

Eurospace facts and figures

Data 2007

Prepared for Space Industry Markets WG by Pierre Lionnet
Public Release May 21st 2008

Source: Eurospace annual facts and figures survey of European space manufacturing industry

All data individually provided by participating companies

Survey monitored and supported by Space Industry Markets Working Group chaired by Norbert DEUTSCHER (Astrium)

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EUROSPACE Facts & Figures

European Space Industry's Consolidated Turnover and Employment

an annual survey by Pierre LIONNET
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Data prior to 1996 source: Etude de la charge de travail de l'industrie spatiale Européenne (1991-2000), March 1995 by EUROSPACE

BEWARE: although studies used similar methodologies and unmeasurable gap exists between the periods 1991-1995 and 1996-199

in current ECU/Euro Thousands

Consolidated turnover	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Austria	-	-	-	-	-	29 000	22 800	18 700	26 400	24 200	25 900	30 644	27 582	31 357	35 084	34 905	41 690
Belgium	-	-	-	-	-	158 000	151 800	195 300	211 200	195 500	182 636	183 911	128 805	115 346	117 960	140 128	157 714
Denmark	-	-	-	-	-	45 000	36 500	45 600	51 400	29 600	42 108	45 265	26 080	14 327	17 589	17 017	19 453
Finland	-	-	-	-	-	16 000	19 700	18 400	21 300	19 400	14 622	13 994	9 840	11 816	9 517	11 565	14 766
France	-	-	-	-	-	1 667 000	1 924 800	2 062 800	2 412 900	2 701 600	2 369 344	2 069 317	1 851 615	2 215 544	1 940 116	2 145 396	2 403 520
Germany	-	-	-	-	-	872 000	913 400	1 026 700	922 400	906 400	890 457	839 663	619 457	697 255	613 655	791 007	810 153
Ireland	-	-	-	-	-	5 000	6 400	5 700	6 000	5 000	5 100	6 225	4 668	4 709	4 633	4 724	5 889
Italy	-	-	-	-	-	629 000	975 300	931 800	879 100	859 600	876 135	745 808	677 780	779 955	736 385	719 704	775 733
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3 735
Netherlands	-	-	-	-	-	115 000	116 400	106 400	91 500	49 800	63 436	52 412	63 790	70 226	72 714	62 479	65 469
Norway	-	-	-	-	-	44 000	37 100	40 100	42 700	41 400	39 333	35 393	8 360	33 695	34 234	43 495	54 833
Portugal	-	-	-	-	-	-	-	-	2 000	2 200	2 100	3 352	2 131	3 032	3 553	4 692	5 564
Spain	-	-	-	-	-	170 000	178 200	158 700	132 900	134 500	144 336	136 541	158 553	171 983	180 675	232 698	247 491
Sweden	-	-	-	-	-	128 000	123 900	101 800	95 400	107 100	114 866	99 826	78 390	87 010	90 816	102 293	98 770
Switzerland	-	-	-	-	-	104 000	87 000	119 400	116 600	103 700	102 631	94 546	84 171	77 750	80 240	89 475	90 396
United Kingdom	-	-	-	-	-	573 000	553 000	490 000	469 200	380 800	385 044	369 282	292 919	470 618	501 522	583 702	565 138
Total Consolidated Turnover	3 528 700	4 077 200	3 555 000	3 909 500	4 281 100	4 555 000	5 146 600	5 318 500	5 481 200	5 560 700	5 258 138	4 726 179	4 034 141	4 784 622	4 417 327	4 983 280	5 360 314

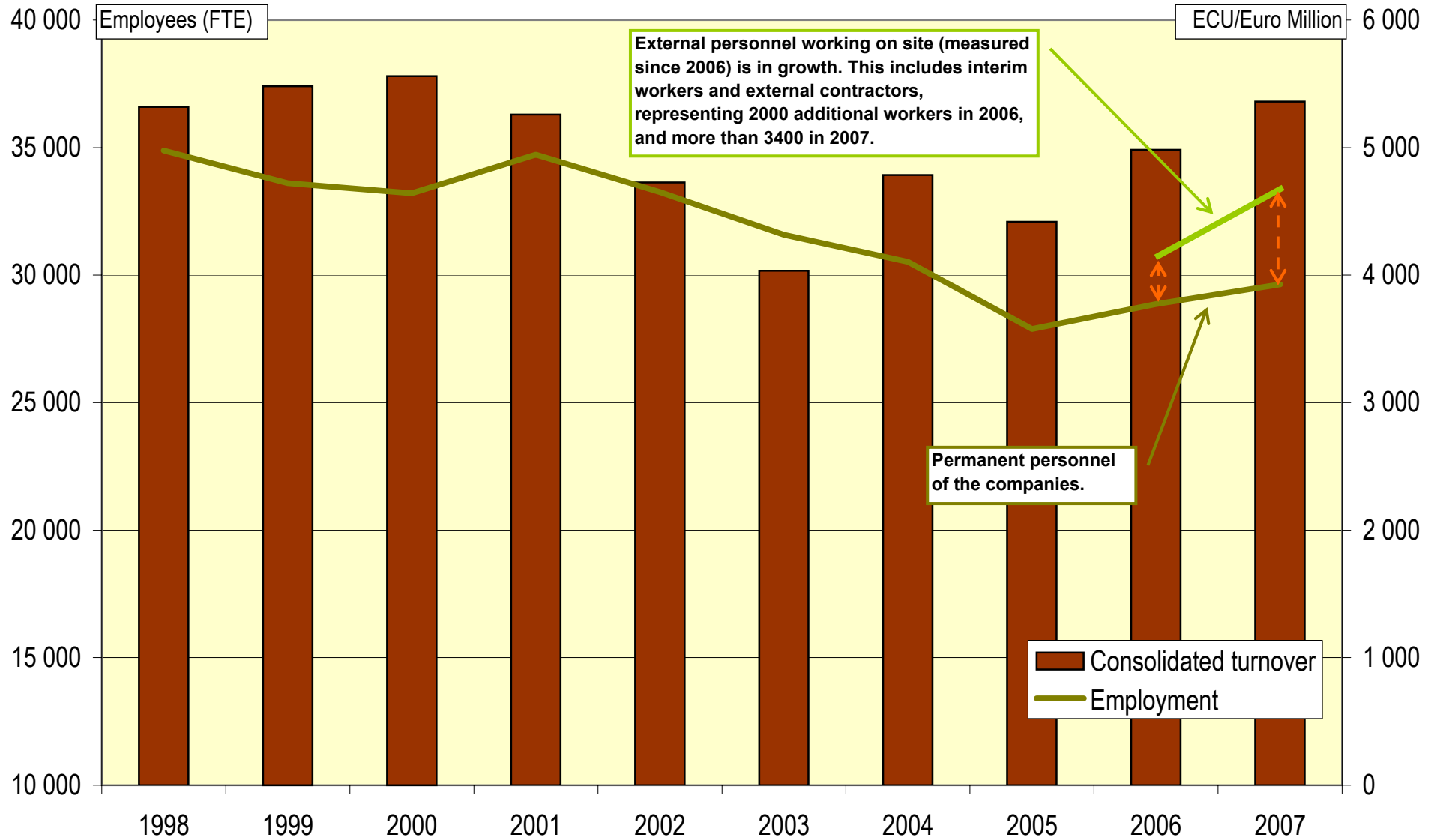
Distribution by customer	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
ESA	1 396 000	1 749 300	1 462 300	1 469 900	1 653 200	1 835 000	1 501 000	1 674 000	1 520 800	1 529 600	1 342 484	1 491 730	1 449 134	1 464 462	1 319 838	1 476 247	1 515 868
European Commission	-	-	-	-	-	45 000	14 000	17 000	16 900	57 600	23 853	27 062	15 545	14 706	14 330	12 060	13 363
Eumetsat	-	-	-	-	-	-	-	-	-	-	-	77 580	73 176	109 237	93 182	59 695	20 722
National Civil Programmes	772 600	898 800	664 000	684 500	704 900	467 000	794 000	617 000	754 300	653 700	706 787	576 920	486 262	590 984	521 091	449 287	541 760
Civil Multilateral Programmes	-	-	-	-	-	-	-	-	-	-	-	76 680	75 621	52 424	81 530	79 111	93 536
European Civil institutional programmes	2 168 600	2 648 100	2 126 300	2 154 400	2 358 100	2 347 000	2 309 000	2 308 000	2 292 000	2 240 900	2 073 124	2 249 972	2 100 278	2 231 814	2 029 970	2 076 399	2 185 248
European Military Programmes	247 800	284 800	265 000	349 700	414 200	519 000	383 000	512 000	521 800	405 500	358 245	470 615	547 496	724 079	735 857	937 052	1 006 304
Institutional market Europe	2 416 400	2 932 900	2 391 300	2 504 100	2 772 300	2 866 000	2 692 000	2 820 000	2 813 800	2 646 400	2 431 369	2 720 587	2 647 774	2 955 892	2 765 828	3 013 451	3 191 552
GEO Commercial Systems	-	-	-	-	-	987 000	1 450 000	1 524 000	1 647 200	1 804 000	1 772 122	1 114 461	657 440	920 536	772 518	849 830	996 235
Other commercial systems & parts	-	-	-	-	-	-	-	-	-	-	-	89 082	43 395	66 843	72 211	115 551	239 289
Commercial satellites	na	na	na	na	-	987 000	1 450 000	1 524 000	1 647 200	1 804 000	1 772 122	1 203 543	700 835	987 739	844 729	965 381	1 235 524
Arianespace	-	-	-	-	-	578 000	943 000	931 000	976 200	1 061 600	947 376	748 010	545 451	533 694	651 928	844 695	799 718
Other launch systems	-	-	-	-	-	-	-	-	-	-	-	2 317	22 653	29 557	66 285	33 126	35 126
Operational launch systems	na	na	na	na	-	578 000	943 000	931 000	976 200	1 061 600	947 376	750 327	568 104	563 251	718 213	884 518	834 844
Commercial & exports	972 400	1 021 100	1 047 800	1 261 000	1 333 100	1 565 000	2 393 000	2 455 000	2 623 400	2 865 600	2 719 498	1 953 870	1 268 939	1 550 630	1 562 941	1 849 899	2 070 369
Other/unidentified	139 900	123 200	115 900	144 400	175 700	124 000	61 000	42 000	44 000	48 800	107 271	51 722	117 430	278 100	109 923	119 930	98 993
Total	3 528 700	4 077 200	3 555 000	3 909 500	4 281 100	4 555 000	5 146 600	5 317 000	5 481 200	5 560 800	5 258 138	4 726 179	4 034 143	4 784 622	4 438 692	4 983 280	5 360 314

Distribution by activity	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Telecommunications	879 400	915 300	808 800	980 300	983 600	1 190 000	1 486 000	1 609 000	1 875 000	1 706 300	1 761 858	1 536 311	1 219 025	1 775 617	1 566 706	1 864 627	2 163 008
Earth Observation	528 400	604 400	632 000	786 900	733 800	1 006 000	888 000	917 000	1 042 600	998 300	837 620	907 889	675 167	854 216	811 813	826 283	824 953
Navigation/localisation/positioning	-	-	-	-	-	-	-	-	39 700	85 000	109 429	80 305	136 660	210 203	207 497	242 594	301 164
Satellite applications	1 407 800	1 519 700	1 440 800	1 767 200	1 717 400	2 196 000	2 374 000	2 526 000	2 957 300	2 789 600	2 708 907	2 524 505	2 030 852	2 840 037	2 586 016	2 933 054	3 289 125
Launcher development activities	na	na	na	na	-	728 000	647 000	620 000	428 800	568 000	411 116	401 918	303 182	371 680	358 798	315 514	349 861
Operational launcher activities	na	na	na	na	-	578 000	943 000	931 000	976 200	1 061 600	947 376	750 327	568 104	563 251	718 213	884 518	834 844
Launcher activities	1 097 100	1 112 200	1 157 200	1 219 500	1 375 500	1 306 000	1 590 000	1 551 000	1 405 000	1 629 600	1 358 492	1 152 245	871 286	934 931	1 077 010	1 200 032	1 184 706
Space Infrastructure and Manned Pgm.	330 400	560 500	263 800	224 100	258 100	262 000	442 000	378 000	415 200	409 300	454 387	408 320	356 338	352 329	237 047	272 465	241 221
Science	270 200	352 600	292 900	270 000	373 800	433 000	365 000	556 000	376 400	425 100	439 364	275 872	454 952	441 651	341 690	394 892	410 740
Microgravity	na	na	na	na	-	64 000	66 000	84 000	72 400	57 000	60 024	51 698	28 098	36 992	32 149	35 301	37 754
Scientific activities	600 600	913 100	556 700	494 100	631 900	759 000	873 000	1 017 000	864 000	891 400	953 775	735 890	839 388	830 972	610 886	702 658	689 714
Support Activities	387 400	442 300	400 300	401 800	423 100	220 000	173 000	156 000	165 100	182 400	119 284	190 252	160 387	89 610	77 860	72 299	109 576
Other/unidentified	35 800	89 900	-	26 900	133 200	74 000	136 000	67 000	89 800	67 800	117 680	123 288	132 227	89 073	86 290	74 788	87 192

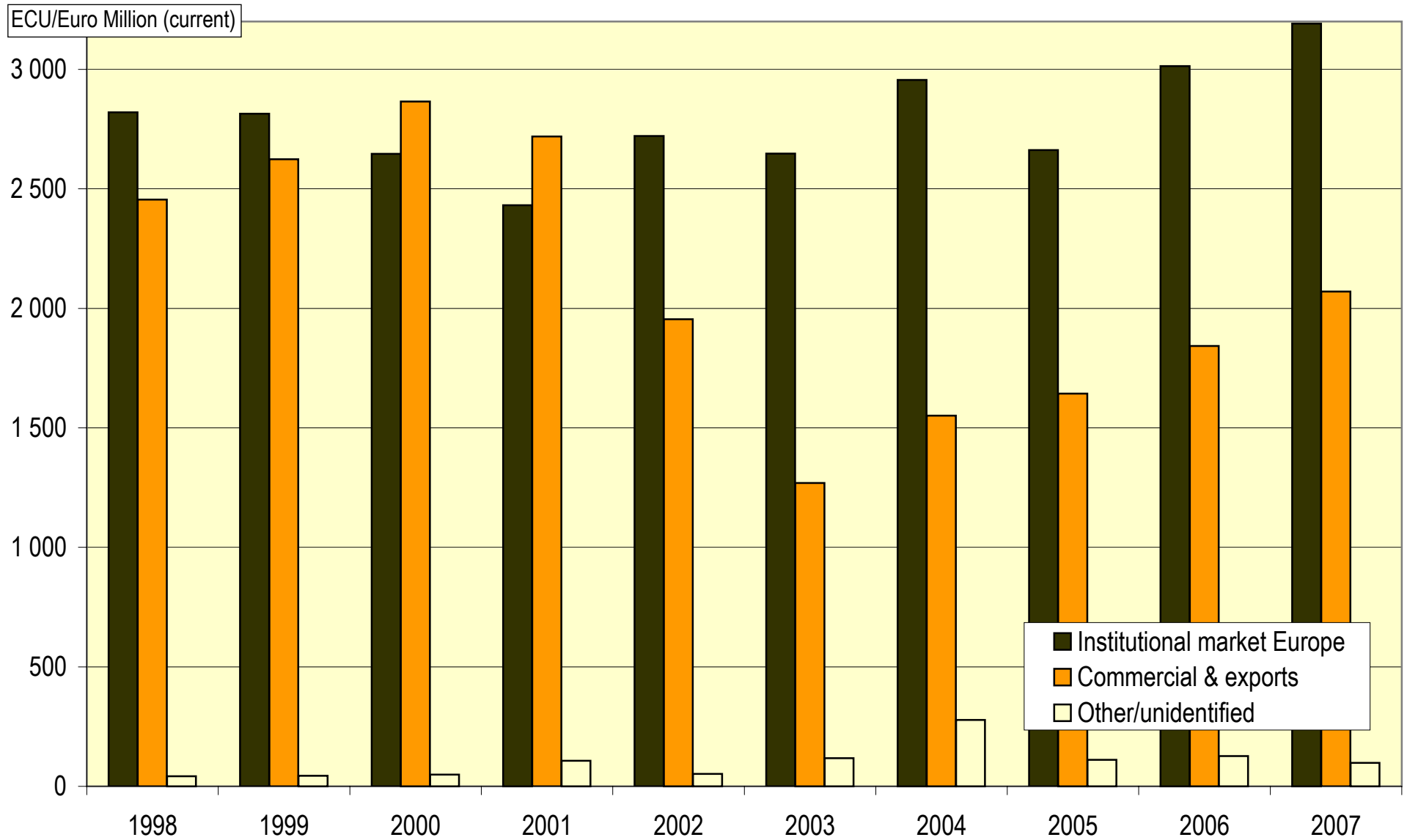
European space industry direct employment 1998-2007

Employment	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Austria	210	203	189	195	197	258	265	279	299	314
Belgium	1605	1447	1351	1305	1223	1244	1149	1 182	1 199	1 233
Denmark	347	369	321	319	300	262	162	175	155	155
Finland	237	223	240	162	171	130	136	128	131	148
France	13252	12813	13522	14677	13965	13120	12603	11 106	11 099	11 355
Germany	5963	6080	5786	5760	5465	5076	4604	4 429	4 495	4 799
Ireland	71	62	45	47	51	51	52,5	51	41	51
Italy	5741	5837	5770	5618	5413	4959	4655	3 849	3 771	3 969
Netherlands	671	502	412	402	361	445	497	0	0	27
Norway	399	353	305	397	360	149	227	522	555	525
Portugal		20	22	37	39	38	48	225	271	316
Spain	1495	1418	1340	1469	1449	1451	1453	56	64	79
Sweden	801	766	710	724	668	705	689	1 491	1 956	2 137
Switzerland	513	480	462	476	455	540	535	680	694	678
United Kingdom	3577	3035	2732	3139	3137	3159	3448	509	681	707
Total direct Europe	34 883	33 608	33 207	34 727	33 254	31 587	30 524	27 884	28 863	29 637
External personnel working on site (measured only since 2006)									2075	3412
Total employment									30 938	33 049

