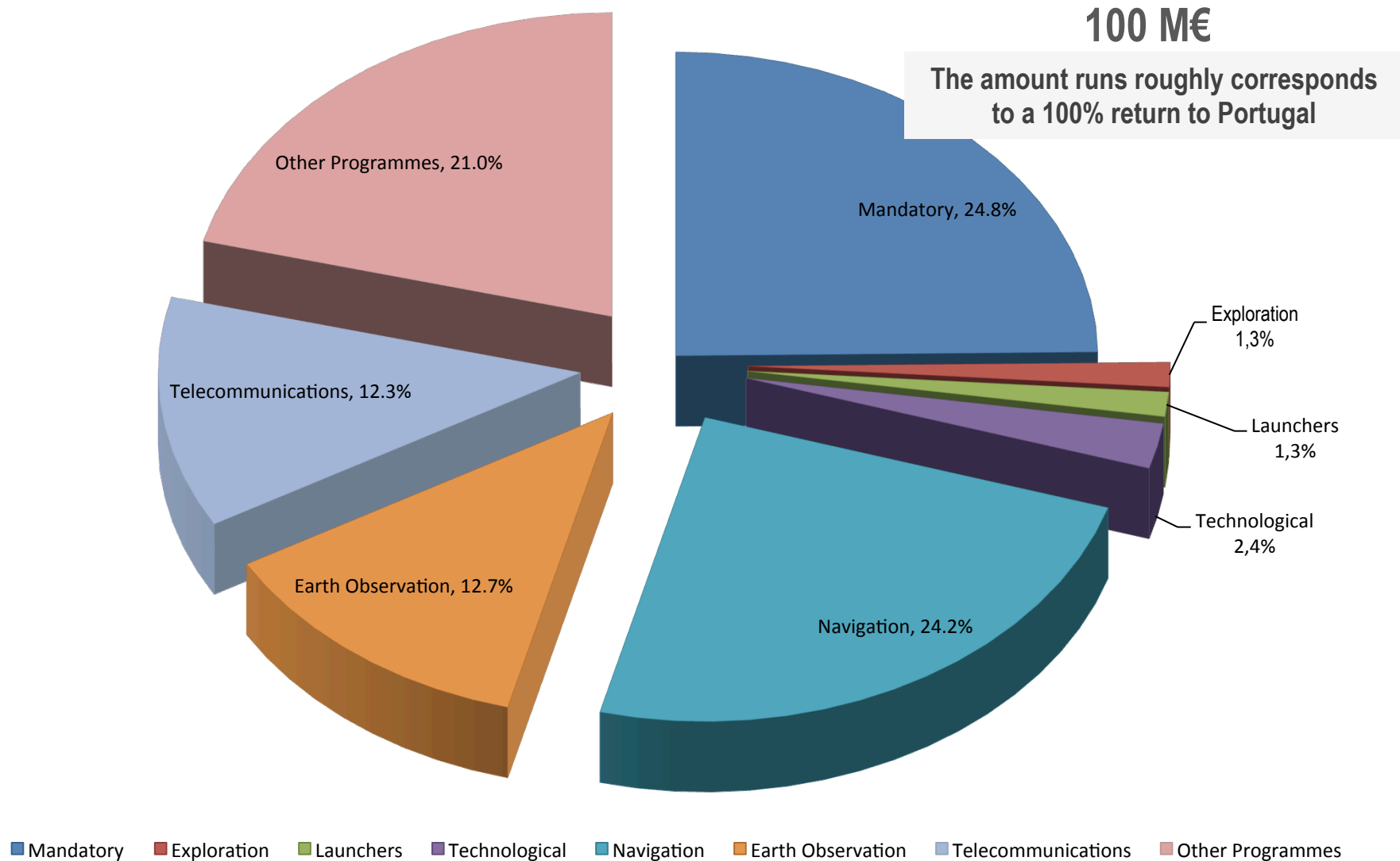
2. Portugal in ESA



2010		
	Mandatory Activities	Optional Programmes
Austria	2.09%	1.69%
Belgium	2.88%	6.62%
Czech Republic	0.81%	0.21%
Denmark	1.65%	0.93%
Finland	1.32%	0.45%
France	17.64%	26.39%
Germany	20.17%	23.31%
Greece	1.74%	0.18%
Ireland	1.16%	0.32%
Italy	12.11%	14.18%
Luxembourg	0.22%	0.44%
Netherlands	4.48%	3.00%
Norway	2.14%	2.13%
Portugal	1.16%	0.50%
Spain	7.69%	6.66%
Sweden	2.55%	2.07%
Switzerland	3.18%	3.24%
United Kingdom	16.26%	6.58%
Total Member States	99.24%	98.91%

