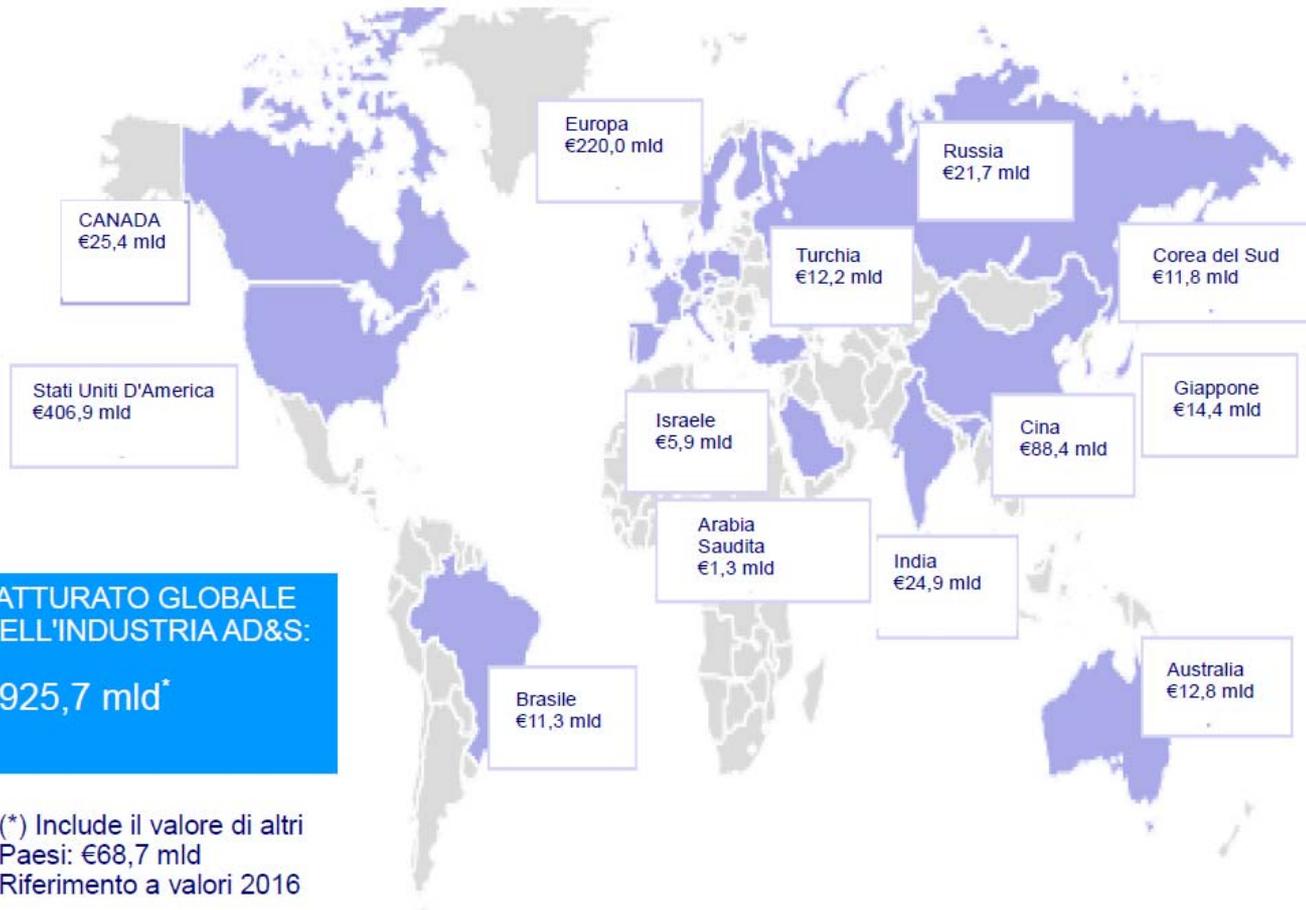
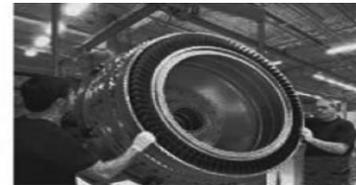