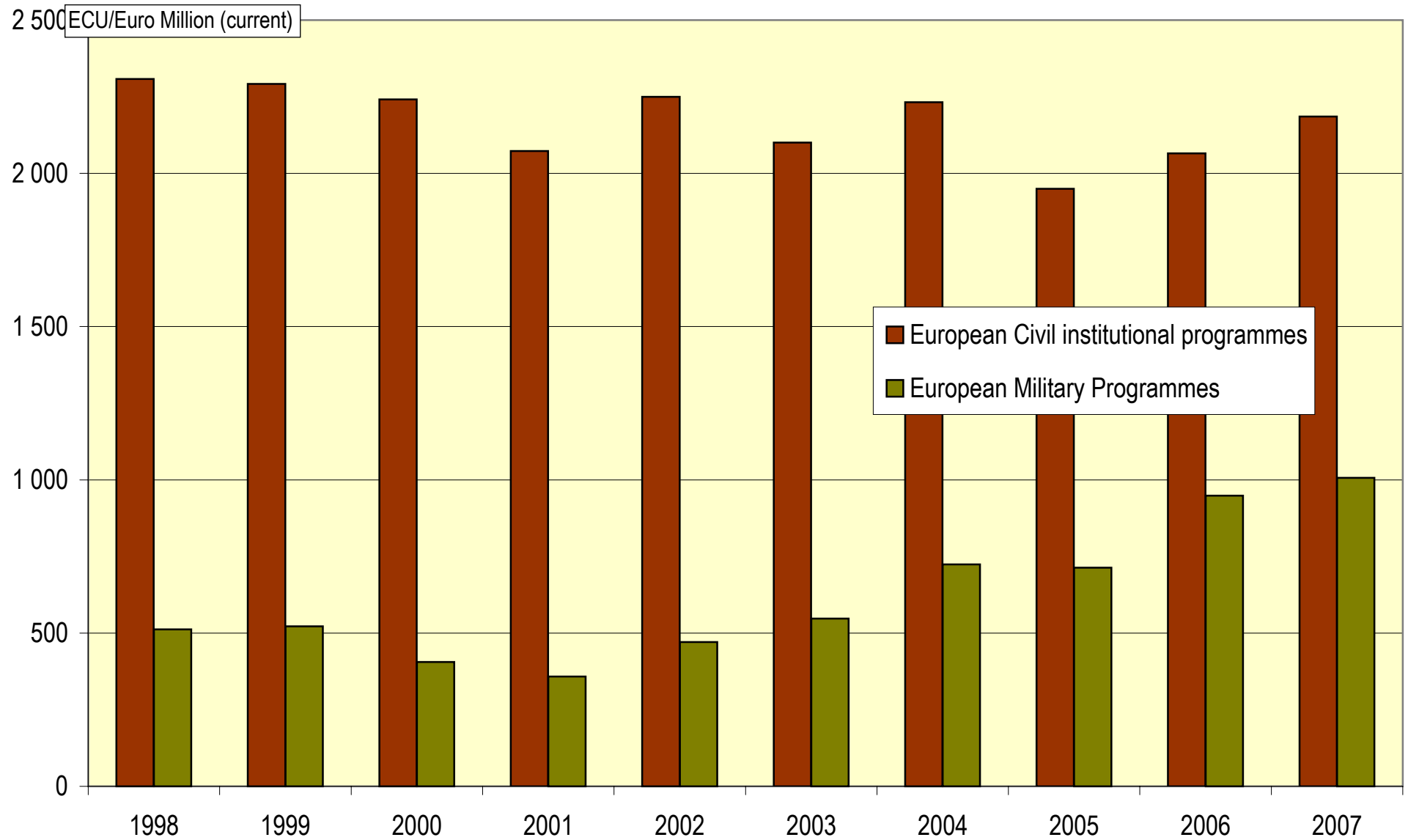
Turnover employment evolution



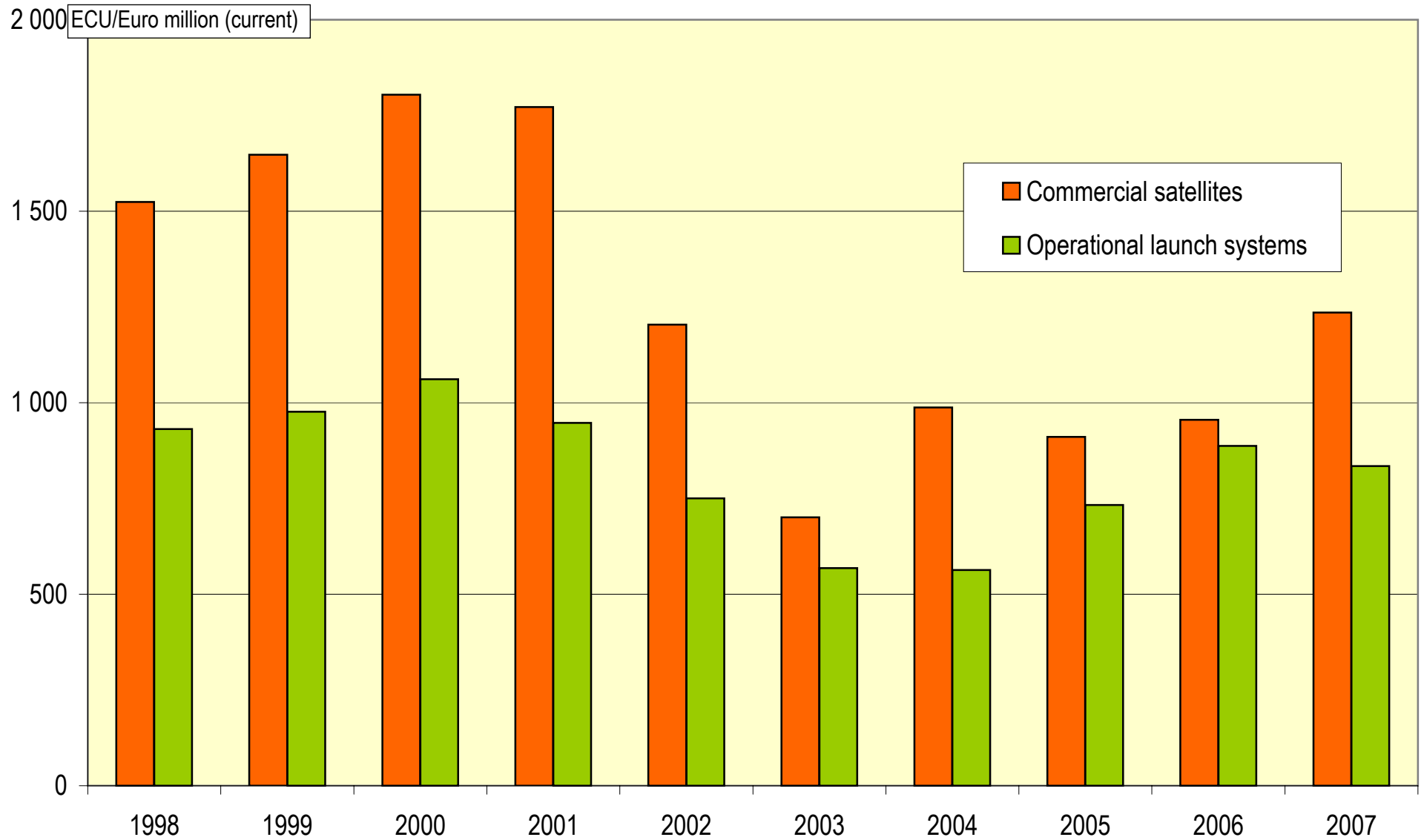
Turnover distribution by main market (Institutional Europe vs. Commercial and Exports)



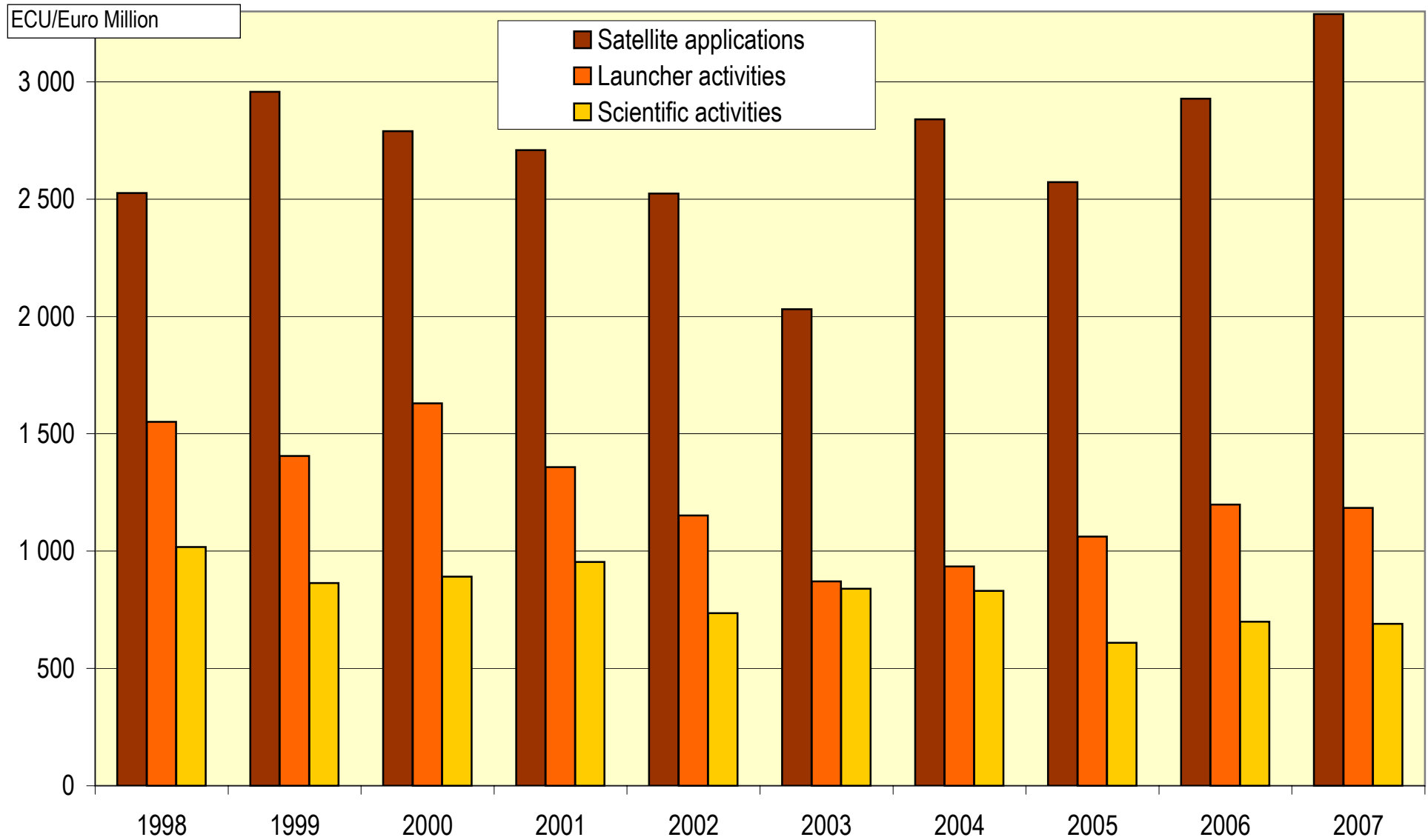
Institutional Market details: Civil vs. Military customers



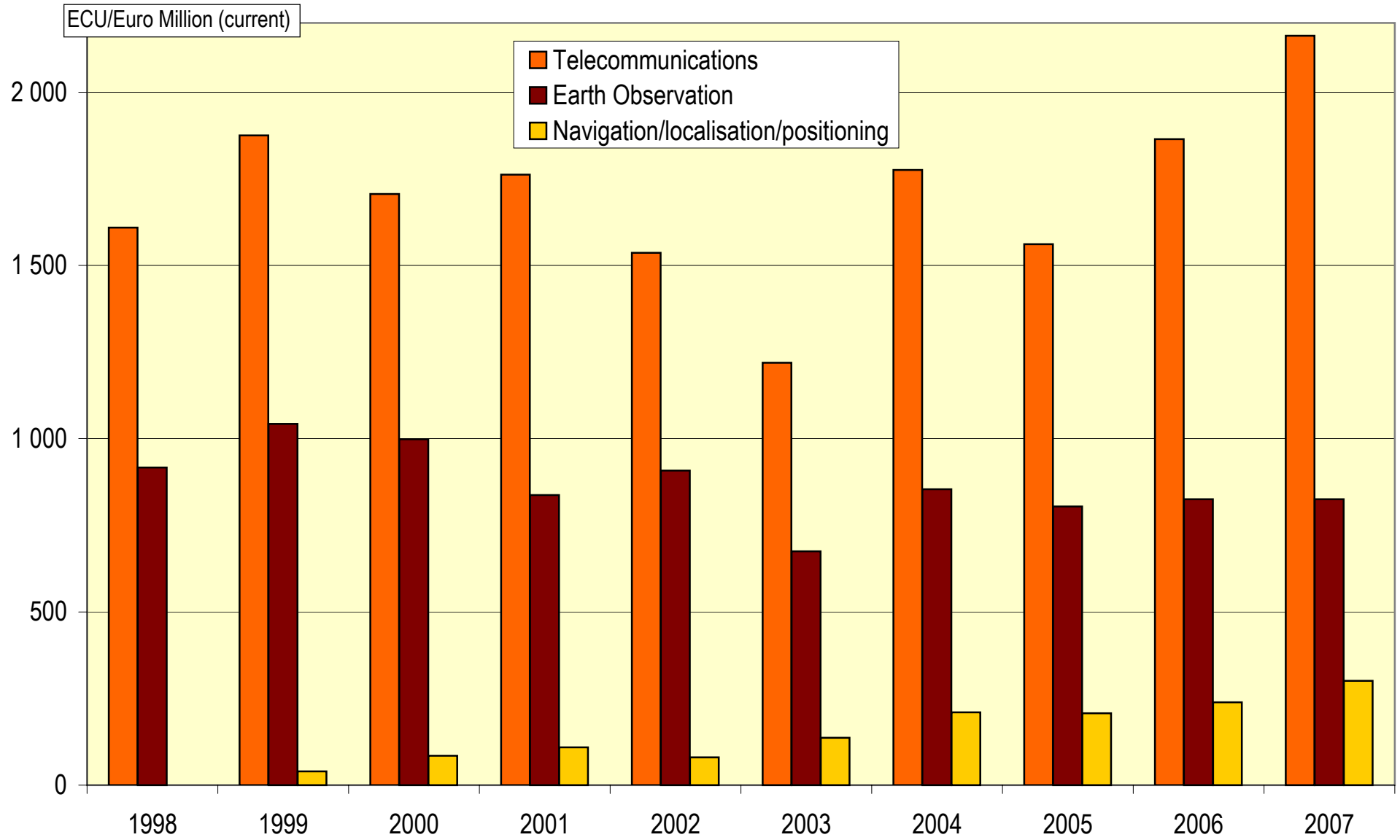
Commercial and exports details: Satellite vs. Launcher sales