Source: ESA ANNUAL REPORT 2010

2. Portugal in ESA (2000 - 2010)

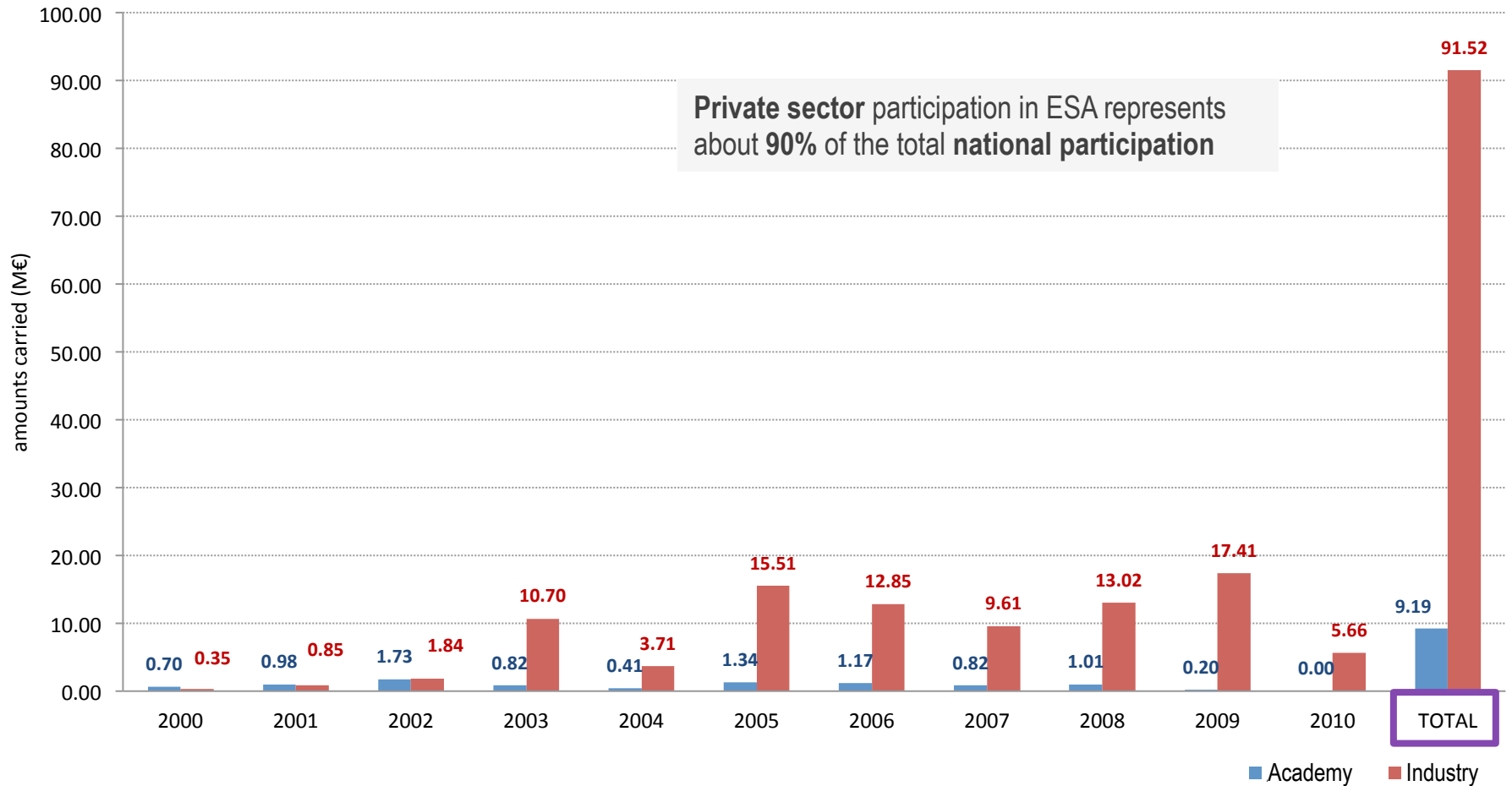


Source: ESA e FCT Space Office