POLITECNICO DI MILANO BOVISA

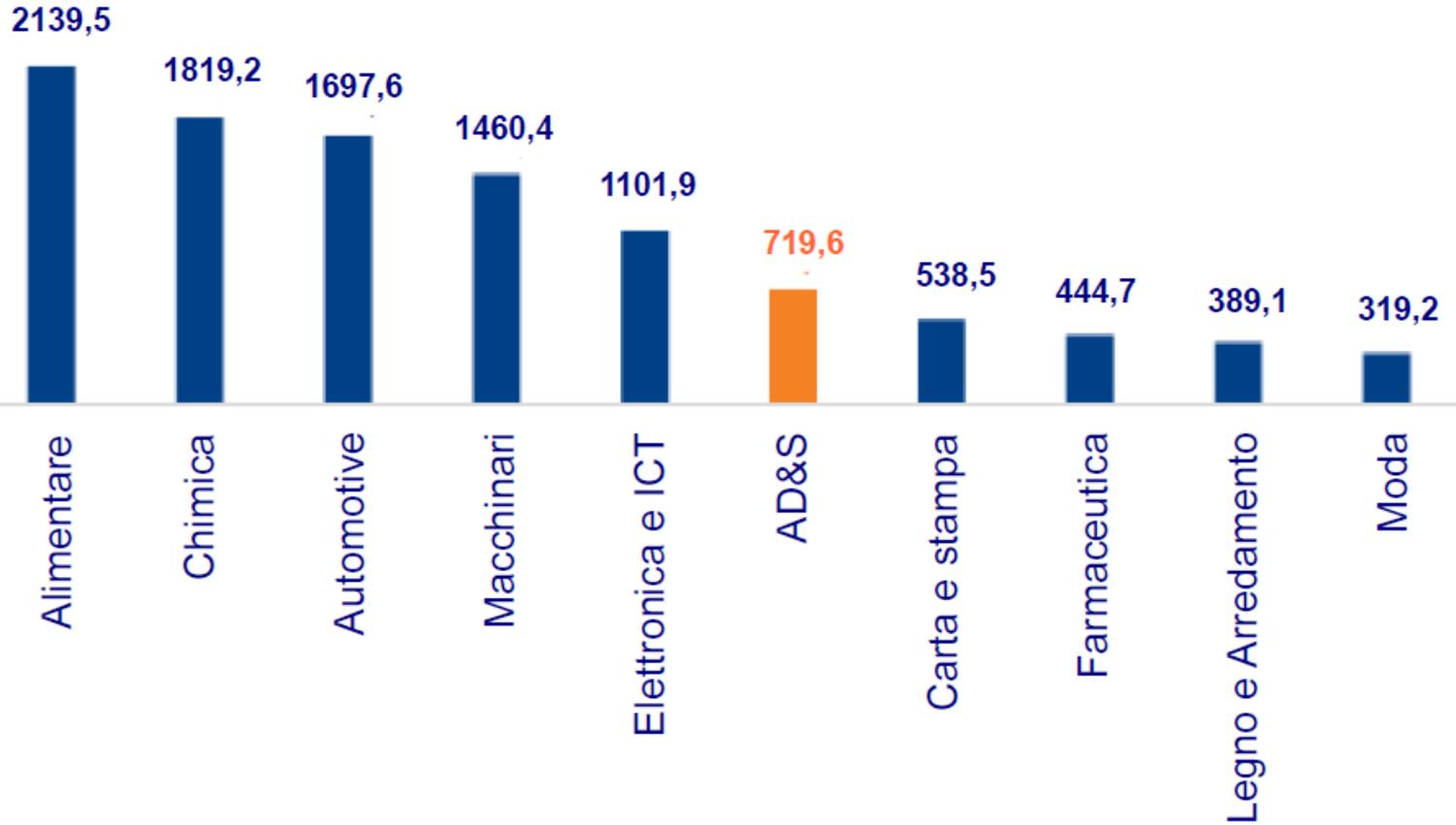
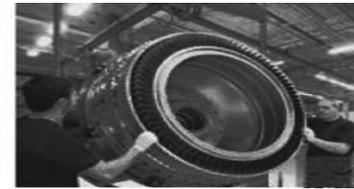
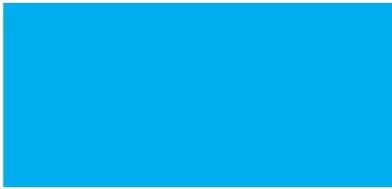
Via La Masa 34 EDIFICIO B15 AULA LM3



L'industria della difesa europea
nelle sfide dei prossimi anni

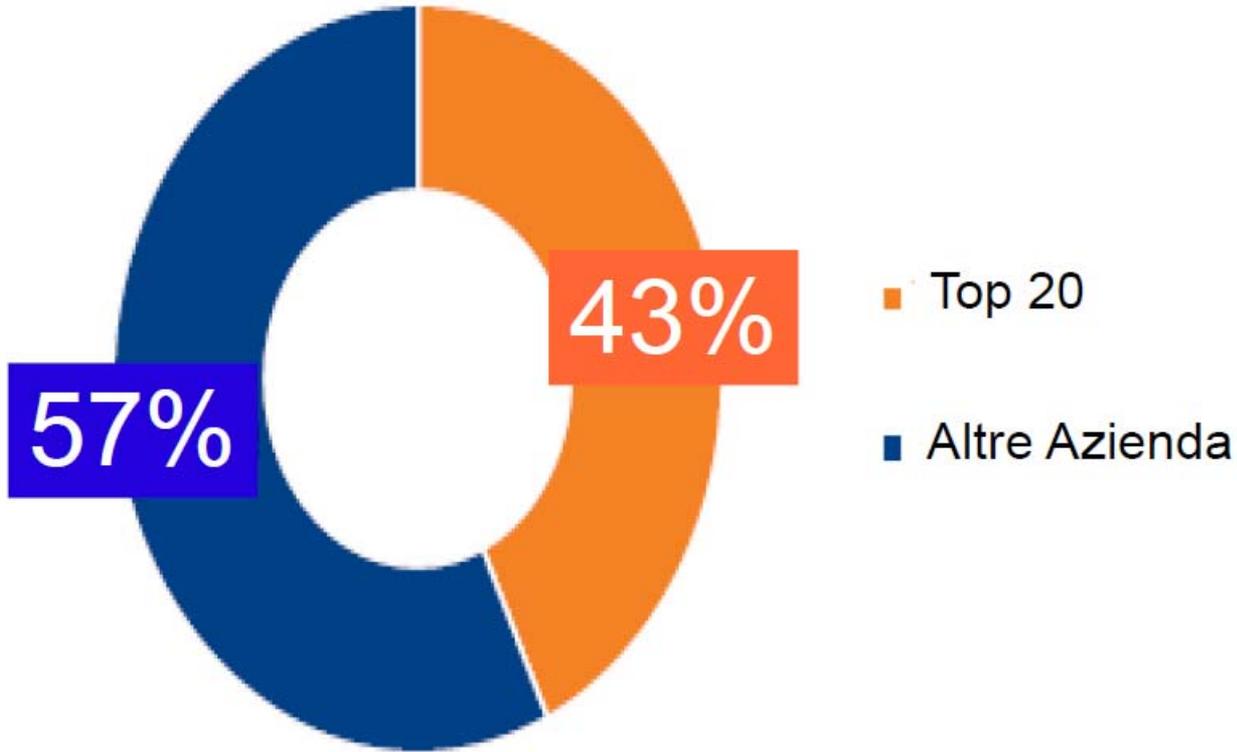
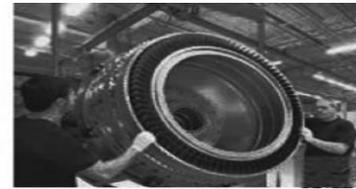