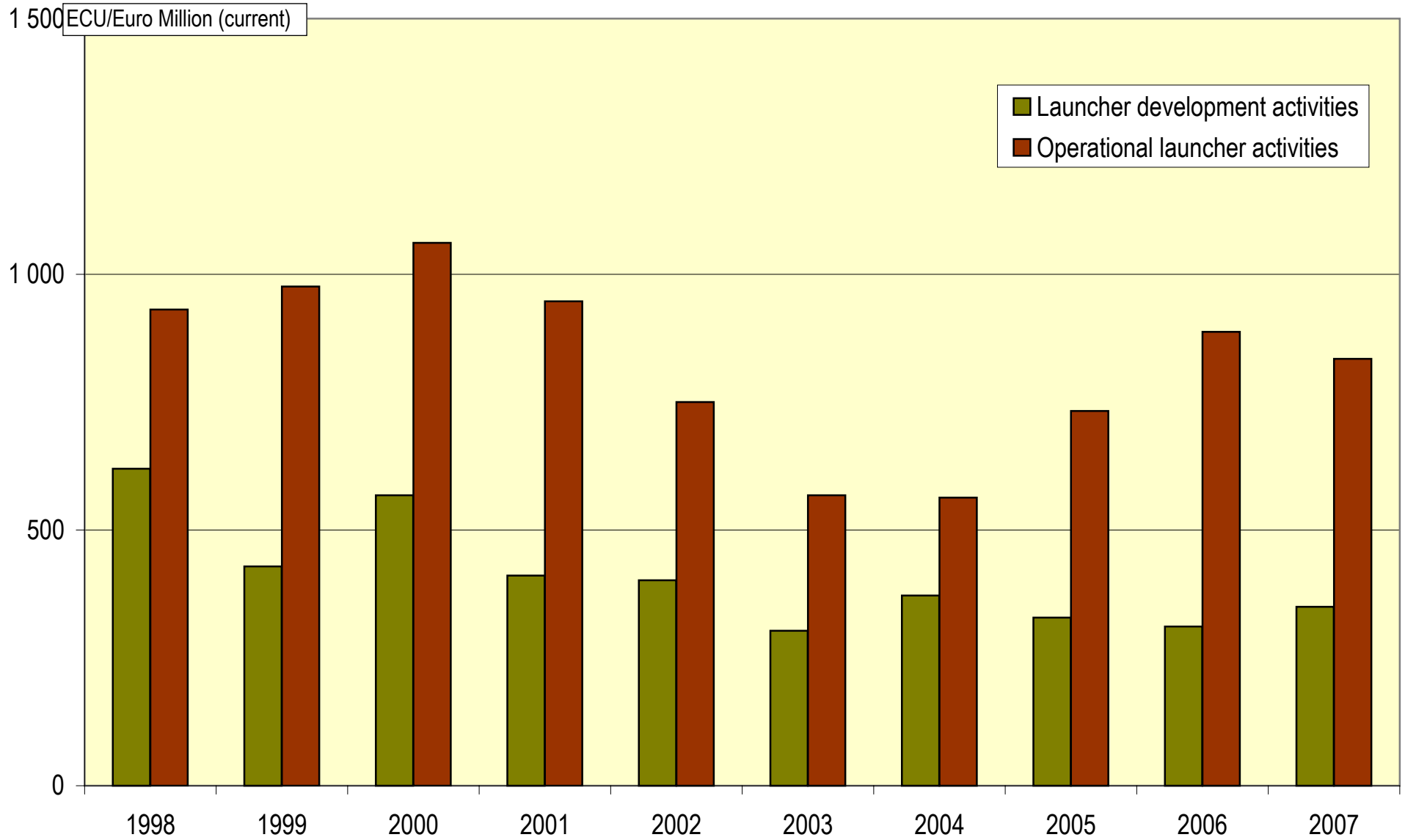
Turnover distribution by main activity



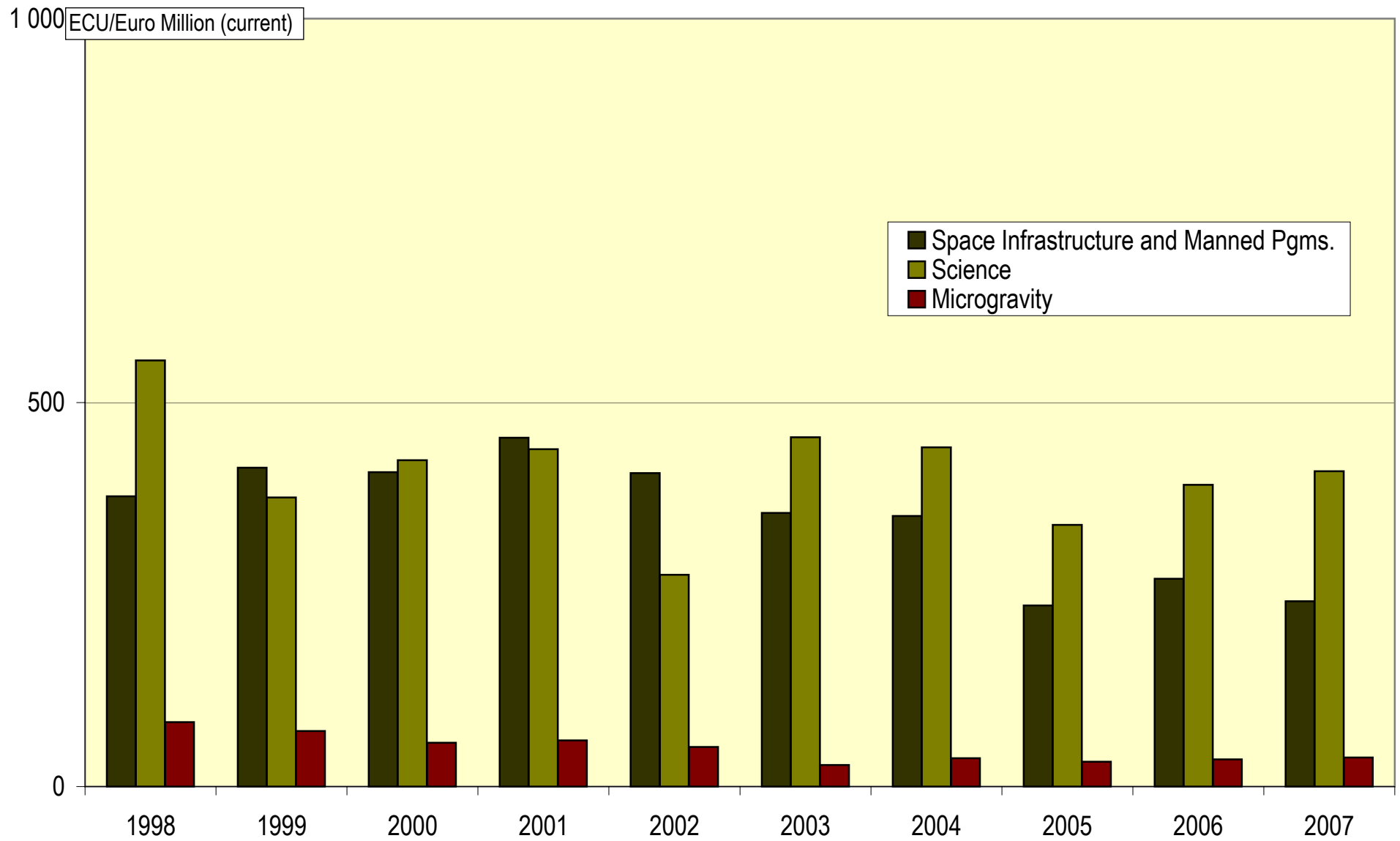
Satellite applications details



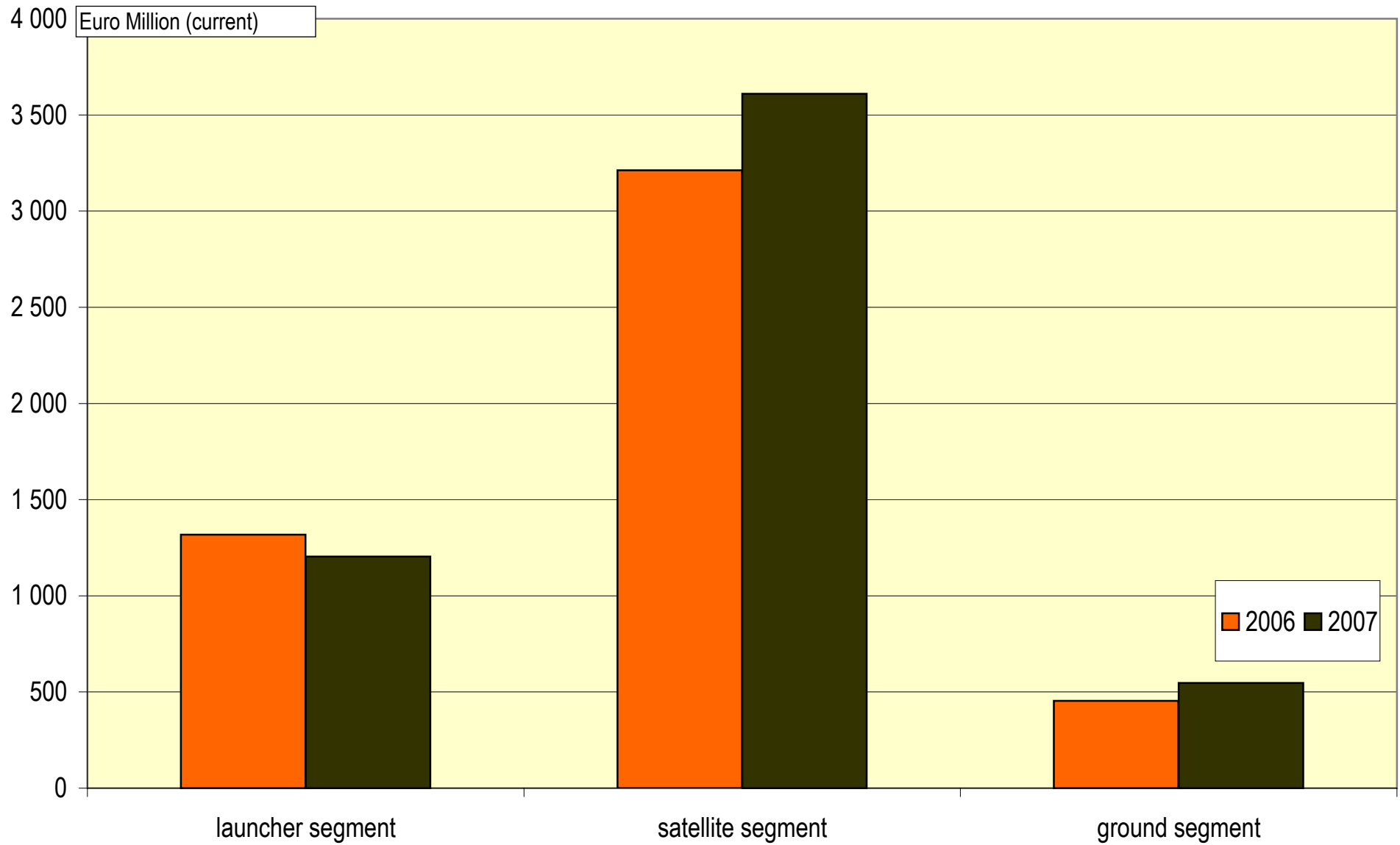
Launch system details



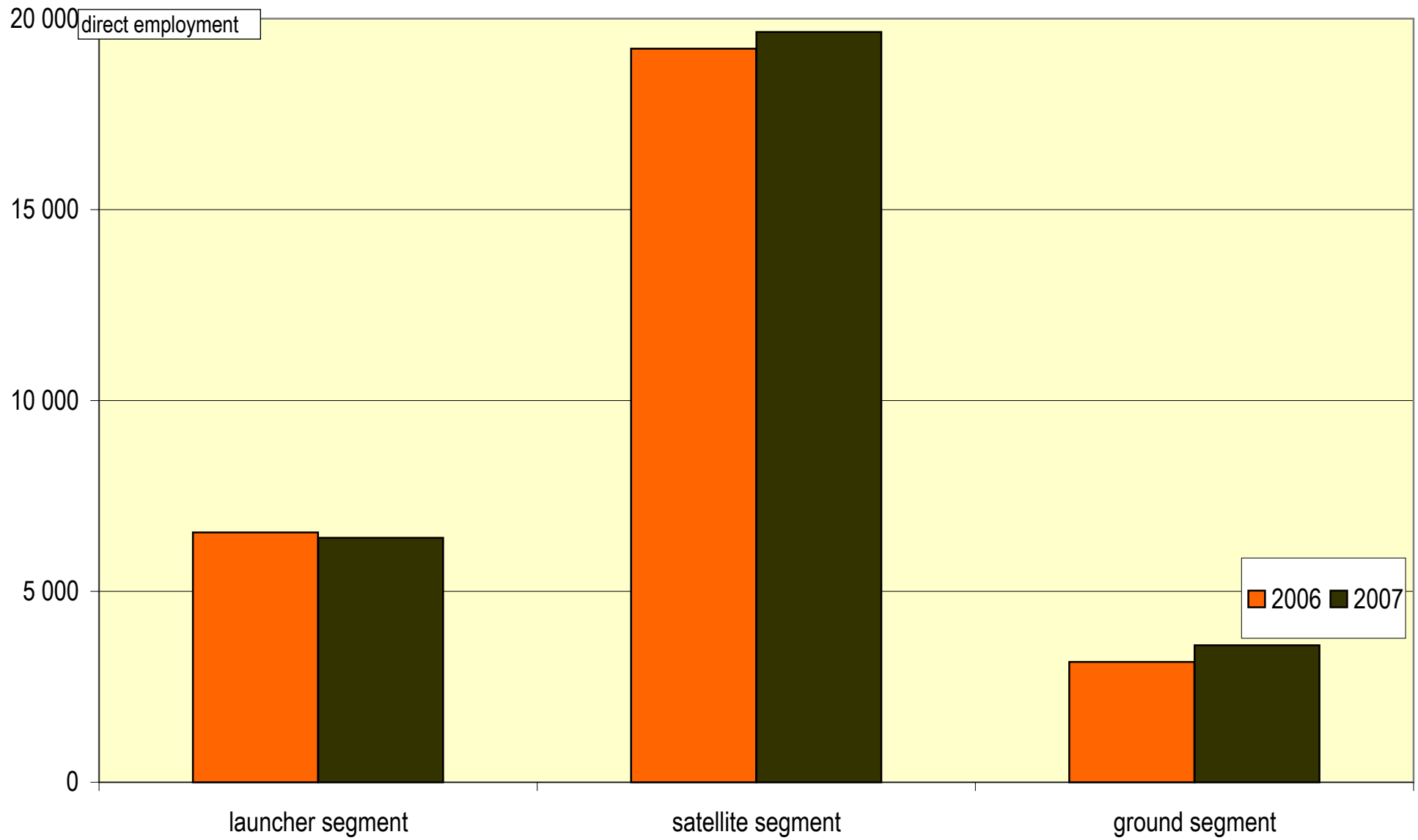
Scientific Programmes details



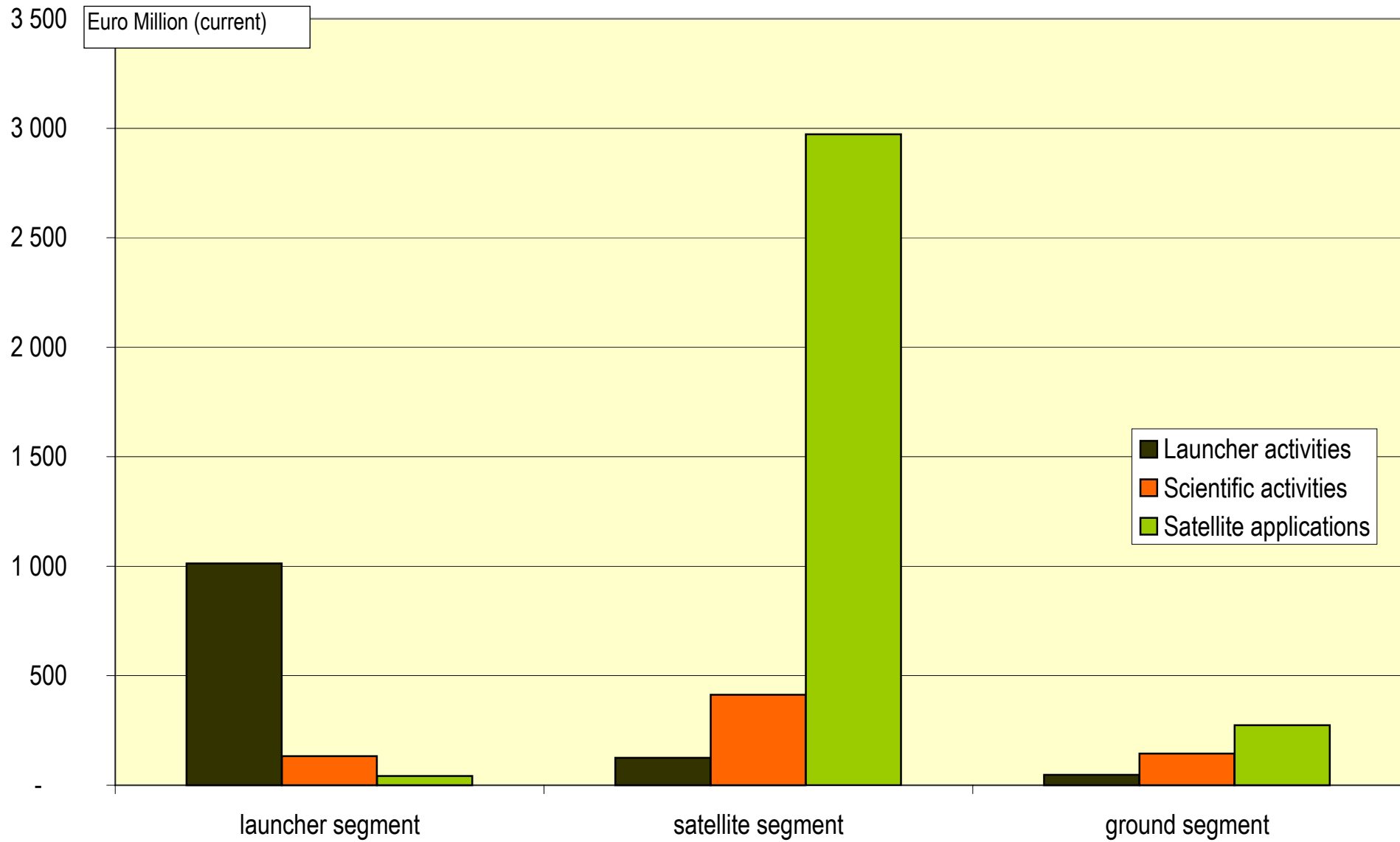
Industry segments: Turnover 2006-2007



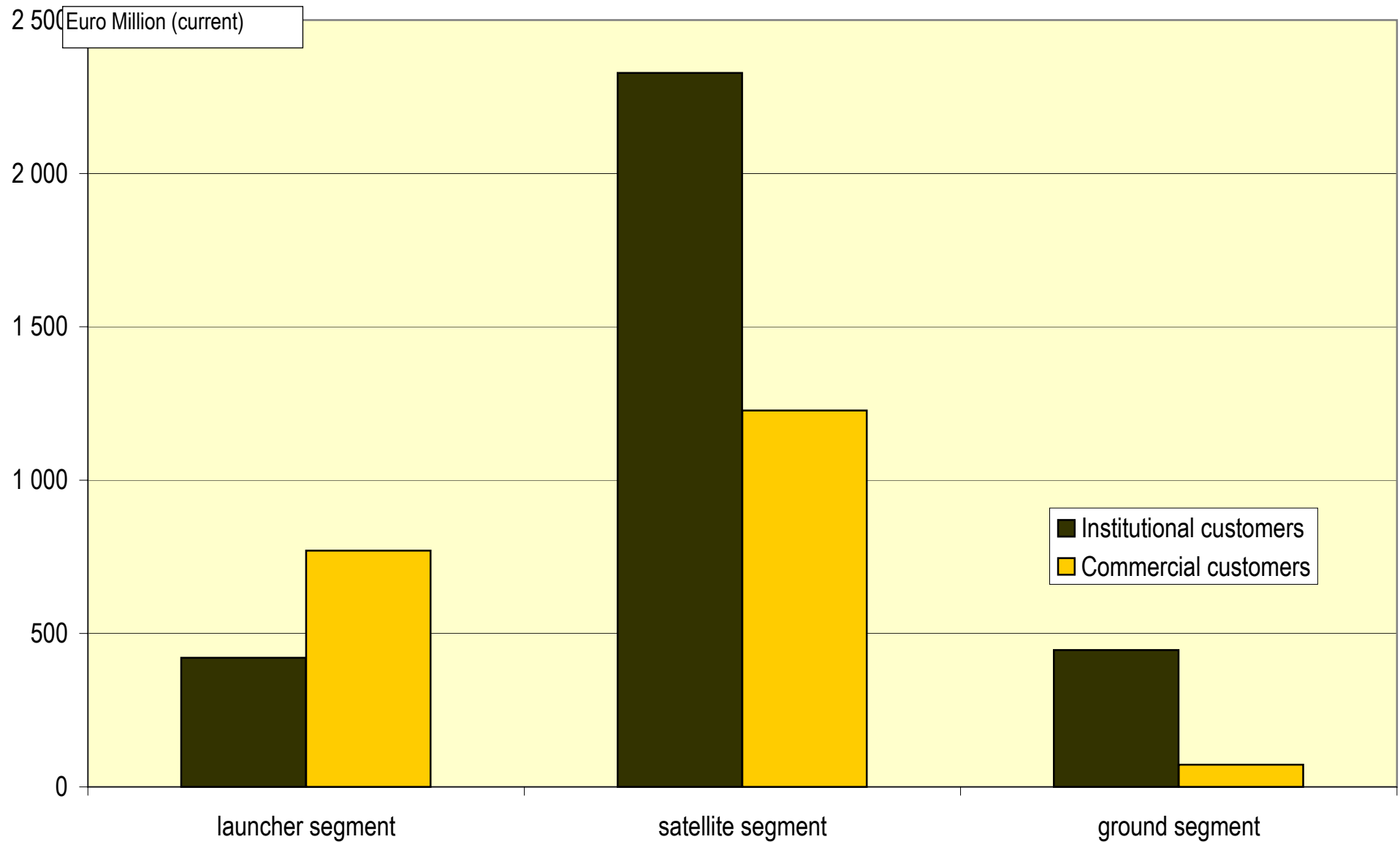
Industry segments: employment 2006-2007