3. Participation of Industry and Academy (2000 - 2010)



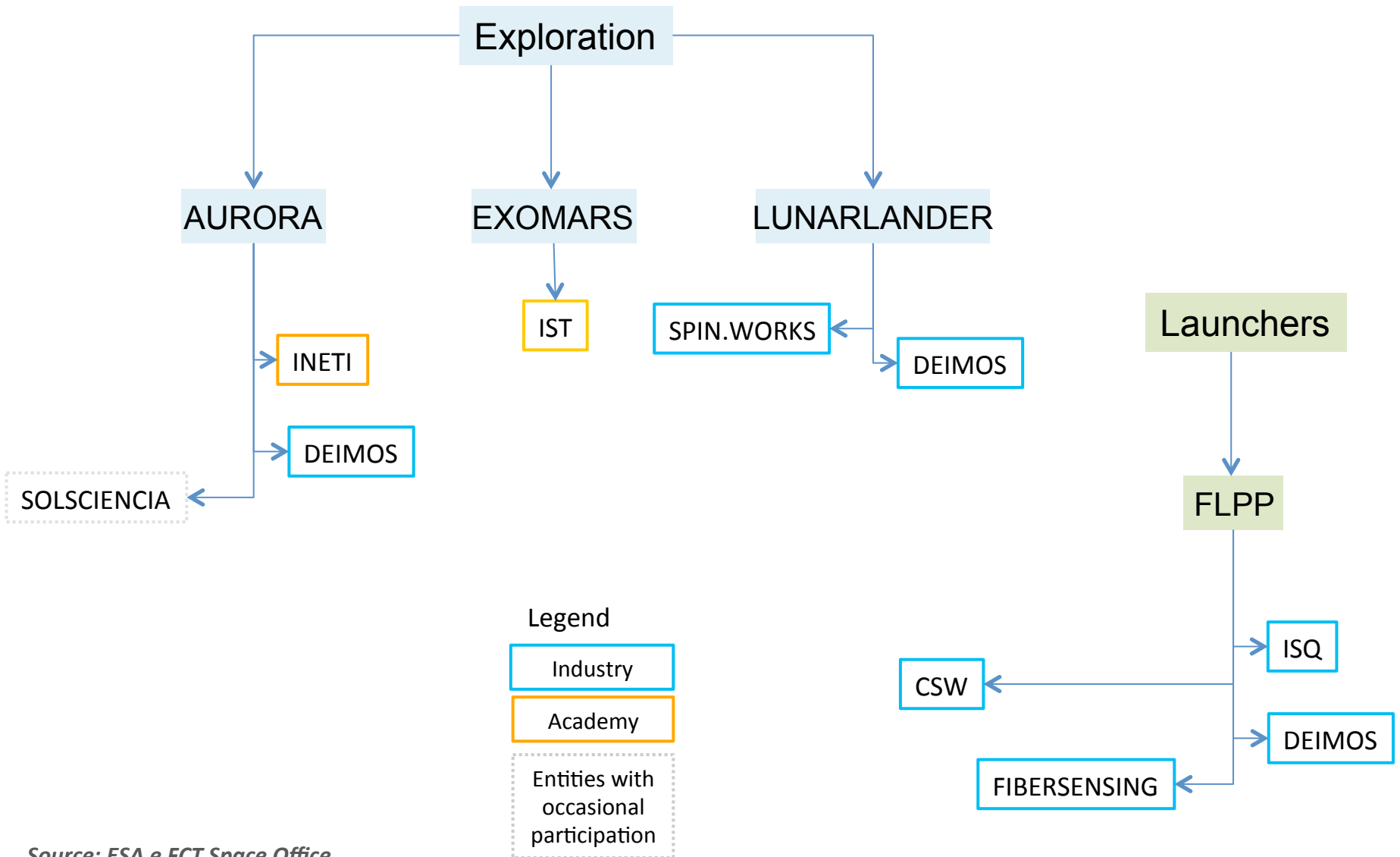
Annual comparison of the amounts made between Academia and Industry