Fatturato dell'industria AD&S a livello globale (miliardi di euro), 2016

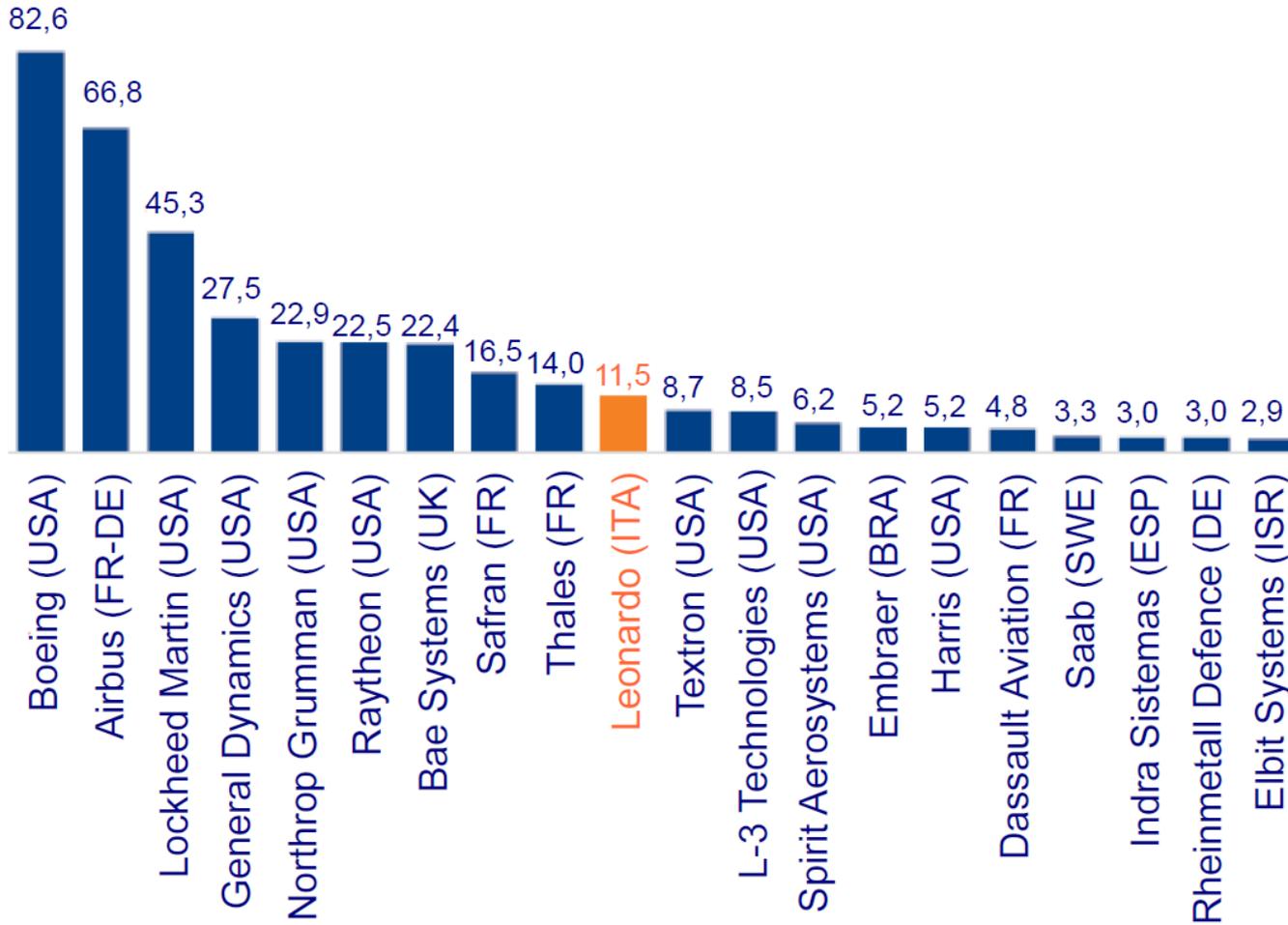
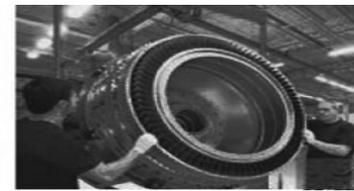
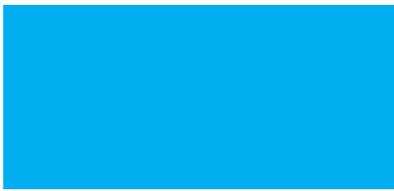


Primi 10 settori manifatturieri per fatturato nei paesi OCSE (miliardi di Euro)
2016 o ultimo disponibile