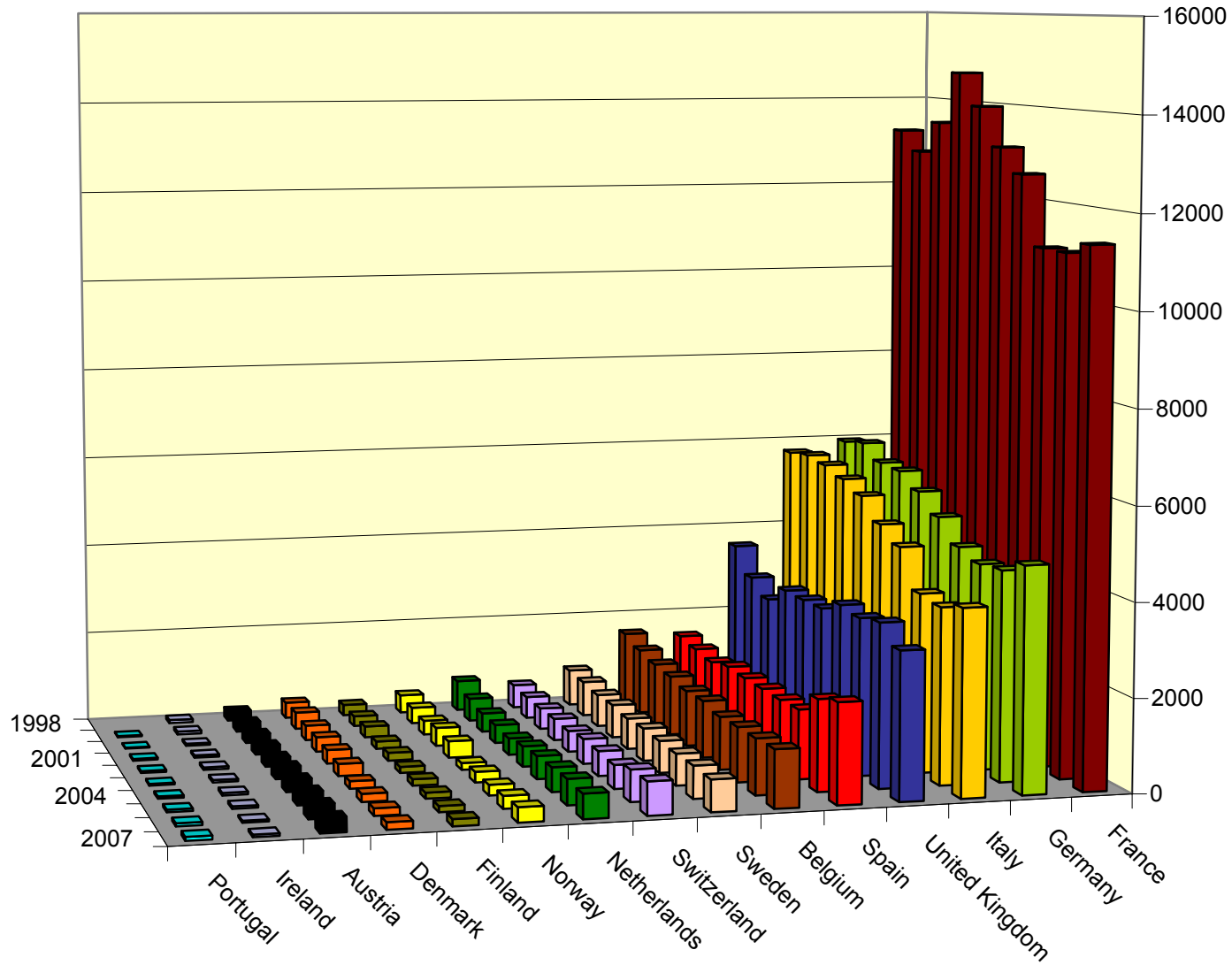
Industry segments: Turnover distribution by main activity



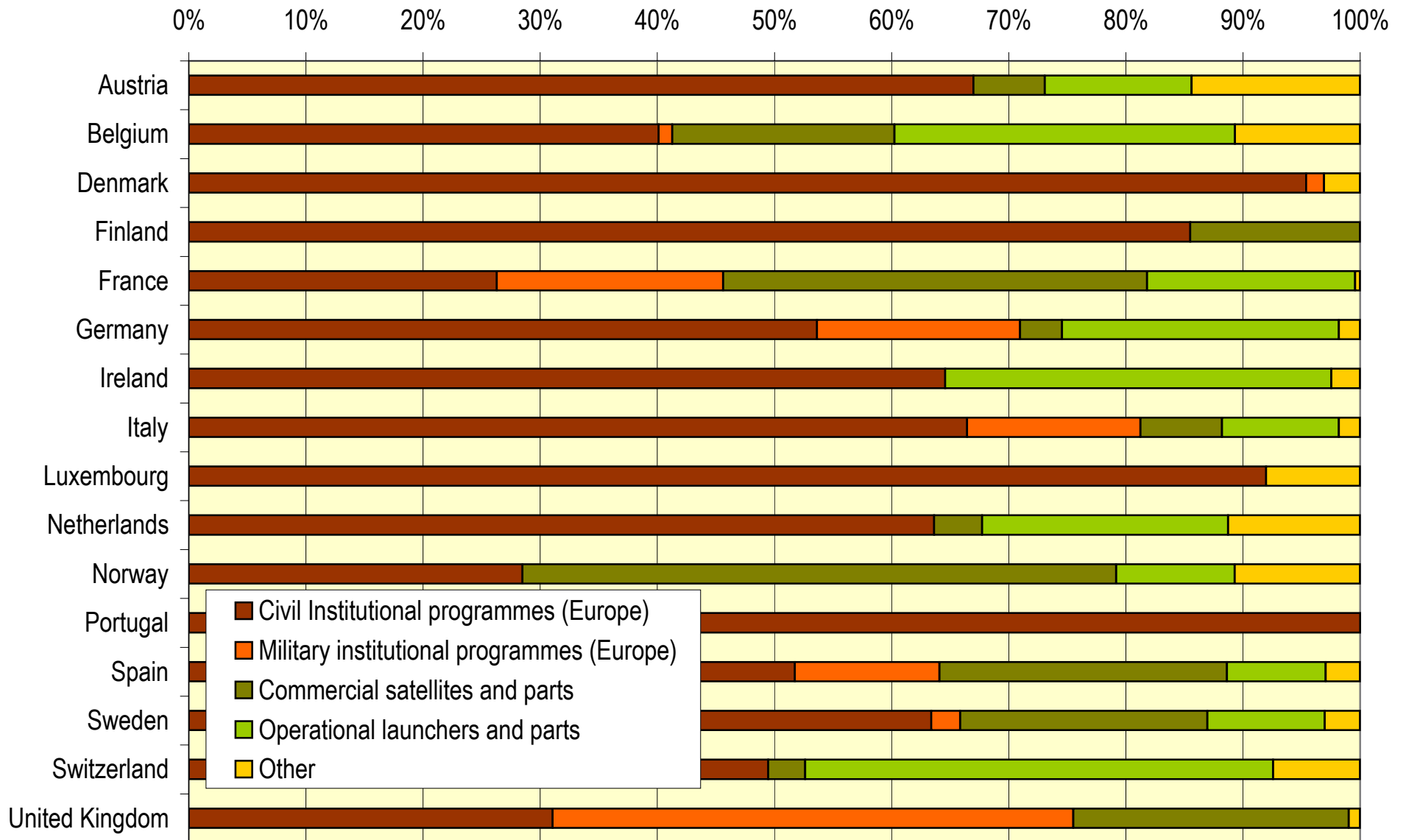
Industry segments: Turnover distribution by main market



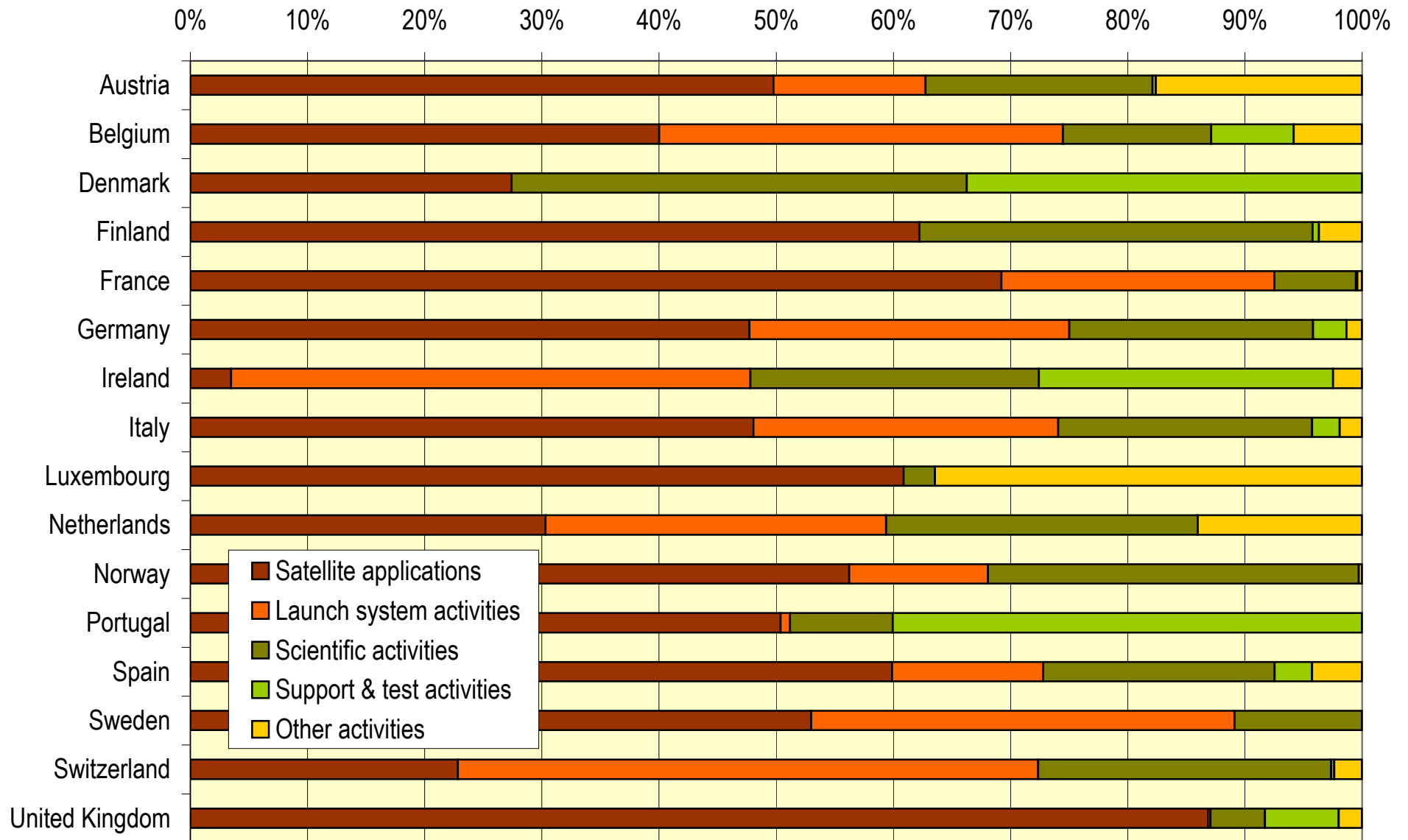
Employment evolution by country



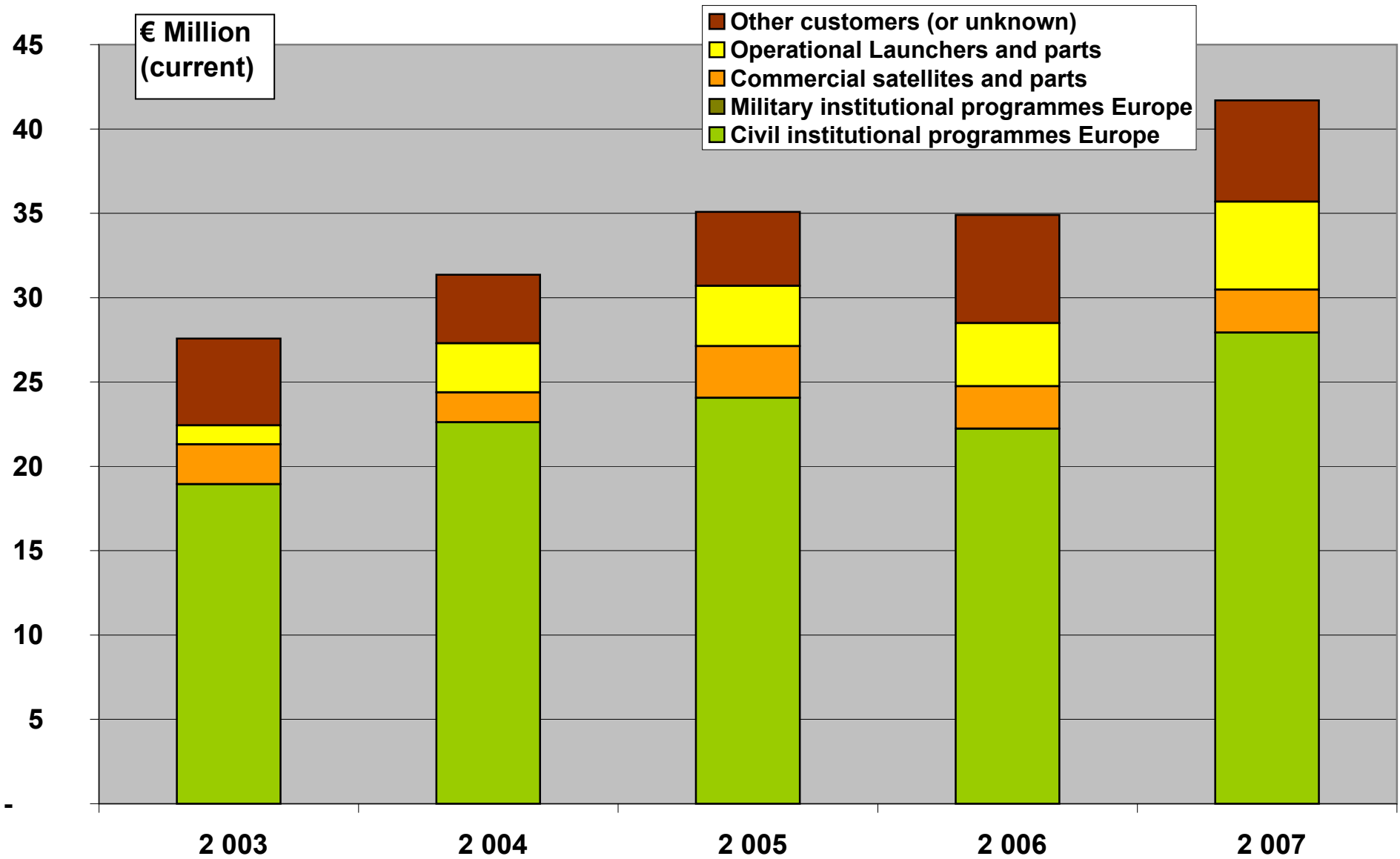
Turnover distribution by main customer within countries in 2007



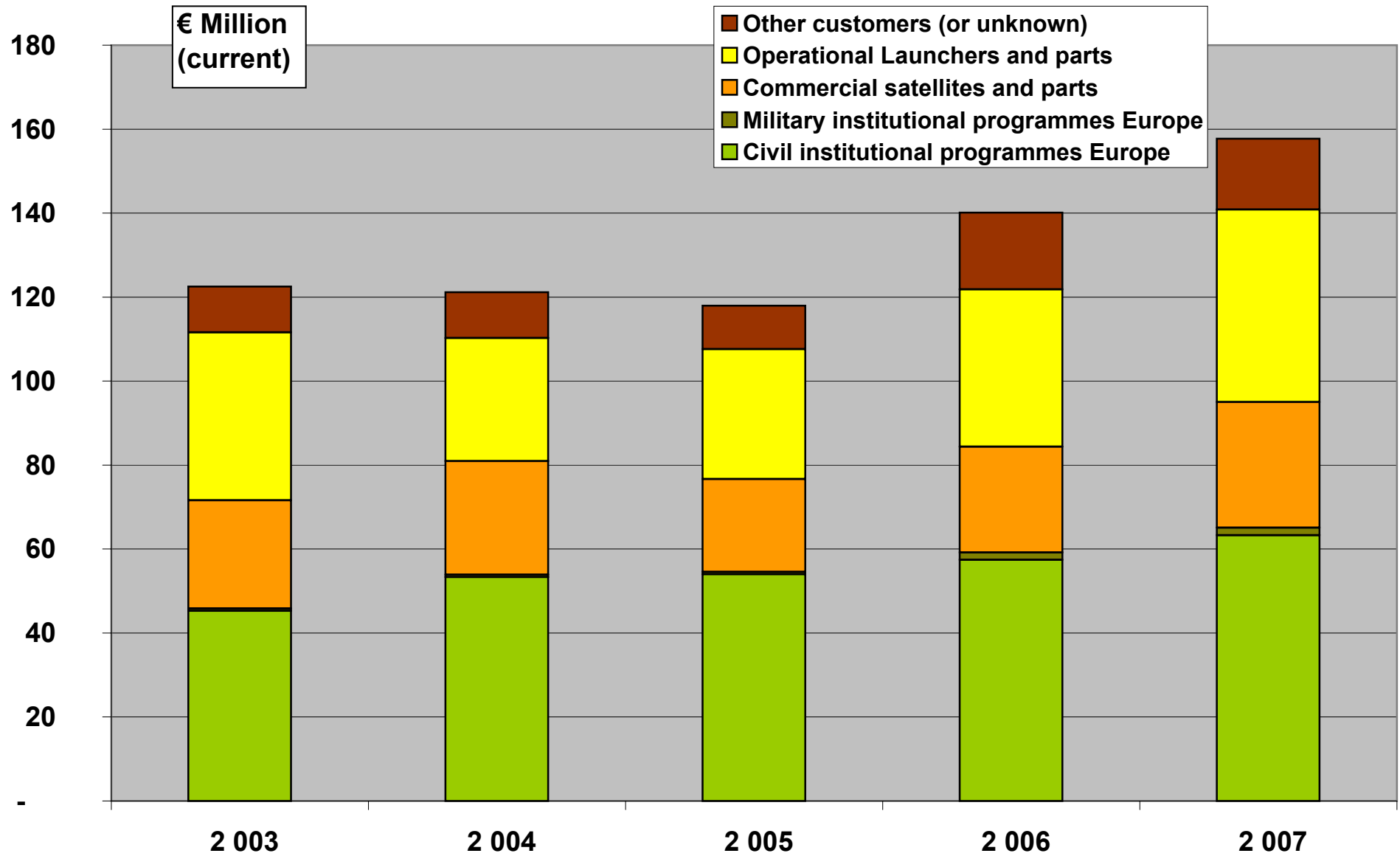
Turnover distribution by main activity within countries in 2007