Source: ESA e FCT Space Office

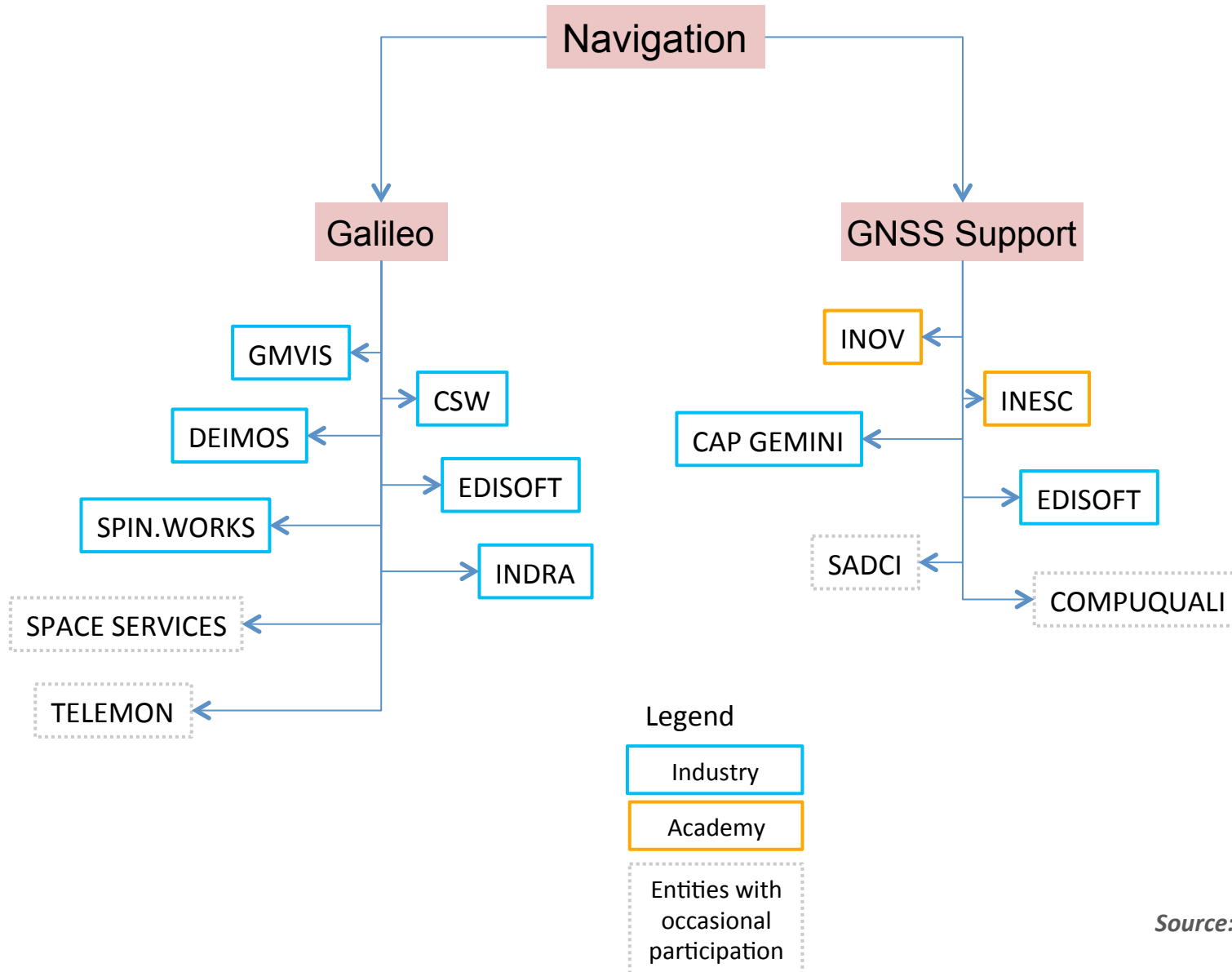


4. Major National Missions in ESA (2000 - 2010)



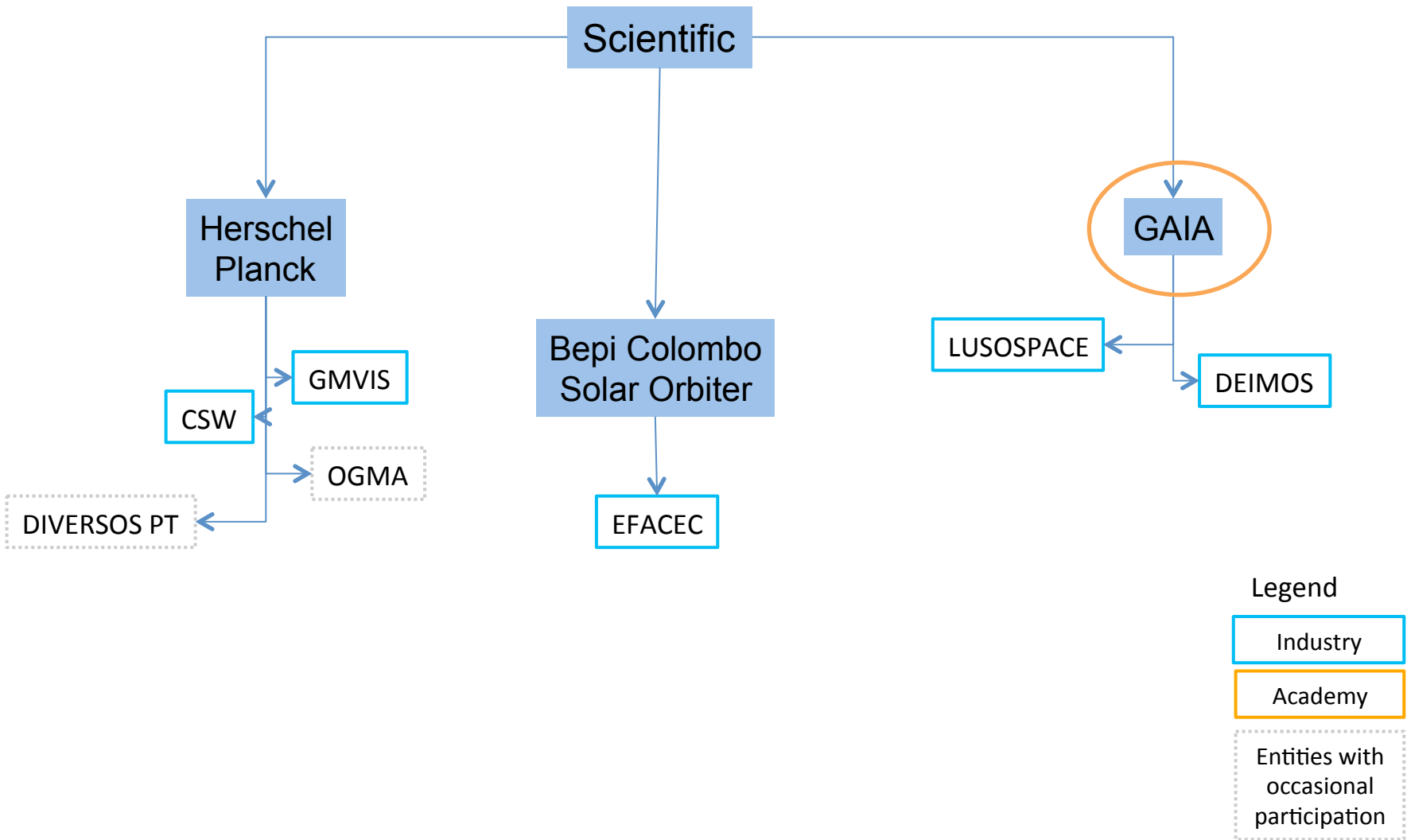
Source: ESA e FCT Space Office

4. Major National Missions in ESA (2000 - 2010)