Ripartizioni del fatturato globale tra le Top 20 aziende e le altre aziende, 2016



Classifica delle prime 20 aziende del settore AD&S per fatturato (miliardi di euro), 2017

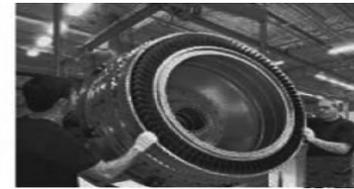


DEFENCE TOP 100

Rank	Company	Country	2017 Defense Revenue (millions)	2017 Total Revenue (millions)	Revenue From Defense
1	Lockheed Martin	U.S.	\$47,985.00	\$51,048.00	94%
2	Raytheon Company	U.S.	\$23,573.64	\$25,348.00	93%
3	BAE Systems	U.K.	\$22,380.04	\$25,288.20	88%
4	Northrop Grumman	U.S.	\$21,700.00	\$25,803.00	84%
5	Boeing	U.S.	\$20,561.00	\$94,005.00	22%
6	General Dynamics	U.S.	\$19,587.00	\$30,973.00	63%
7	Airbus	Netherlands/France	\$11,185.91	\$75,702.63	15%
8	Almaz-Antey	Russia	\$9,125.02	\$9,125.02	100%
9	Thales	France	\$8,926.13	\$17,852.26	50%
10	Leonardo	Italy	\$8,856.48	\$13,024.24	68%
11	United Technologies	U.S.	\$7,826.00	\$60,200.00	13%
12	L3 Technologies ⁶	U.S.	\$7,749.00	\$9,573.00	81%
13	Huntington Ingalls Industries	U.S.	\$7,030.00	\$7,400.00	95%
14	United Aircraft Corp.	Russia	\$6,197.25	\$7,746.56	80%
15	Leidos	U.S.	\$5,218.00	\$10,170.00	51%
16	Rolls-Royce	U.K.	\$4,625.73	\$28,582.91	16%
17	Booz Allen Hamilton	U.S.	\$4,320.00	\$6,171.85	70%
18	Naval Group	France	\$4,178.33	\$4,178.33	100%
19	Harris Corporation	U.S.	\$4,158.00	\$5,979.00	70%
20	Textron Inc.	U.S.	\$4,117.42	\$14,198.00	29%