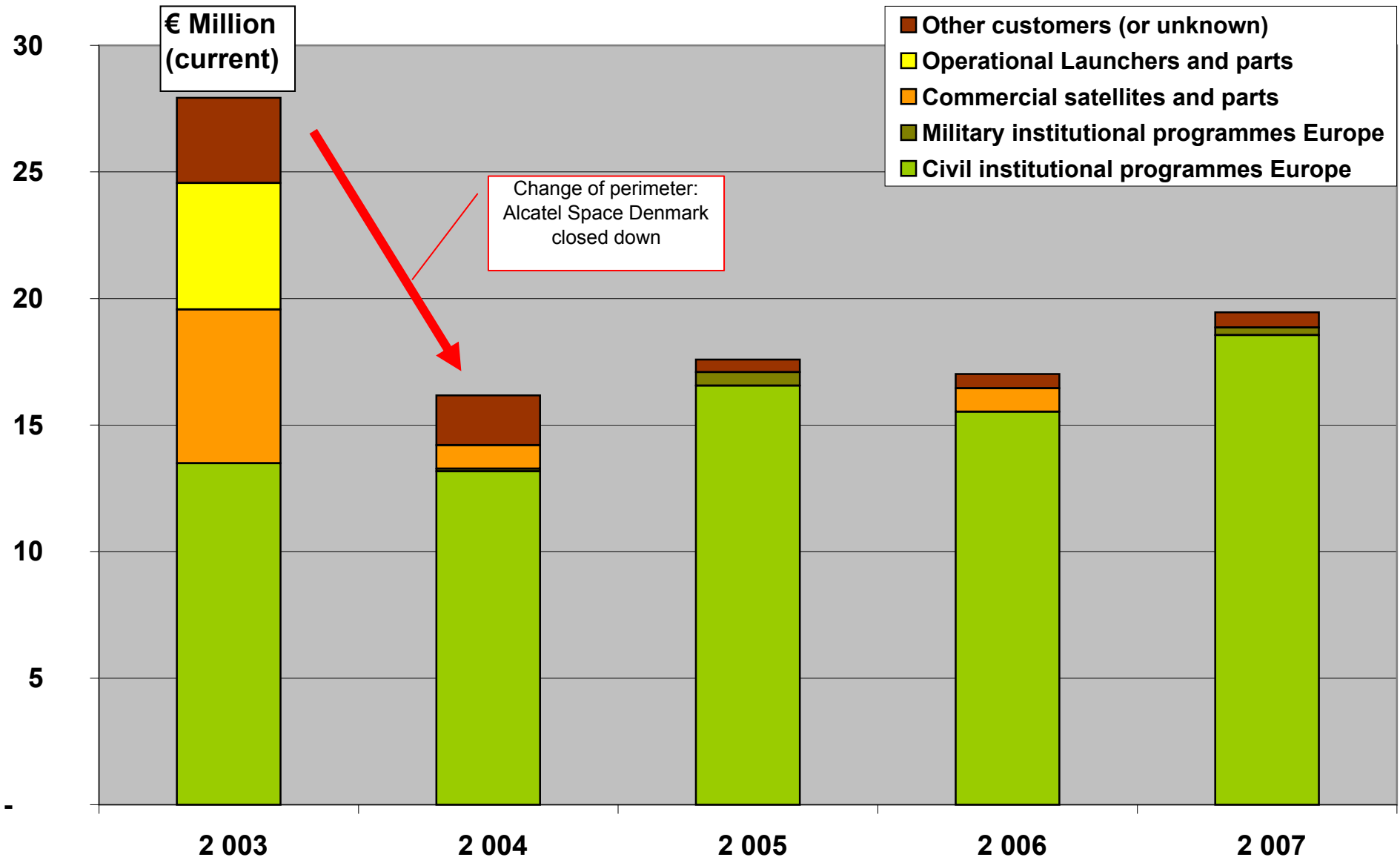
Austria Turnover by Customer



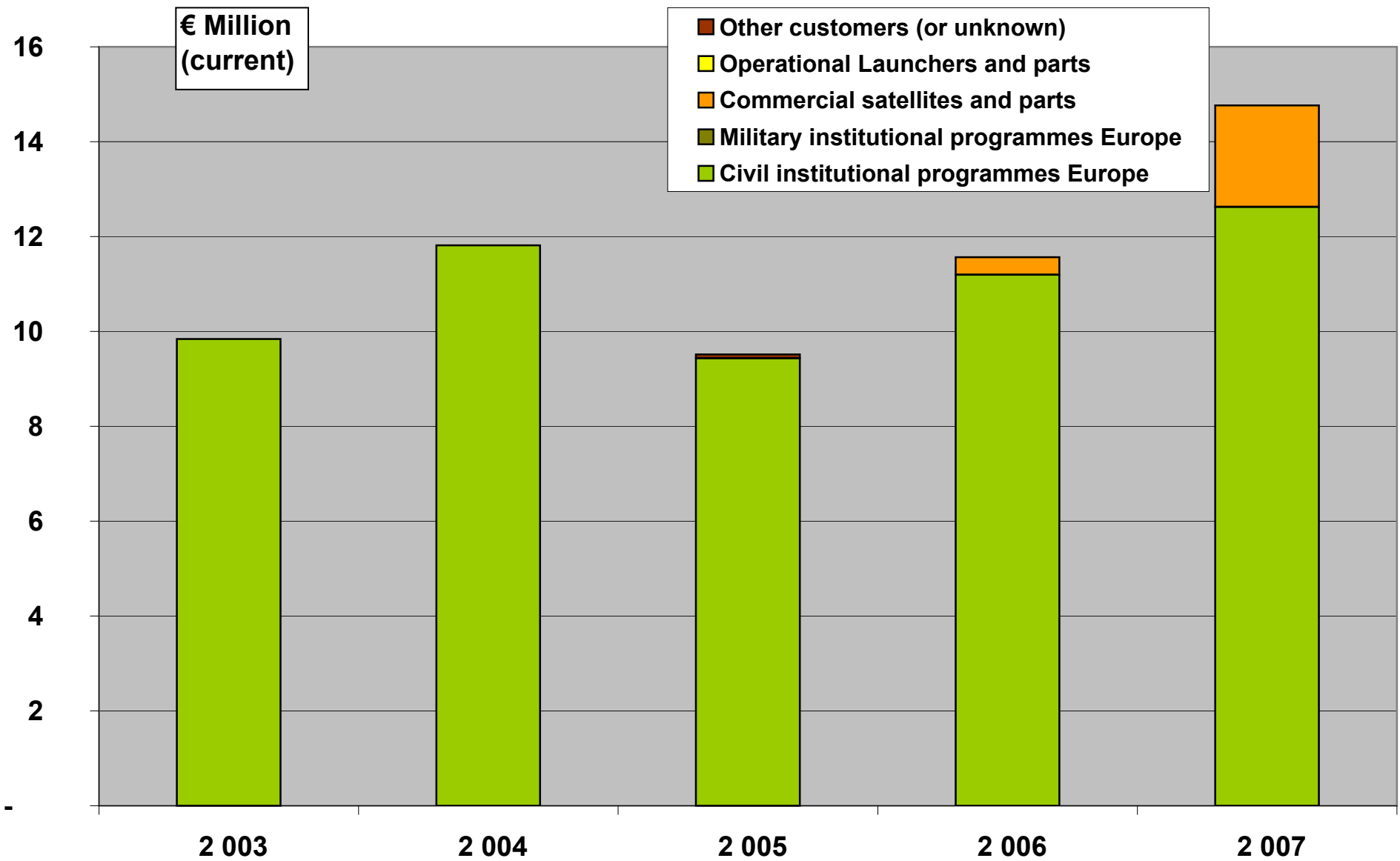
Belgium Turnover by Customer



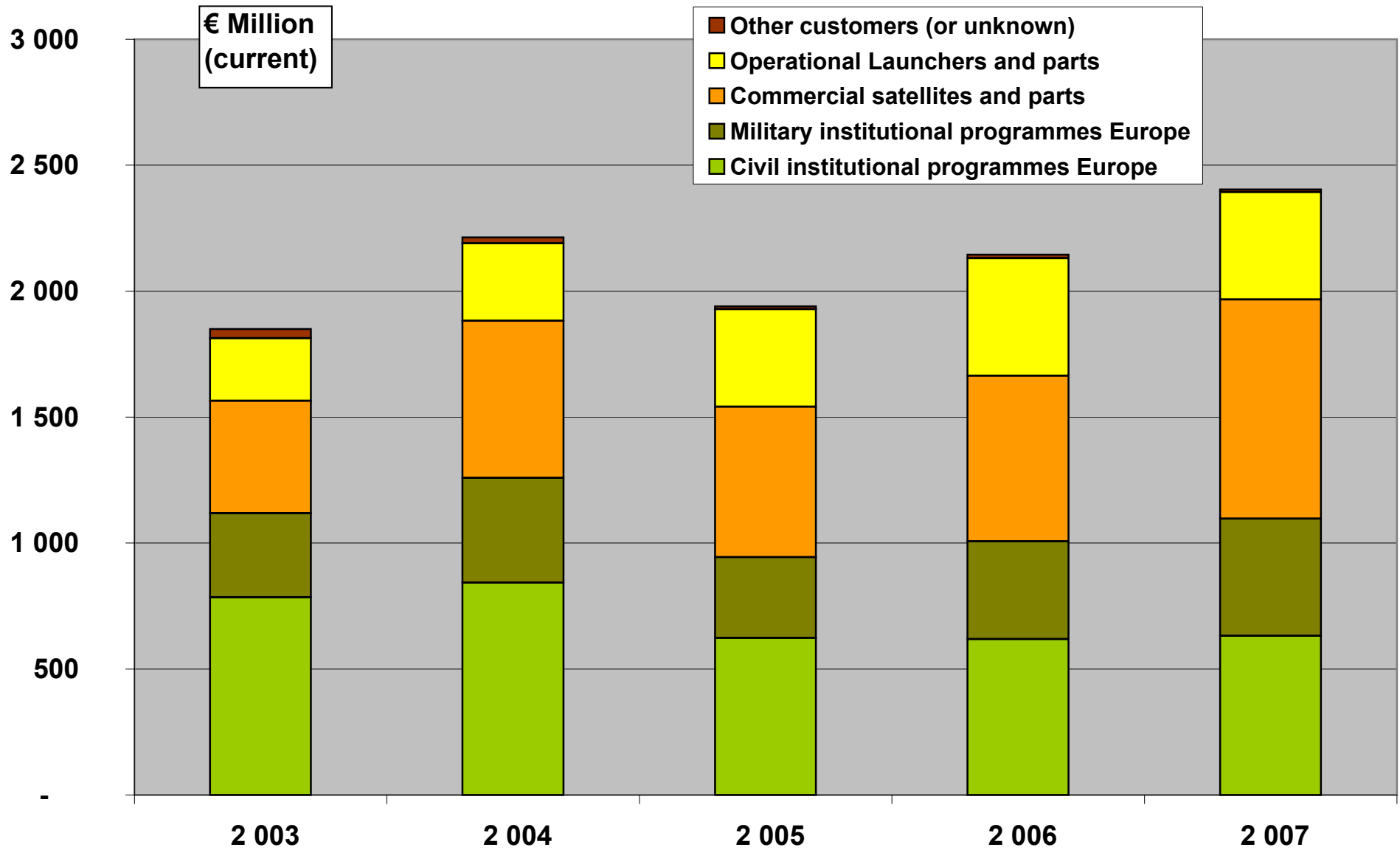
Denmark Turnover by Customer



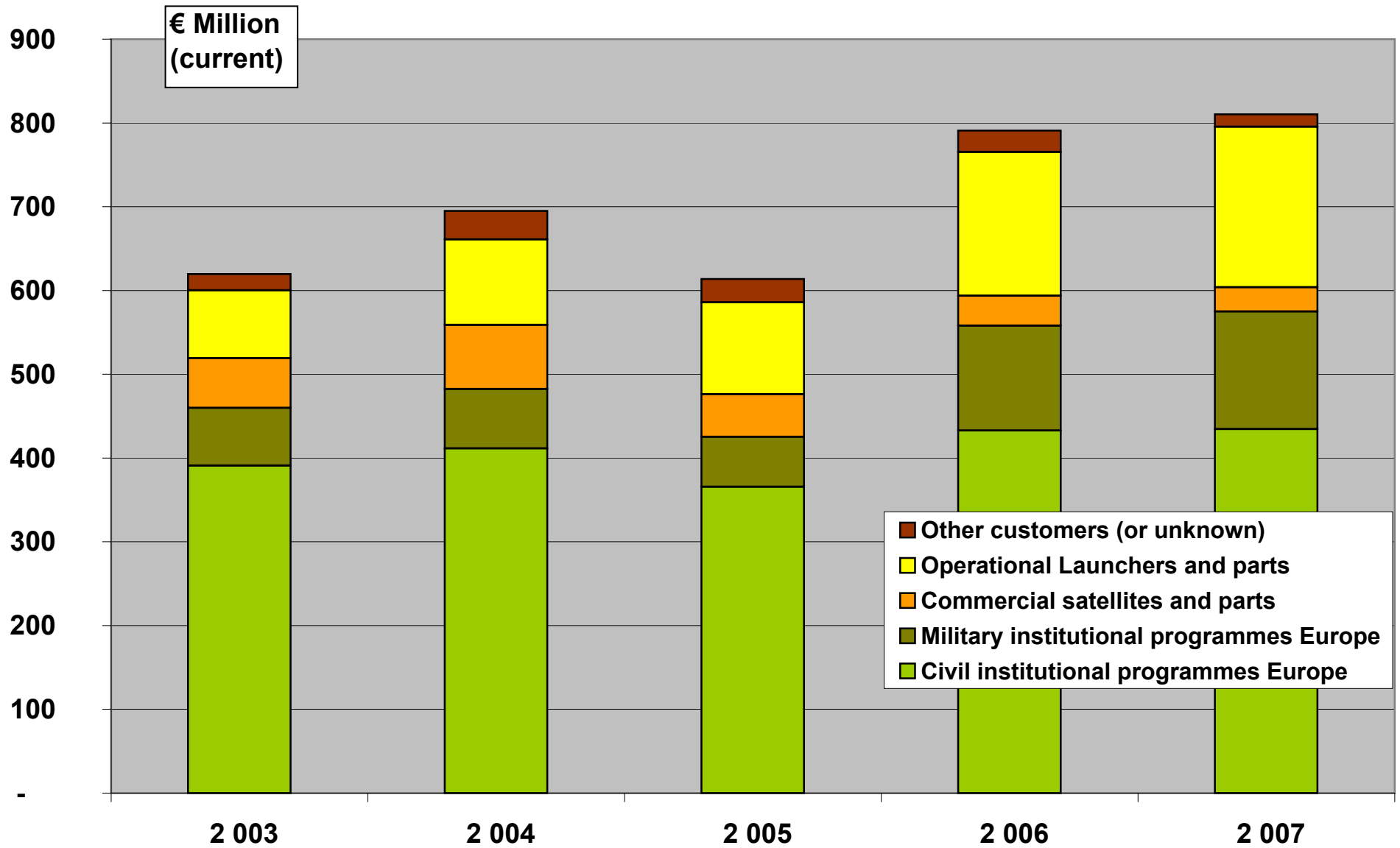
Finland Turnover by Customer



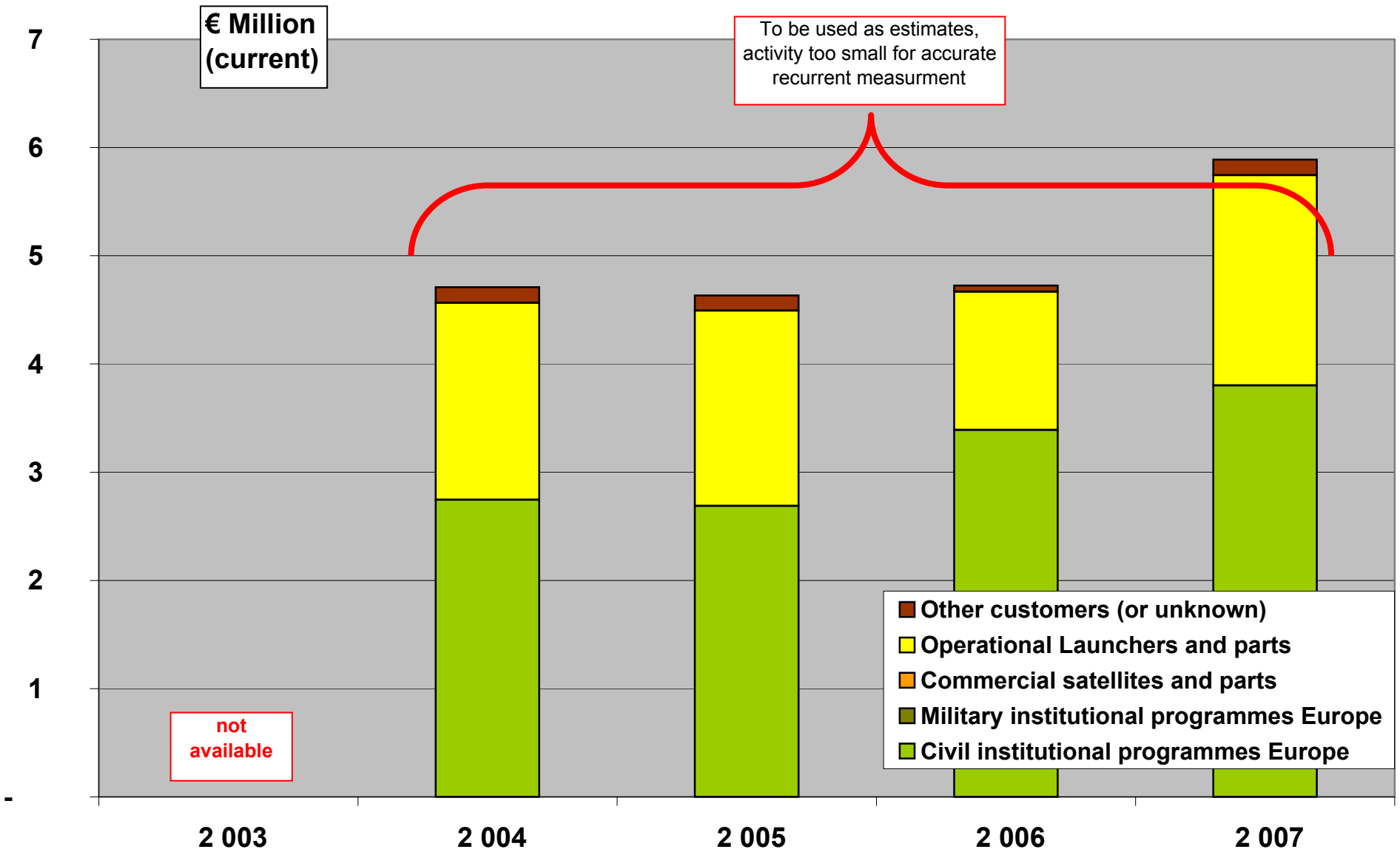
France Turnover by Customer



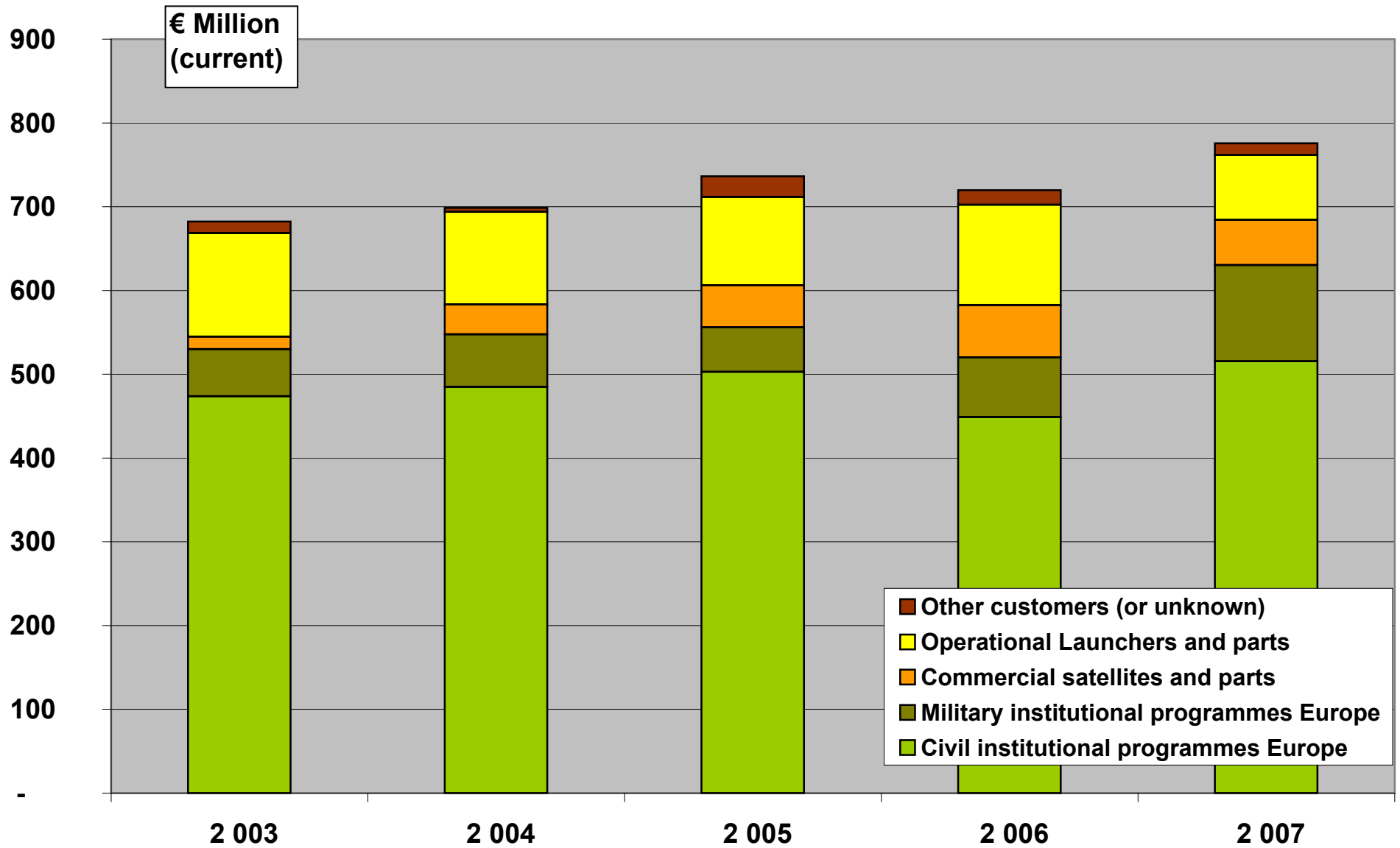
Germany Turnover by Customer



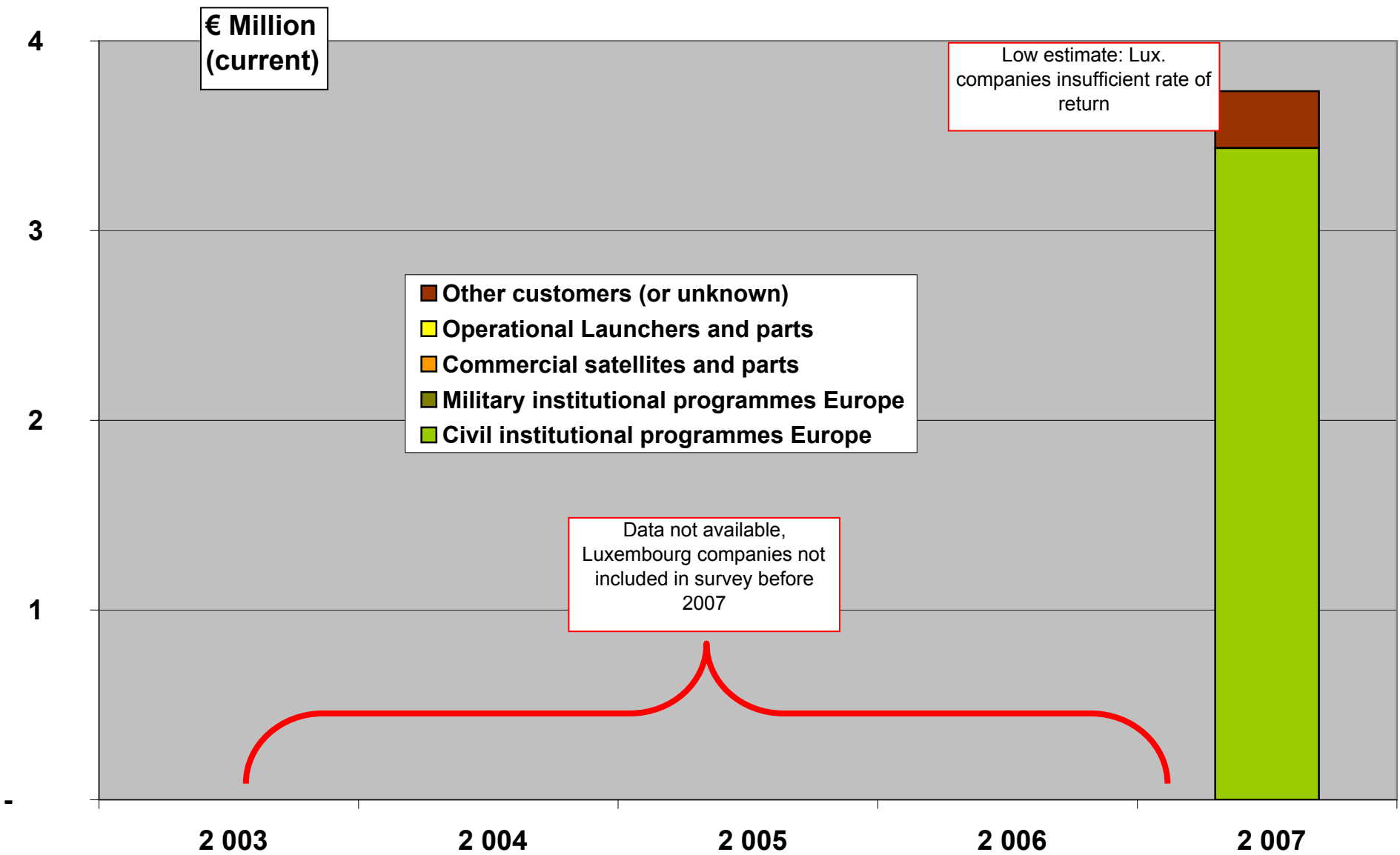
Ireland Turnover by Customer



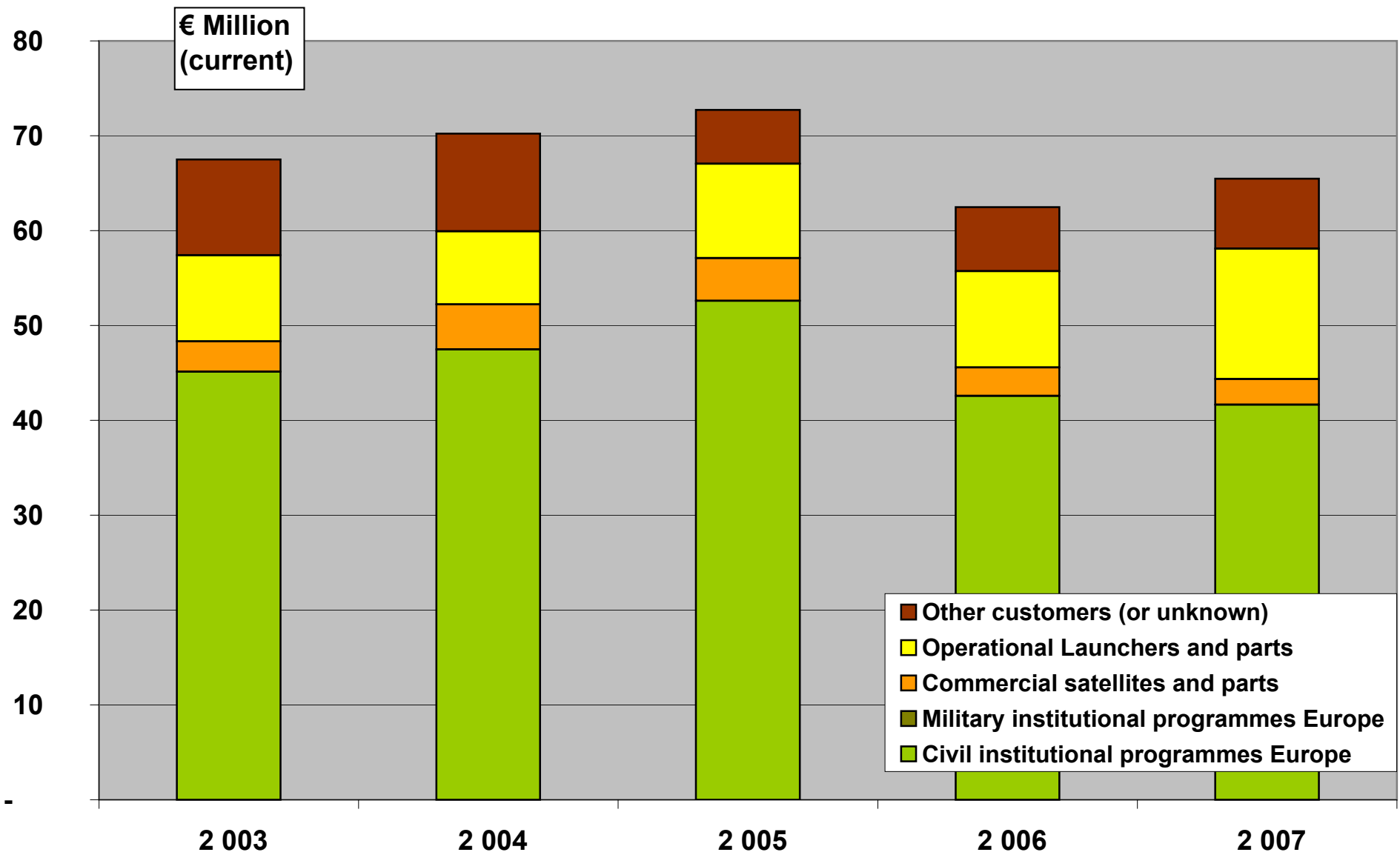
Italy Turnover by Customer



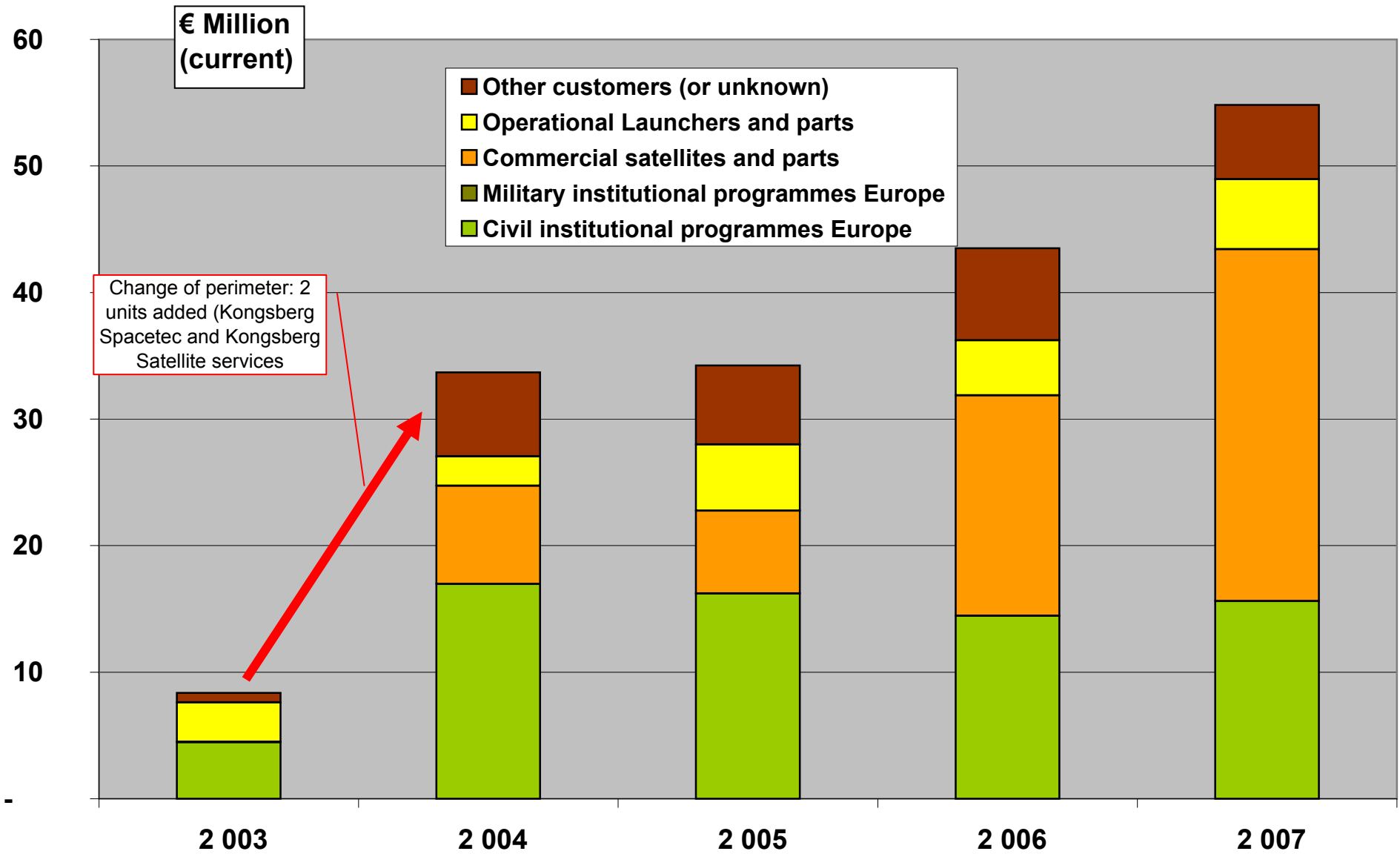
Luxembourg Turnover by Customer



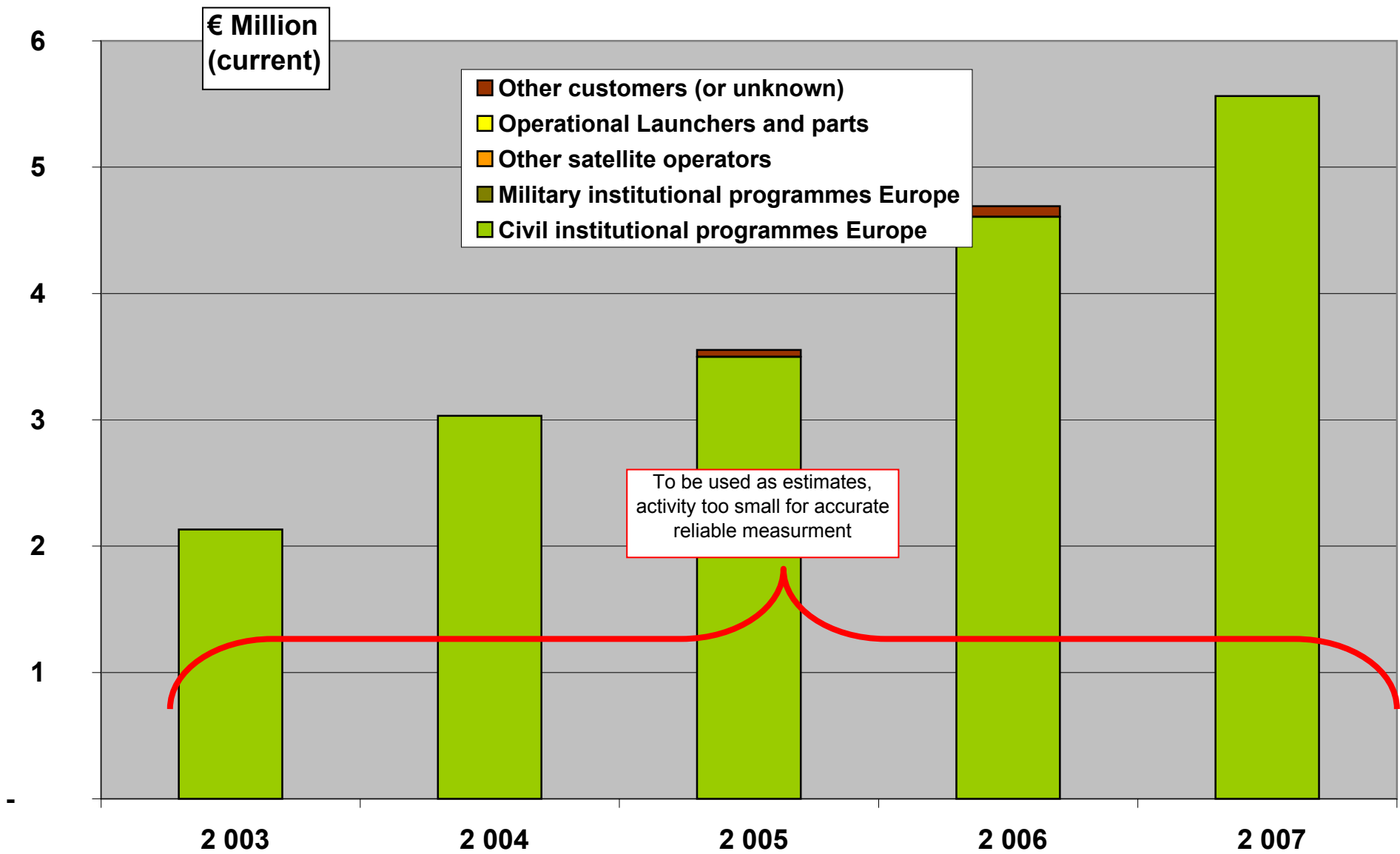
Netherland Turnover by Customer