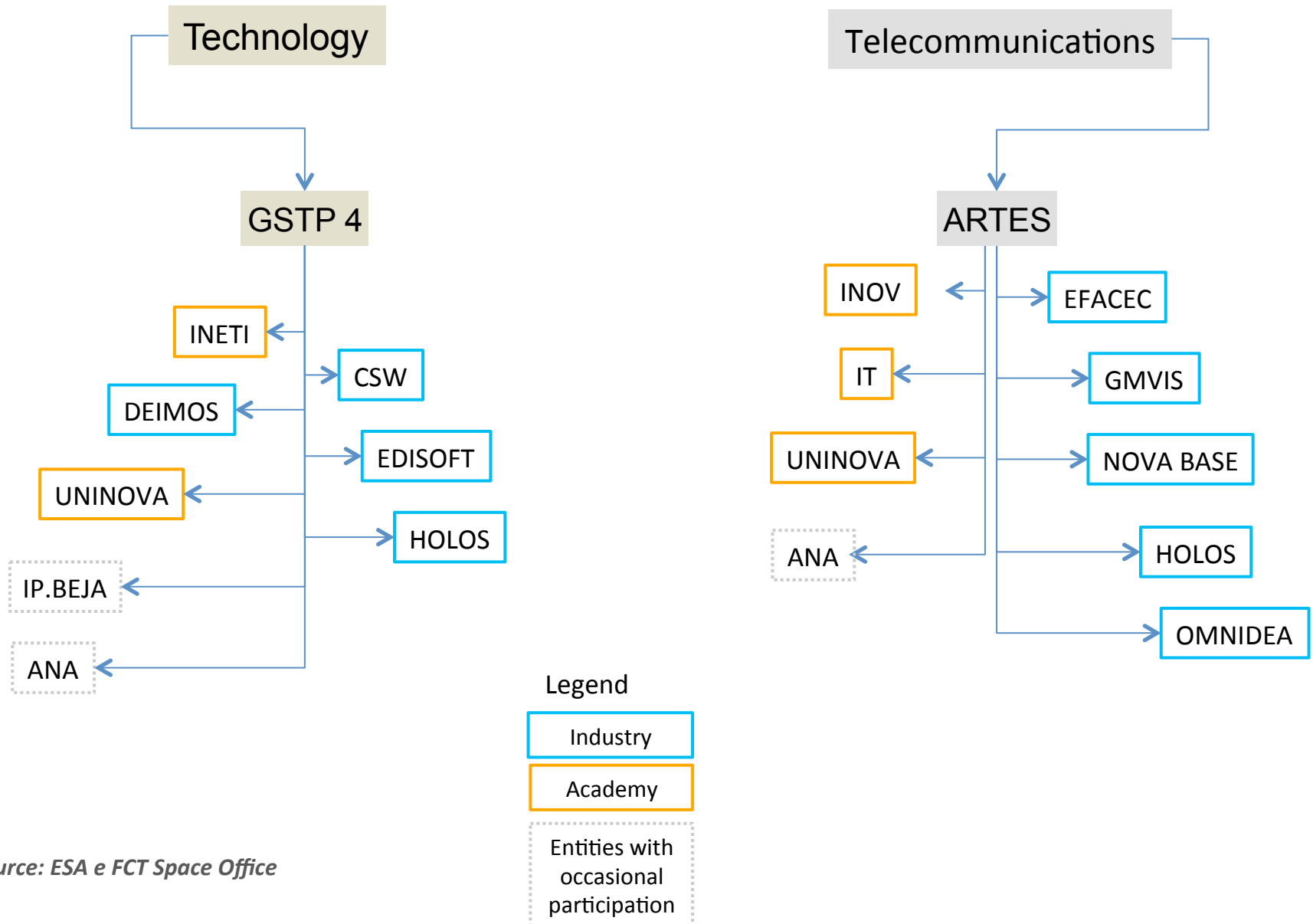
Source: ESA e FCT Space Office

4. Major National Missions in ESA (2000 - 2010)



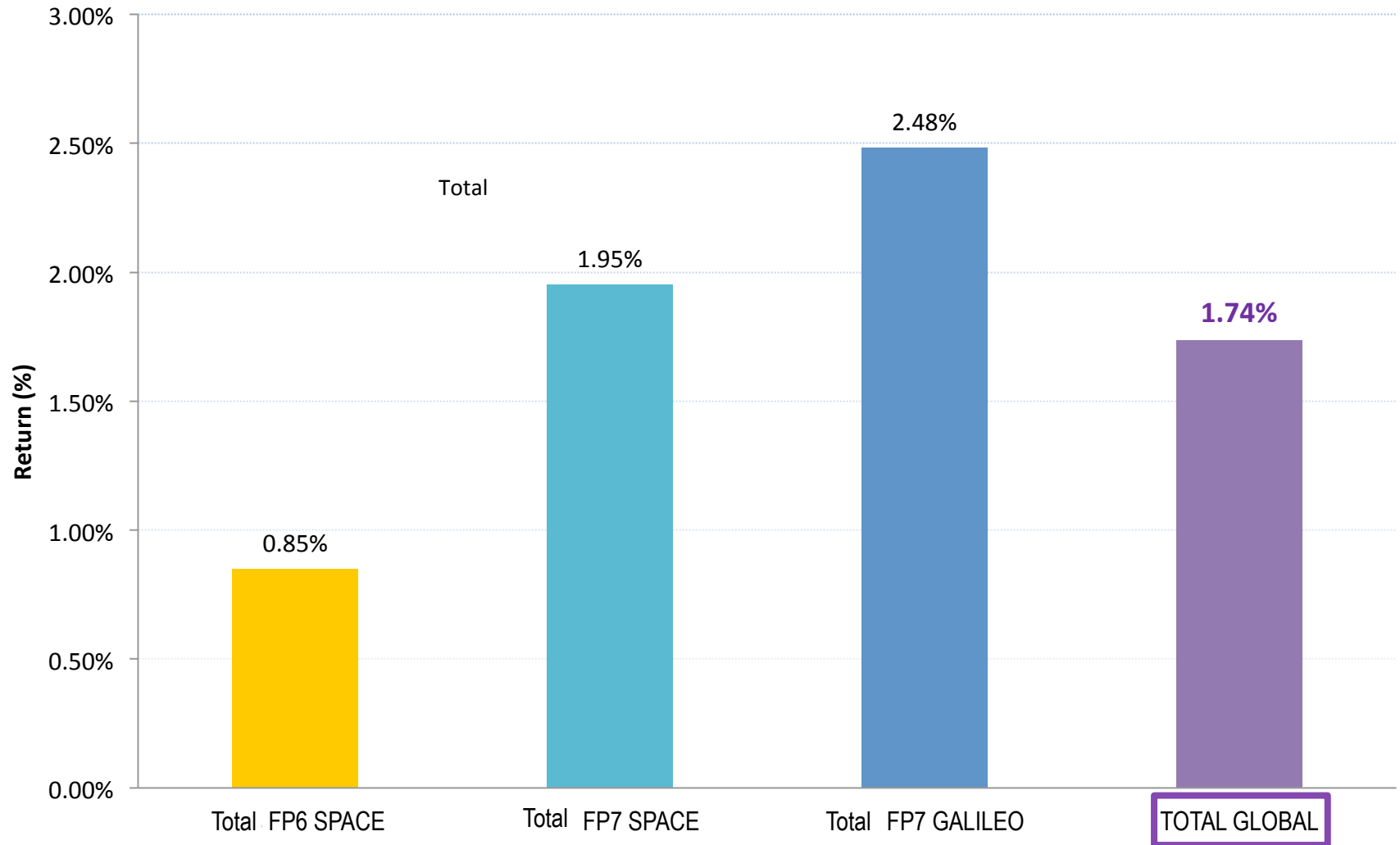
Source: ESA e FCT Space Office

4. Major National Missions in ESA (2000 - 2010)



Source: ESA e FCT Space Office

5. Return to Portugal through FP6 and FP7



Source: Gabinete de Promoção do 7º Programa Quadro

6. Facilities



- European Southern Observatory
- GEM Radiotelescope 408 MHz - 10 GHz (Pampilhosa da Serra): Important for PLANK
- Square Kilometer Array – SKA: receiver prototype tests (Moura)
- ESA Tracking Station (Sta Maria, Azores): Ariane 5



- On-going collaboration with Mozambique for telescope for measuring variations of the Earth's albedo (thus energy balance) by observing the Earth shine on the moon.

Source: ESA e FCT Space Office