56	Fincantieri	Italy	\$1,369.23	5,672.14	24%
57	Accenture	U.S.	\$1,343.00	34,900.00	4%





NUMERO AZIENDE

813

522

162

200

90

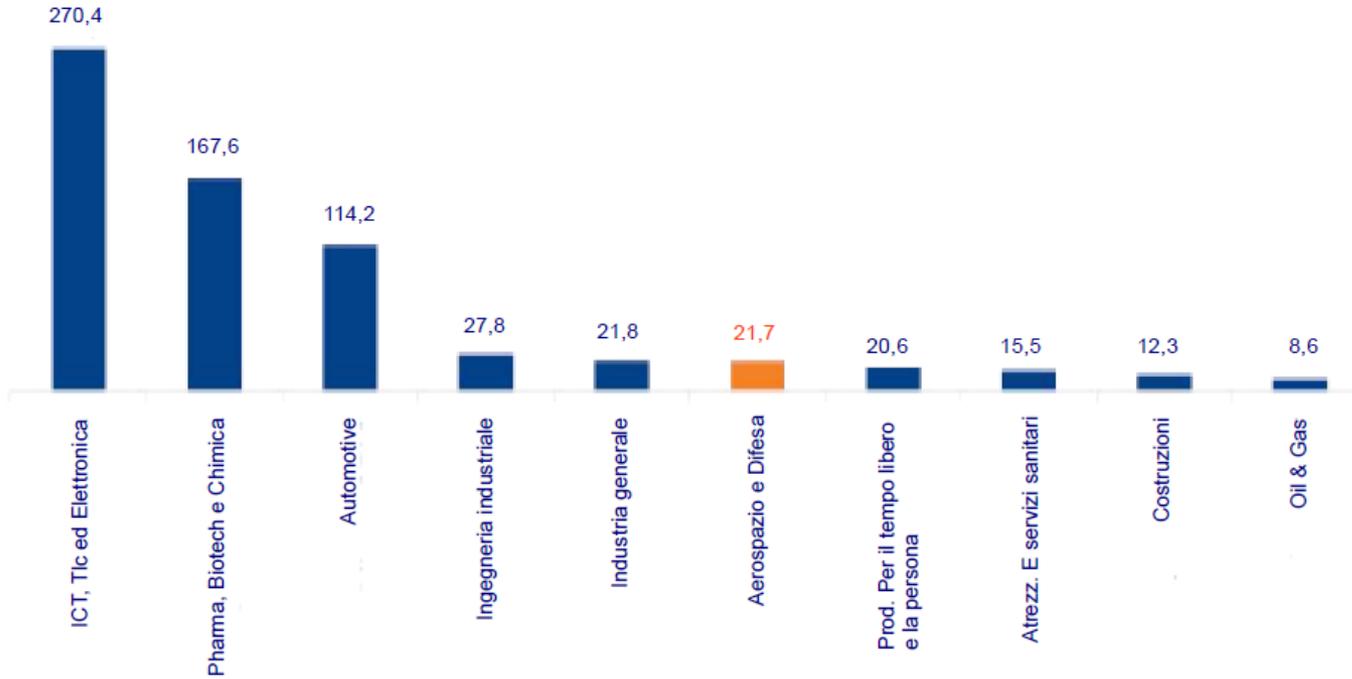
51

94

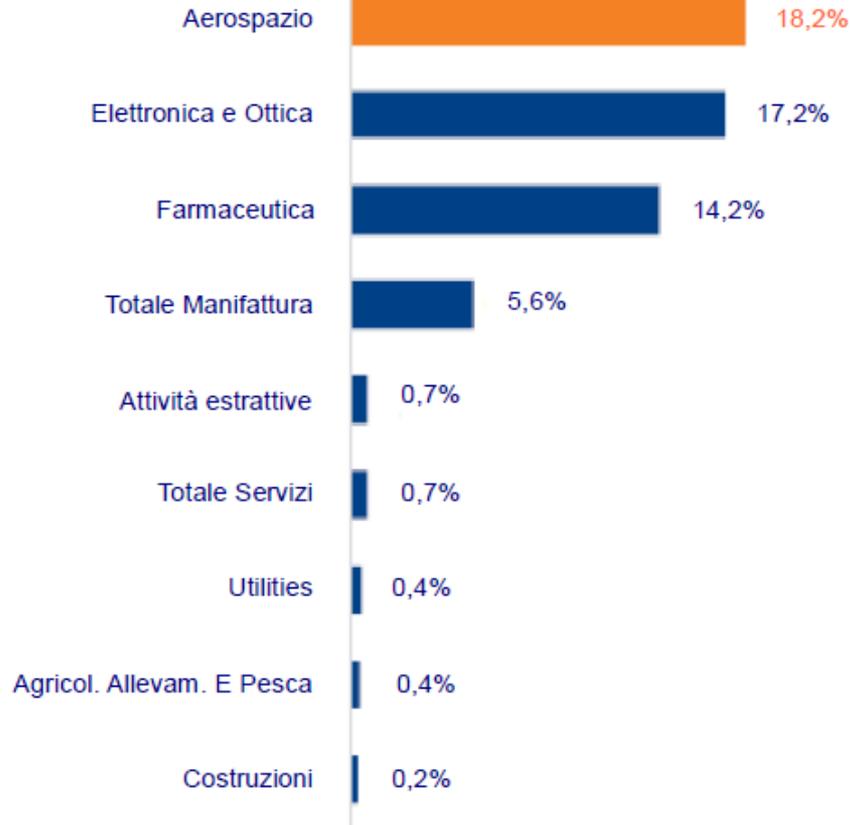
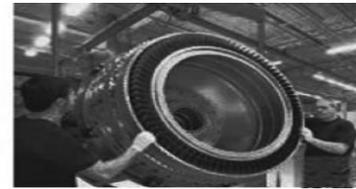
91

68

25

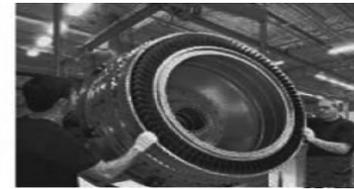


Primi dieci settori per investimenti in ricerca e sviluppo nel mondo (riferimento alle 2500 società top spender globali in R&S; miliardi di dollari e numero di aziende del campione), 2016



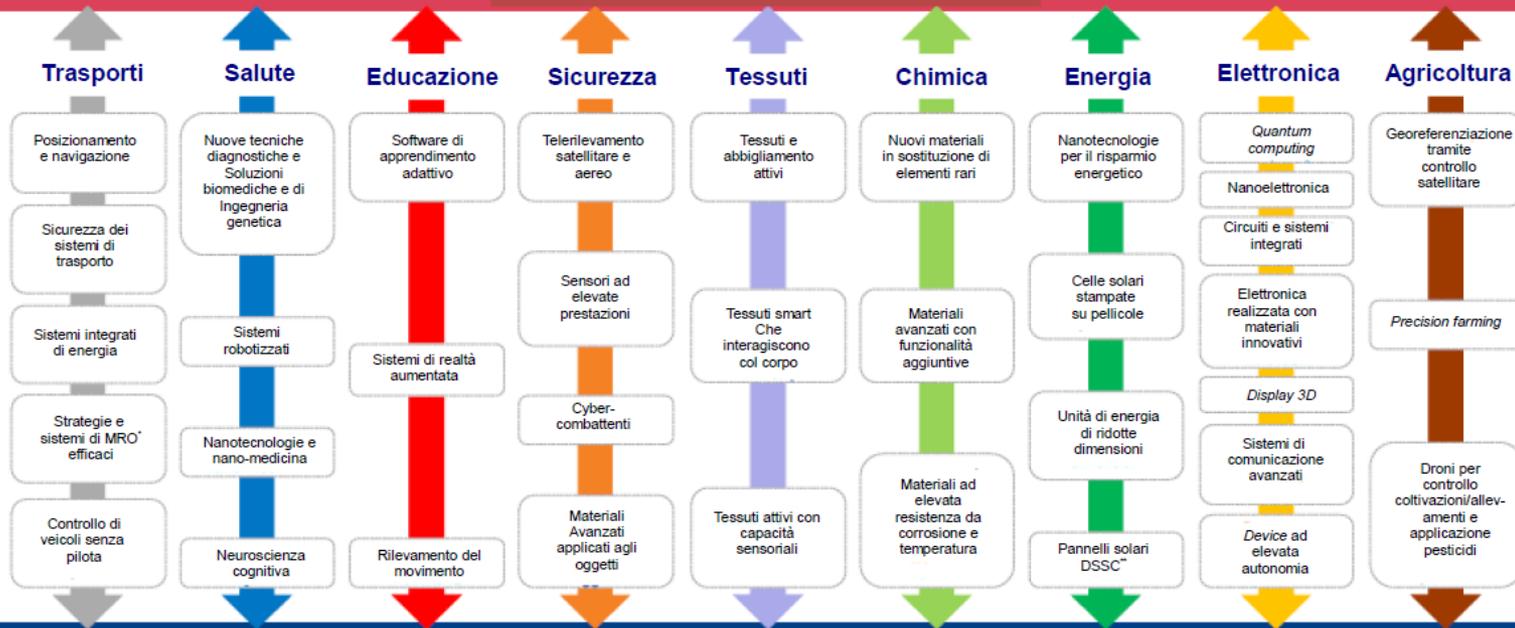
Incidenza della spesa in R&S sul valore aggiunto per settore nei paesi OCSE (valori percentuali), 2015 o ultimo anno disponibile