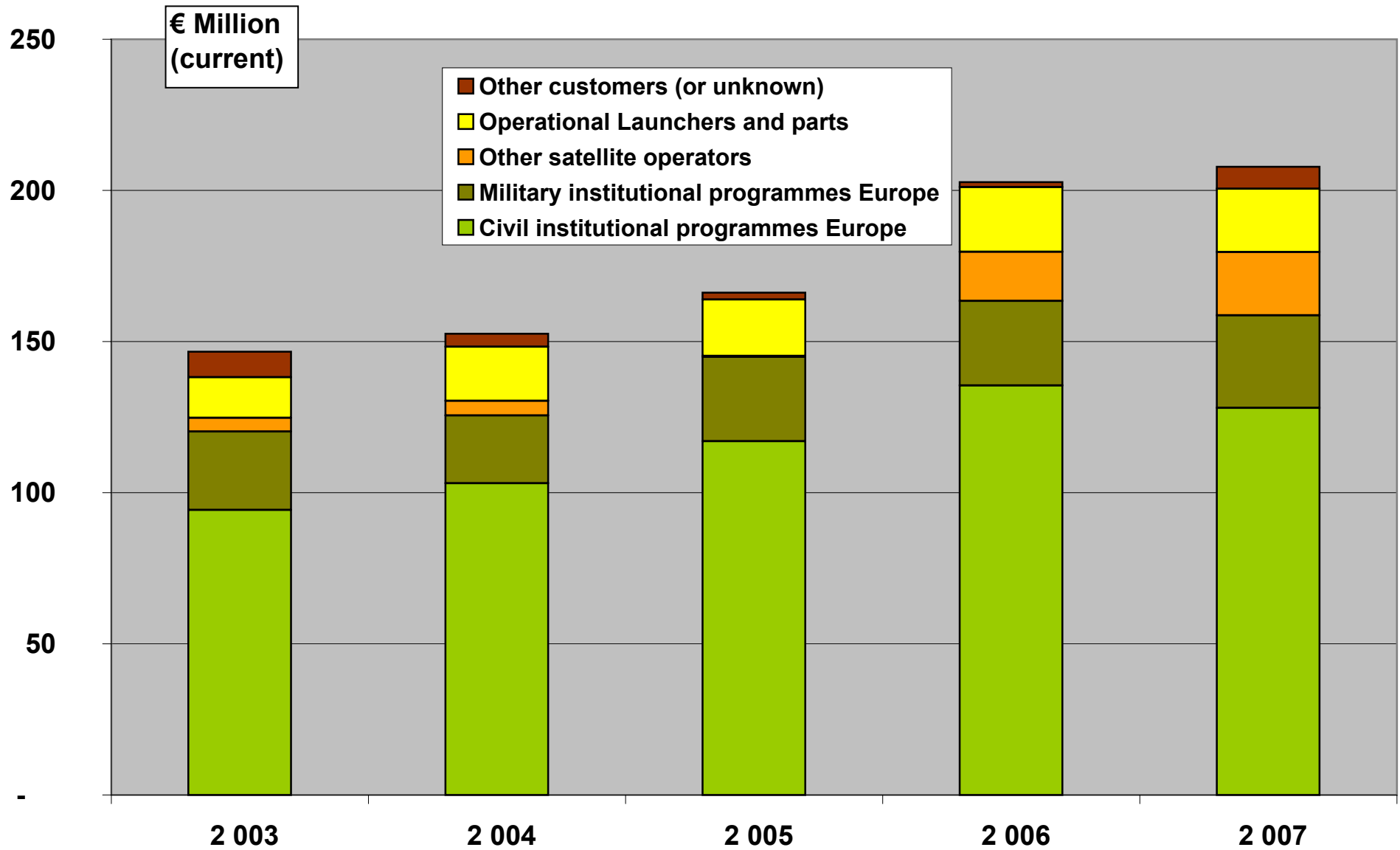
Norway Turnover by Customer



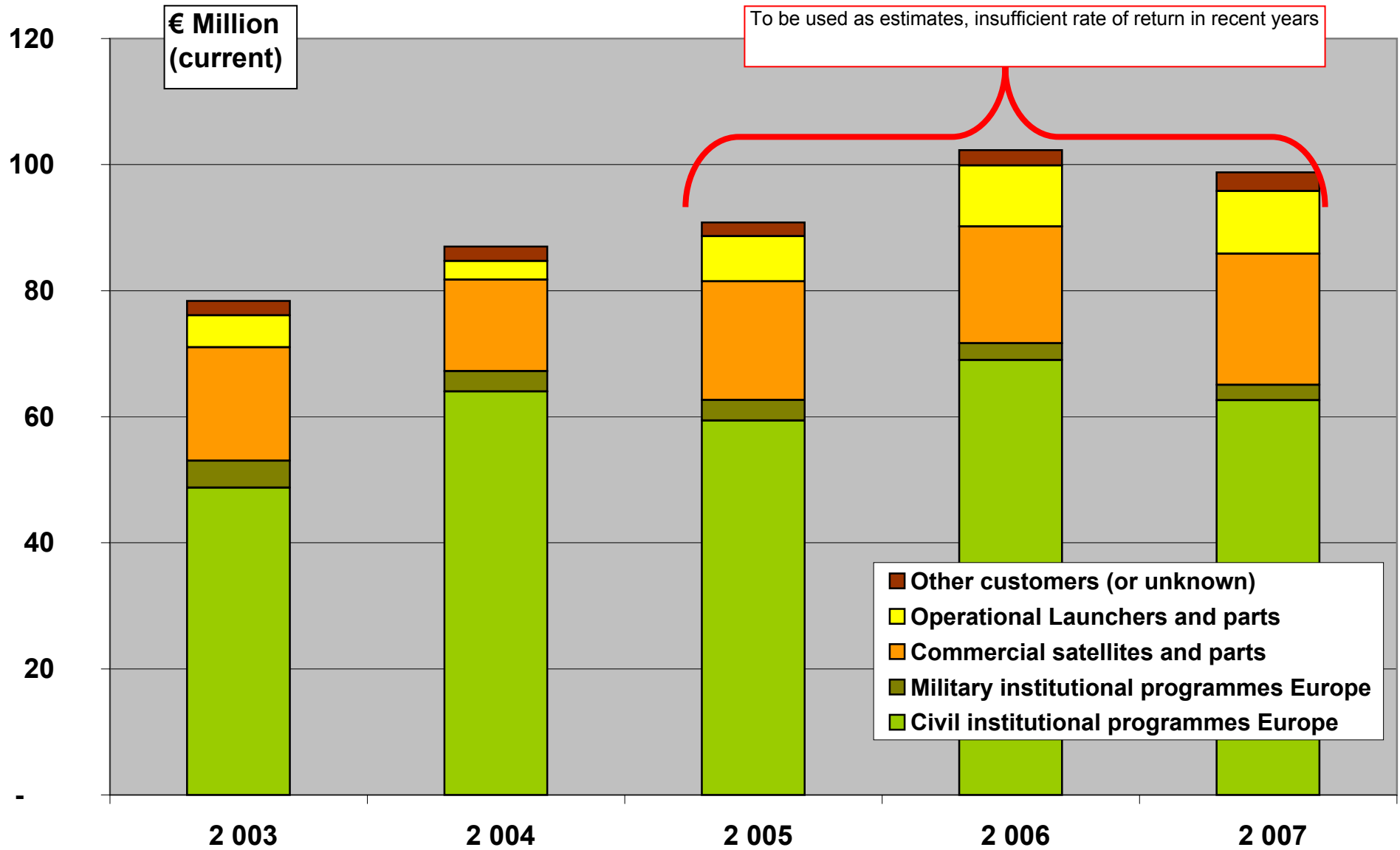
Portugal Turnover by Customer



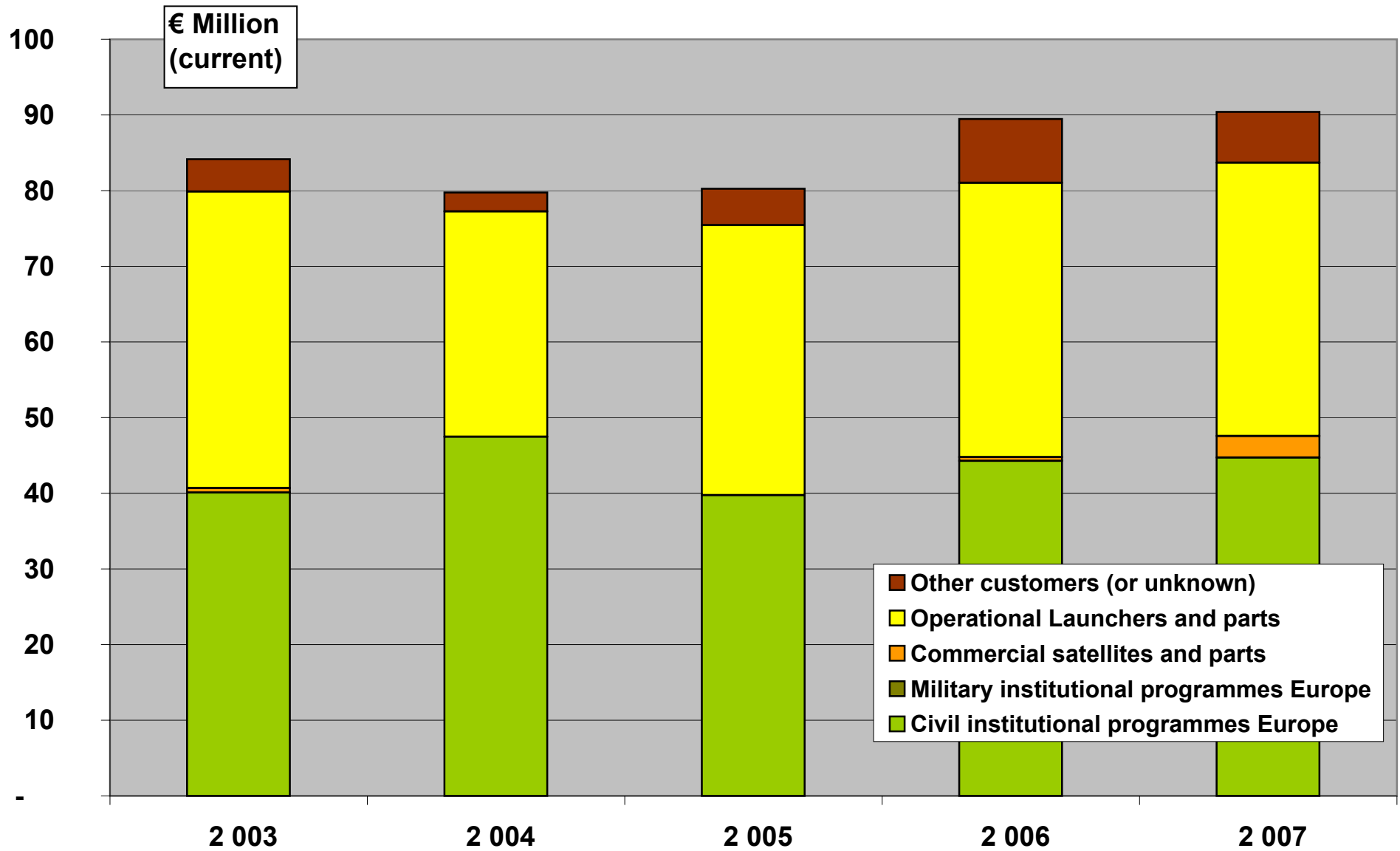
Spain Turnover by Customer



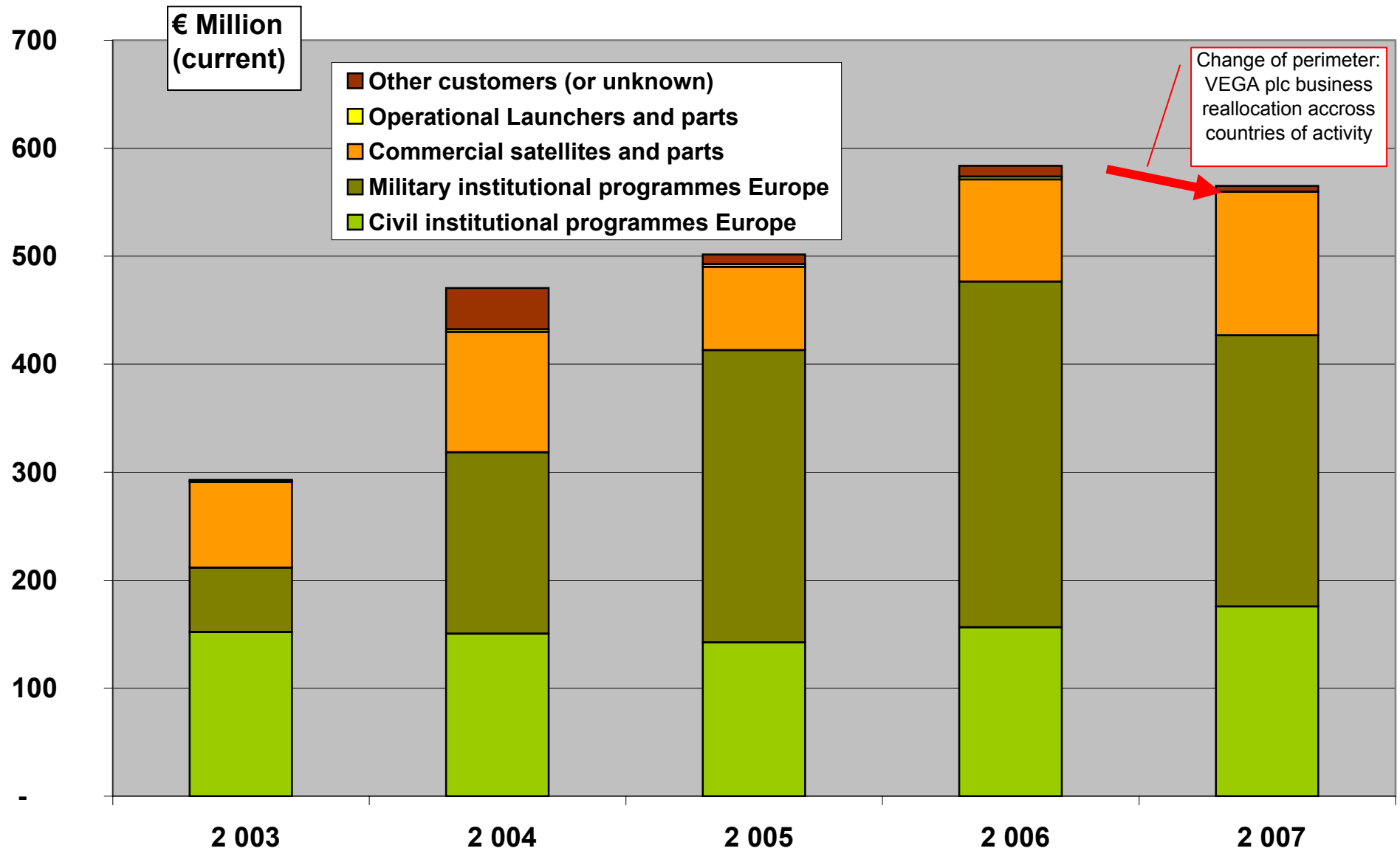
Sweden Turnover by Customer



Swiss Turnover by Customer



UK Turnover by Customer



Survey rate of return and important notes

SURVEY RATE OF RETURN

	Total	actual 2008	proxy/total	rate of return
Turnover	5 398 654	4 730 979	0,124	87,6%
Employment	29 612	25 230	0,148	85,2%
Questionnaires returned in 2008	70			
Total data points in the model	163			
Total number of companies covered	>230	including all subsidiaries included in the various replies		

Important notes

Norway 2006	Error in data, two entries were in NOK, not EUR (Retractively corrected in 2008 issue)
Norway (2006 and 2007)	Personnel data corrected on one entity explains difference with data published last
Italy (2007)	One entity accounts for most personnel and business growth
Sweden	Too many proxies in 2007 (estimate)
Ireland, Luxembourg, Portugal	Volume of activity very small in comparison with other countries, requires very granular
Germany (2007)	Personnel growth due to OHB, MT and Tesat (40%) and to VEGA personnel
UK (mainly) 2007	One entity in the UK had activities distributed accross 3 countries (UK, D and I).

External personnel working on site

Between 2006 and 2007, the figure has grown from 2075 to 3412.