TRENDS FUTURI DI APPLICAZIONI DUALI (2020 E OLTRE)

TECNOLOGIE SVILUPPATE IN AMBITO CIVILE



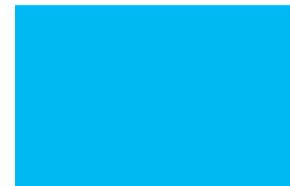
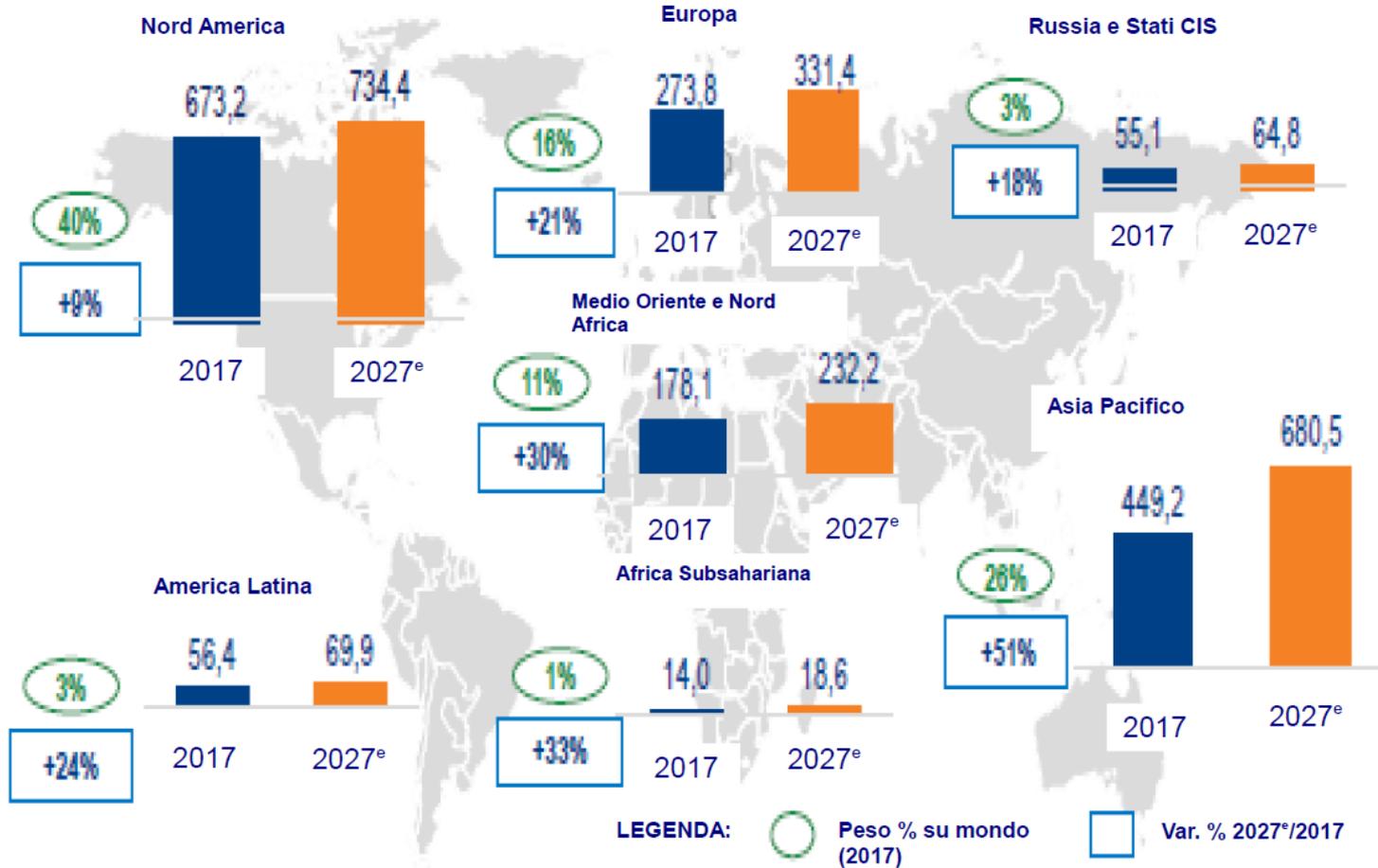
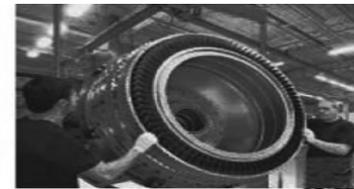
TECNOLOGIE SVILUPPATE NEL SETTORE AD&S

(*) MRO= Maintenance, Repair and Overhaul; (**) DSSC= Dye-Sensitized Solar Cell

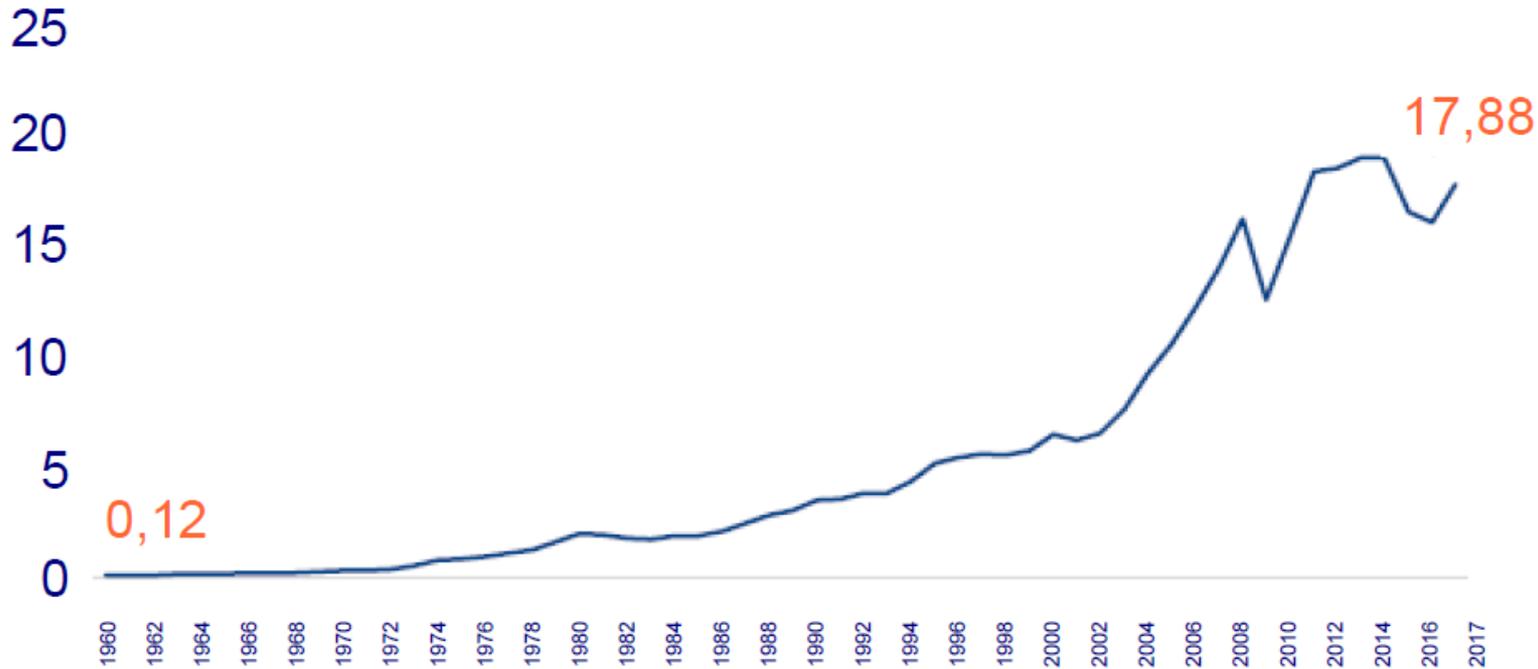
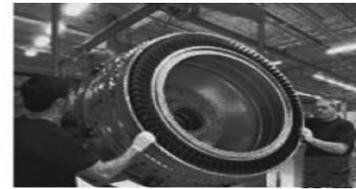


Ambiti di applicazione duale delle tecnologie del futuro



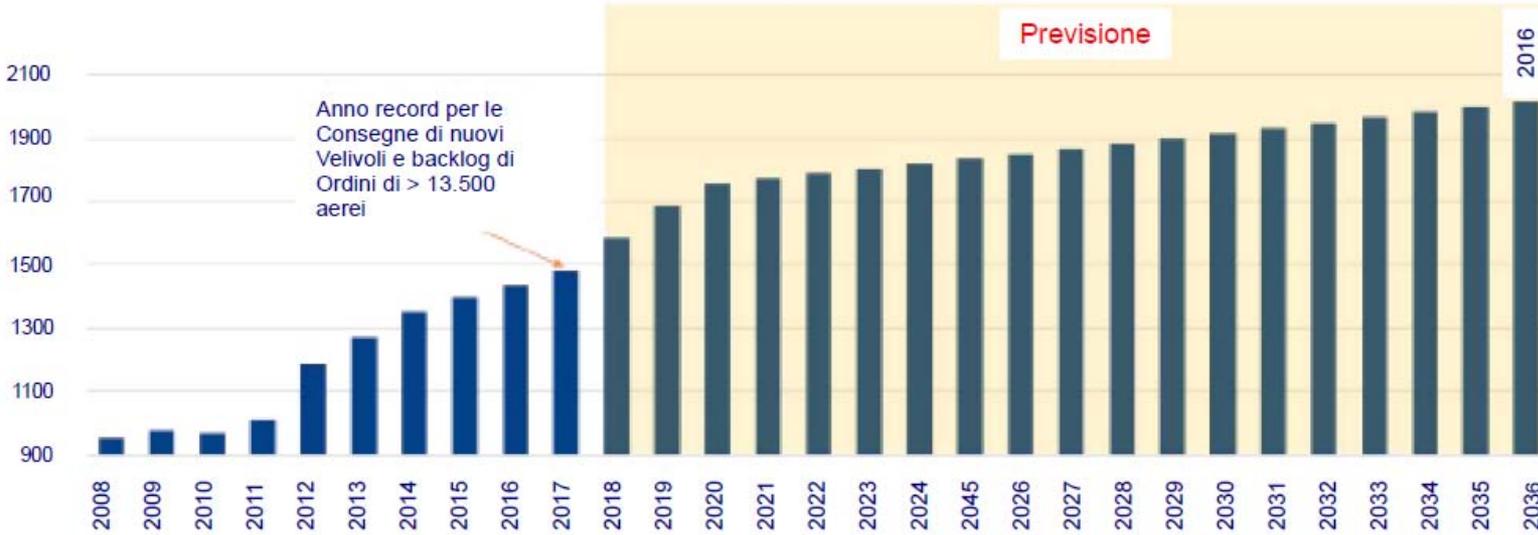
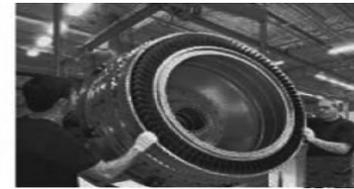