With this figure in mind total personnel should be as high as 33,000 (to be compared with same level of business in 2000 and 33700 employed)

Classification of entities in the model (by country)

Company	Country	Segment	Type
Andritz	Austria	spacecraft	equipment
ARC	Austria	spacecraft	equipment
Austrian Aerospace	Austria	spacecraft	equipment
MAGNA STEYR Fahrzeugtechnik AG & C KG	Austria	launcher	equipment
Plansee	Austria	spacecraft	equipment
Siemens AG Österreich	Austria	spacecraft	equipment
Cegelec SA	Belgium	spacecraft	services
CSL	Belgium	ground	services
ENE SA	Belgium	spacecraft	equipment
Euro Heat Pipes	Belgium	spacecraft	equipment
e-Xstream engineering	Belgium	spacecraft	services
IMEC	Belgium	spacecraft	services
OIP Sensor System	Belgium	spacecraft	equipment
Open engineering	Belgium	ground	services
RHEA Systems	Belgium	spacecraft	services
SABCA	Belgium	launcher	subsystem
SONACA	Belgium	spacecraft	equipment
Spacebel SA	Belgium	ground	services
Techspace Aero	Belgium	launcher	equipment
Thales Alenia Space ANTWERP N.V.	Belgium	ground	equipment
Thales Alenia Space ETCA	Belgium	spacecraft	equipment
Trasys	Belgium	ground	equipment
VERHAERT DESIGN & DEVELOPMENT	Belgium	spacecraft	system
Damec Research	Denmark	spacecraft	equipment
Terma	Denmark	ground	services
Ticra	Denmark	ground	services
Xperion ACE	Denmark	spacecraft	equipment
Mililab	Finland	ground	services
Modulight	Finland	spacecraft	equipment
Patria Oyj	Finland	spacecraft	equipment
Space Systems Finland Ltd	Finland	spacecraft	services
VTT	Finland	ground	services
ALTER TECHNOLOGY GROUP FRANCE	France	ground	services
ASTRIUM SAS BU SATELLITE	France	spacecraft	system
Astrium Space Transportation (France)	France	launcher	system
ATMEL	France	spacecraft	equipment
ATMOSTAT	France	spacecraft	equipment
CS SI	France	spacecraft	equipment
Dassault Aviation	France	spacecraft	equipment
EADS SODERN	France	spacecraft	equipment
EREMS	France	spacecraft	equipment
Europropulsion	France	spacecraft	equipment
Intespace	France	ground	services
L'AIR LIQUIDE	France	launcher	subsystem

Classification of entities in the model (by country)

Company	Country	Segment	Type
NODAL Consultants	France	spacecraft	services
Pyroalliance	France	launcher	equipment
RADIALL	France	spacecraft	equipment
SAFT	France	spacecraft	equipment
SAGEM	France	spacecraft	equipment
SESO	France	spacecraft	equipment
SME (SNPE)	France	launcher	equipment
SNECMA	France	launcher	subsystem
Snecma Propulsion Solide	France	launcher	subsystem
Soditech	France	spacecraft	equipment
Sofradir	France	spacecraft	equipment
ST microelectronics	France	spacecraft	equipment
TAS	France	spacecraft	system
THALES	France	spacecraft	equipment
VEGA Group (France)	France	ground	services
Anite Systems	Germany	spacecraft	equipment
Astrium Satellites Germany	Germany	spacecraft	system
Astrium Space Transportation (Germany)	Germany	launcher	system
AZUR SPACE Solar Power GmbH	Germany	spacecraft	equipment
Eurospace GmbH	Germany	ground	services
HE Space GmbH	Germany	ground	services
HTS GmbH	Germany	spacecraft	equipment
IABG mbH	Germany	ground	services
Jena Optronik	Germany	spacecraft	equipment
Kayser Threde GmbH	Germany	spacecraft	equipment
MT Aerospace AG	Germany	launcher	subsystem
OHB-System AG	Germany	spacecraft	system
Rockwell Collins Deutschland GmbH	Germany	spacecraft	equipment
RST	Germany	spacecraft	equipment
Tesat-Spacecom GmbH&Co.KG	Germany	spacecraft	equipment
VCS Aktiengesellschaft	Germany	ground	services
VEGA Group (Germany)	Germany	ground	services
VH&S	Germany	spacecraft	services
CAPTEC	Ireland	spacecraft	equipment
Marotta Ireland Ltd	Ireland	launcher	equipment
NUMA	Ireland	ground	services
ALTER Technology Group (was TOP-REL)	Italy	spacecraft	equipment
Avio Spa	Italy	launcher	subsystem
CAEN aerospace	Italy	spacecraft	equipment
Carlo Gavazzi Space SpA	Italy	spacecraft	system
CESI	Italy	spacecraft	equipment
Galileo Avionica S.p.A.	Italy	spacecraft	equipment
IRCA div. RICA	Italy	spacecraft	equipment
MICROTECNICA S.r.l.	Italy	launcher	equipment

Classification of entities in the model (by country)

Company	Country	Segment	Type
Space Engineering S.p.A.	Italy	ground	services
Space Software Italia S.p.A.	Italy	spacecraft	equipment
Telespazio Holding S.r.l.	Italy	ground	services
Thales Alenia Space Italy S.p.A	Italy	spacecraft	system
VITROCISSET S.p.A.	Italy	ground	services
CTI Systems S.A.	Luxembourg	ground	services
EURO-COMPOSITES S.A.	Luxembourg	spacecraft	equipment
GRADEL S.A.	Luxembourg	ground	services
HITEC Luxembourg S.A.	Luxembourg	spacecraft	equipment
LUXSPACE Sarl	Luxembourg	spacecraft	equipment
Aerospace Propulsion Products BV (Stork)	Netherlands	spacecraft	equipment
Bradford engineering BV	Netherlands	ground	equipment
Dutch Space BV	Netherlands	spacecraft	subsystem
ELSACOM NV	Netherlands	ground	services
HE Space Holding BV.	Netherlands	ground	services
LogicaCMG	Netherlands	ground	services
Origin	Netherlands	ground	services
Stork Fokker AESP B.V.	Netherlands	launcher	subsystem
TNO	Netherlands	spacecraft	equipment
Eidel	Norway	spacecraft	equipment
Kongsberg Defence & Aerospace	Norway	launcher	subsystem
Kongsberg Satellite Services	Norway	ground	services
Kongsberg Spacetec	Norway	ground	services
NAMMO AS	Norway	launcher	equipment
Norspace AS	Norway	spacecraft	equipment
Prototech AS	Norway	launcher	equipment
Critical Software SA	Portugal	ground	services
Edisoft	Portugal	spacecraft	services
Skysoft Portugal	Portugal	spacecraft	services
ALTER TECHNOLOGY GROUP SPAIN	Spain	spacecraft	services
Computadoras, Redes e Ingeniería, S.A. (CRISA)	Spain	launcher	subsystem
EADS CASA Espacio	Spain	spacecraft	subsystem
GMV S.A.	Spain	ground	services
IberEspacio	Spain	ground	services
INASMET_TECNALIA	Spain	spacecraft	equipment
Indra	Spain	ground	equipment
INSA	Spain	ground	services
SENER INGENIERÍA Y SISTEMAS, S.A.	Spain	spacecraft	equipment
Thales Alenia Space España (formerly: Alcatel Espacio)	Spain	spacecraft	equipment
ACR	Sweden	spacecraft	equipment
Omnisys Instruments	Sweden	spacecraft	equipment
Saab Space AB	Sweden	spacecraft	equipment
Spectrogon	Sweden	spacecraft	equipment
Swedish Space Corporation	Sweden	spacecraft	system

Classification of entities in the model (by country)

Company	Country	Segment	Type
Volvo Aero	Sweden	launcher	equipment
APCO Technologies SA	Switzerland	spacecraft	subsystem
Clemmessy	Switzerland	spacecraft	services
CSEM	Switzerland	spacecraft	equipment
ELCA	Switzerland	spacecraft	equipment
Helbling Technik AG	Switzerland	spacecraft	services
HTS AG	Switzerland	spacecraft	equipment
Mecanex SA	Switzerland	launcher	equipment
Observatoire de Neuchatel	Switzerland	ground	services
Oerlikon Space AG	Switzerland	launcher	subsystem
RST Radar Systemtechnik AG	Switzerland	spacecraft	equipment
RUAG Aerospace	Switzerland	launcher	subsystem
Syderal (ex Alcatel space Switzerland, ex CIR)	Switzerland	spacecraft	equipment
Temex Neuchatel Time SA	Switzerland	spacecraft	equipment
Vibrometer	Switzerland	launcher	equipment
4Links Limited	United Kingd	spacecraft	equipment
ABSL Power Solutions Ltd	United Kingd	spacecraft	equipment
ALTER Technology Grop (was IGG Component Techn	United Kingd	spacecraft	equipment
Astrium Satellites UK	United Kingd	spacecraft	system
BHR Group	United Kingd	ground	services

Eurospace SIM WG

Facts and figures methodology

Approved by SIM WG - June 22nd, 2007

- **Perimeter**

- The survey addresses the space manufacturing industry
 - From system integration activities down to equipment production
 - Suppliers of raw materials are not included
 - Service companies are included when they are providing services to the manufacturing industry and/or space agencies (i.e. engineering, manpower, test, component procurement etc.)
 - satellite operators are not included
- The consolidation model currently considers 150 companies
 - companies can be added to the model without affecting the overall consolidated figures, since all the system integrators are already included
 - however adding new companies changes the perimeter of employment

Facts and figures definitions

- **Company classification**
 - Companies are asked to identify their main activity areas in order of importance
 - Space system manufacturing activities are clearly separated from service provision

Facts and figures definitions

- **System manufacturing activities**

A) Space/ground systems design development& manufacturing

A.a) Space systems integration (incl. Development activities)	Large satellite systems (>5 tons at launch)
	Medium satellite systems (from 3 to 5 tons at launch)
	Small satellite systems (3 tons at launch)
	Ariane 5 launcher
	Other launcher systems
	Infrastructure and manned systems
A.b)Space Subsystem, equipment and components manufacturing (incl. Development activities) and services to industry	Subsystem manufacturing - satellite systems
	Equipment and component manufacturing - satellite systems
	Subsystem manufacturing - launcher systems
	Equipment and component manufacturing - launcher systems
	Subsystem manufacturing - space infrastructure and manned systems
	Equipment and component manufacturing - space infrastructure and manned systems
	Science and micro-G experiment and equipment manufacturing
	Software development
	Support and test services provision
	Ground Support Systems and equipment (including software, EGSE etc.)
A.c) Ground segment manufacturing (and development)	Professional Ground station manufacturing (TMT&C only)
	Professional Ground station/terminal manufacturing (two way user terminals, military terminals, meteo stations...)
	Consumer-end terminal manufacturing (TV receivers, GPS receivers)
	Ground station software development

Facts and figures definitions

- **Services and operations activities**

B) Space services and satellite operations	
B.a) Space systems operation	Satellite operations
	Launch services (GEO)
	Launch services (LEO-MEO)
	Space station operations
B.b) Ground systems operation	Ground station operations (TMT&C)
	Ground station operations (uplink/downlink services)
	Ground station operations (EO/Meteo data collection)
B.c) Data sales and consultancy	EO/meteo 'raw' data distribution
	EO/meteo data value adding services
	Consultancy - science, engineering
	Consultancy - market, policy, management

- **Employment**

- Only space employment is considered
 - For entities involved with space activities only all employees are included (e.g. Thales Alenia Space; Astrium)
 - Exceptions are always possible and are dealt with on a case by case basis (e.g. Astrium ST where missile employment is excluded)
 - For entities where space activities are a marginal subset of activities, only space specific personnel is included (e.g. Siemens Austria)
- Employment is expressed in FTE (full time equivalents)
- Employees from other companies working on site and interim are counted as a separate category
 - This category involves different types of activities
 - Interim personnel (to cope with workload fluctuations)
 - Externalised functions
 - » Accounting, Maintenance, cleaning, security, etc
 - » Engineering, testing, quality assurance etc.: a number of companies providing such services are already included in the survey, but a few relevant players (e.g. Altran, Cap-Gemini) should be included in the future

- **Turnover information**
 - Turnover information is collected at national entity level
 - Only space related revenues are included
 - i.e. Astrium ST missile business is excluded from the figures
 - Turnover distribution is provided by end-user (customer) of the space system and by activity

Facts and figures definitions

- **Turnover distribution by end-user/customer**
 - End-users/customers are organised in two broad categories:
 - European institutional customers (public entities in Europe)
 - Other customers including exports (labelled Commercial)

 - European institutional customers can be civil and military
 - Civil: ESA, National Space Agencies in Europe, Eumetsat, EC
 - Military: French DGA, UK MoD, etc.

 - Commercial customers are:
 - GEO satellite operators
 - Other satellite operators and space agencies outside Europe
 - Arianespace (and other launch systems integrators)
 - here are considered only operational products, all Ariane development activities such as ARTA, EGAS, etc. shall be excluded.

Facts and figures definitions

- **European institutional customers**

- Characteristics

- The focus is put on programmes, and on the origins of the funds rather than the programme managing entity
 - i.e. Helios (a military programme managed by CNES) is included in 'military programmes', not in the 'national civil space agencies programmes'
 - i.e. MSG (a meteo programmed managed by ESA for Eumetsat) is included in 'Eumetsat' not ESA
 - Sales to public entities outside Europe are included in the 'Commercial and exports' category.
- European institutional programmes are organised as follows
 - ESA Programmes
 - National civil space Agencies programmes (such as CNES, DLR, ASI, BNSC...)
 - (Dual-use programmes are classified to the primary customer entity)
 - Military programmes (such as Helios, Sicral, Skynet, Syracuse...)
 - Eumetsat programmes
 - European Commission programmes

Facts and figures definitions

- **Commercial and exports**

- Characteristics

- The scope is defined mostly by exclusion
 - the category includes all sales not included in the European institutional sales (as defined previously).
- The focus is put on programmes, i.e. the final destination of the items sold.

- This category includes all programmes procured in open competition or relevant to commercial activities:

- Systems for GEO satellite operators
- Other systems procured in competition
 - non GEO systems such as, messaging services etc.
 - ‘flagship’ satellites procured by emerging space nations
- Products (and services) sold to Arianespace:
 - since the European launch services provider serves mainly the GEO orbit for commercial customers, sales to Arianespace are all included in the commercial market.
 - *furthermore, it is not possible to identify ex ante whether the launch service will be procured by a commercial or institutional entity.*
- Sales of equipment/subsystems for integration on other launch systems:
 - the European industry sells parts for integration on non European launcher systems (e.g. Atlas).

- **Turnover by activity**

- The distribution by activity focuses on the primary use of the system and the type of programme on which the products sold will be used.
- Three main activity areas are considered
 - Satellite applications
 - The focus is put on operational and pre-operational systems and the related development activities in Telecoms, Earth Observation and Navigation
 - Launcher
 - All activities related to launcher system design, development and production
 - Science
 - The focus is put on scientific systems, space infrastructure activities (incl. manned) and microgravity experiments

Facts and figures definitions

- Turnover by activity
 - Satellite applications
 - Telecommunications
 - All revenues related to the design, development, and production of satellite systems (and the associated ground segment for TT&C) for telecommunications
 - » i.e. Sales of telecommunications systems (e.g. Inmarsat, Artemis, Syracuse), and sales of equipment and parts for integration on these systems.
 - » Also includes participation to development programmes such as ARTES (ESA)
 - Earth Observation (including meteorology)
 - All revenues related to the design, development, and production of satellite systems (and the associated ground segment for TT&c and data download) for Earth observation programmes
 - » i.e. sales related to operational programmes (such as Spot, SAR-Lupe)
 - » i.e. revenues from development programmes (e.g. Earth Explorers)
 - Navigation/localisation
 - All revenues related to the design, development, and production of satellite systems (and the associated ground segment for TT&C) for navigation/localisation and positioning activities.
 - » i.e. sales related to operational programmes (e.g. GIOVE A)
 - » i.e. sales related to development programmes (e.g. GNSS, ARTES-9)

- **Turnover by activity**
 - Launcher
 - Launcher activities consider three different revenue sources
 - All revenues related to launcher development (incl. pre-development, demonstration etc.) programmes managed by ESA (and National Agencies in Europe) e.g. ARTA, FLPP, VEGA, VERTA, etc...
 - Sales of operational launcher elements and parts to ASTRIUM ST, the Ariane 5 industrial architect, and those exported, in particular towards Japan, and the USA (e.g. valves, fairings...)
 - Concepts, development and production for space tourism vehicles shall be included as well

- **Turnover by activity**

- Science

- Revenues from space infrastructure programmes (ISS, ATV, manned programmes)
 - Revenues from scientific programmes (JAson, Gaia, LISA etc.)
 - Revenues from microgravity activities (preparation and development of instrumentation and experiments in μG)

Facts and figures definitions

- **Turnover by activity**
 - Support and test activities
 - This category includes all revenues related to support activities that cannot be traced specifically to any given activity (e.g. tests in dedicated equipment, drop towers, parabolic flights, consultancies, etc.)

Facts and figures definitions

- **Industry segments**

- The space industry is organised in segments.
- Two segmentations are provided
 - Segmentation by main product line
 - Segmentation by company position in the industrial supply chain
- Important note: an industry segment is a group of entities sharing common characteristics
 - Each entity belongs to only one segment
 - The composition of each segment can vary in time
- Companies are organised in segments based on specific information drawn from the questionnaire
 - Segmentation by product uses information collected at turnover level to identify satellite and launcher companies. Ground segment companies are self-identified (those that identify ground system activities as their main area of activity in 'company activity' part of the questionnaire)
 - Segmentation by position in the supply chain is performed based on the company declaration in the 'company activity' part of the questionnaire.

Facts and figures definitions

Industry segmentation process

QUESTIONNAIRE

A) Space/ground systems design development& manufacturing

A.a) Space systems integration (incl. Development activities)	Large satellite systems (>5 tons at launch)
	Medium satellite systems (from 3 to 5 tons at launch)
	Small satellite systems (3 tons at launch)
	Ariane 5 launcher Other launcher systems
A.b) Space Subsystem, equipment and components manufacturing (incl. Development activities) and services to industry	Infrastructure and manned systems
	Subsystem manufacturing - satellite systems
	Equipment and component manufacturing - satellite systems
	Subsystem manufacturing - launcher systems
	Equipment and component manufacturing - launcher systems
	Subsystem manufacturing - space infrastructure and manned systems
A.c) Ground segment manufacturing (and development)	Equipment and component manufacturing - space infrastructure and manned systems
	Science and micro-G experiment and equipment manufacturing
	Software development
	Support and test services provision
	Ground Support Systems and equipment (including software, EGSE etc.)
A.c) Ground segment manufacturing (and development)	Professional Ground station manufacturing (TMT&C only)
	Professional Ground station/terminal manufacturing (two way user terminals, military terminals, meteo stations...)
	Consumer-end terminal manufacturing (TV receivers, GPS receivers)
	Ground station software development

2.2 - Turnover distribution by activity

Telecommunications	
of which: ground systems	
of which: services	
Earth Observation	
of which: data sales	
Navigation/localisation/positioning	
of which: ground segment	
Launch system development, production and services	
of which launcher hardware (prod and dev)	
of which launch site setup/maintenance/services	
of which launch services provision	
Space Infrastructure and manned programmes	
of which services and operations	
Science	
Microgravity	
Support and Test activities	
Other activities (specify)	
TOTAL	

INDUSTRY SEGMENTS

Product segments	Supply chain (company types)
Satellite	System integrators
Launcher	Subsystem suppliers
Ground	Equipment suppliers
	Ground and services

information provided here is used to organise companies by type

if >50% of turnover

if >50% of turnover

if >50% of turnover

turnover information is used to check consistency with the supply chain information and to organise companies by product segment

Facts and figures definitions

- **The four company types are**
 - **System Integrators**
 - the companies who can integrate a complete space system (spacecraft or launcher).
 - **Subsystem suppliers**
 - the companies able to integrate a subsystem
 - **Equipment suppliers**
 - the companies delivering equipment for integration at system and subsystem levels, this category includes onboard SW suppliers
 - **Services and ground support to industry**
 - the companies providing all ground based support and service activities for the above and those primarily involved in the development and production of ground systems