Budget della difesa per macro-area geografica (incidenza percentuale sul totale mondiale e previsioni al 2027) Nota: è inclusa la sicurezza in ambito militare

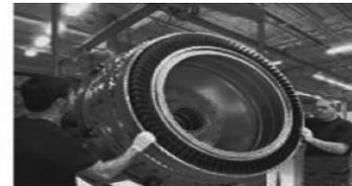
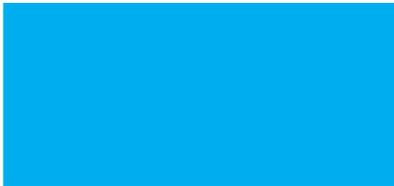


Andamento delle esportazioni di merci a livello globale (triloni di dollari)





Consegne di nuovi velivoli commerciali (valori assoluti), 2008-2036

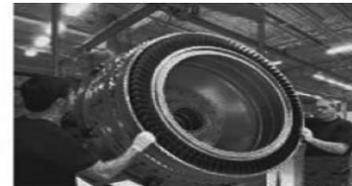
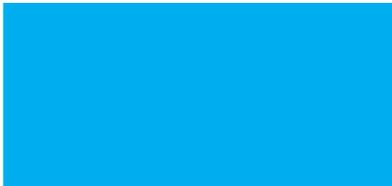


Fatturato 2017

1	FCA ITALY	28,6
2	LEONARDO	11,5
3	GRUPPO LUXOTTICA	9,2
4	PRYSMIAN	7,9
5	PARMALAT	6,7
6	GE ITALIA	6,4
7	PIRELLI	5,3
8	FINCANTIERI	5,0
9	MARCEGAGLIA	4,8
10	CREMONINI	4,0
11	MENARINI	3,6
12	BARILLA	3,5
13	GRUPPO RIVA	3,2
14	PRADA	3,1
15	GRUPPO VERONESI	3,0
16	FERRERO ITALIA	2,7
17	GIORGIO ARMANI	2,5
18	MAPEI	2,5
19	BREMBO	2,5
20	CALZEDONIA	2,3

Classifica delle 20 principali aziende manifatturiere italiane per fatturato (miliardi di euro), 2017



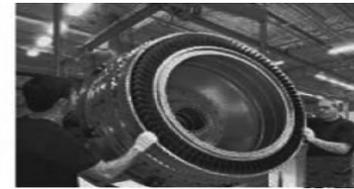


Fatturato 2017

1	ENEL	74,6
2	ENI	66,9
3	FCA ITALY	28,6
4	TIM	19,8
5	LEONARDO	11,5
6	POSTE ITALIANE	10,6
7	EDISON	9,9
8	FERROVIE DELLO STATO	9,3
9	GRUPPO LUXOTTICA	9,2
10	SAIPEM	9,0
11	PRYSMIAN	7,9
12	SARAS	7,7
13	ESSELUNGA	7,6
14	ESSO ITALIA	7,6
15	PARMALAT	6,7
16	SALINI	6,5
17	KUWAIT PETROLEUM ITALIA	6,5
18	GE ITALIA	6,4
19	ATLANTIA	6,0
20	A2A	5,8

Classifica delle 20 principali aziende industriali e di servizi italiane per fatturato (miliardi di euro), 2017



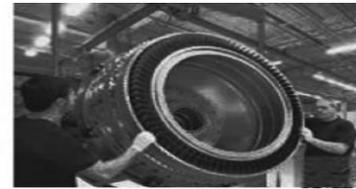


Ricavi 2017

1	BOEING (USA)	82,6
2	AIRBUS (FR-DE)	66,8
3	LOCKEED MARTIN (USA)	45,3
4	GENERAL DYNAMICS (USA)	27,5
5	NORTHROP GRUMMAN (USA)	22,9
6	RAYTHEON (USA)	22,5
7	BAE SYSTEMS (UK)	22,4
8	SAFRAN (FR)	16,5
9	THALES (FR)	14,0
10	LEONARDO (ITA)	11,5
11	TEXTRON (USA)	8,7
12	L-3 TECHNOLOGIES (USA)	8,5
13	SPIRIT AEROSYSTEMS (USA)	6,2
14	EMBRAER (BRA)	5,2
15	HARRIS (USA)	5,2
16	DASSAULT AVIATION (FR)	4,8
17	SAAB (SWE)	3,3
18	INDRA SISTEMAS (ESP)	3,0
19	RHEINMETAL DEFENCE (DE)	3,0
20	ELBIT SYSTEM (ISR)	2,9

Classifica delle 20 principali aziende del settore AD&S per fatturato (miliardi di euro), 2017





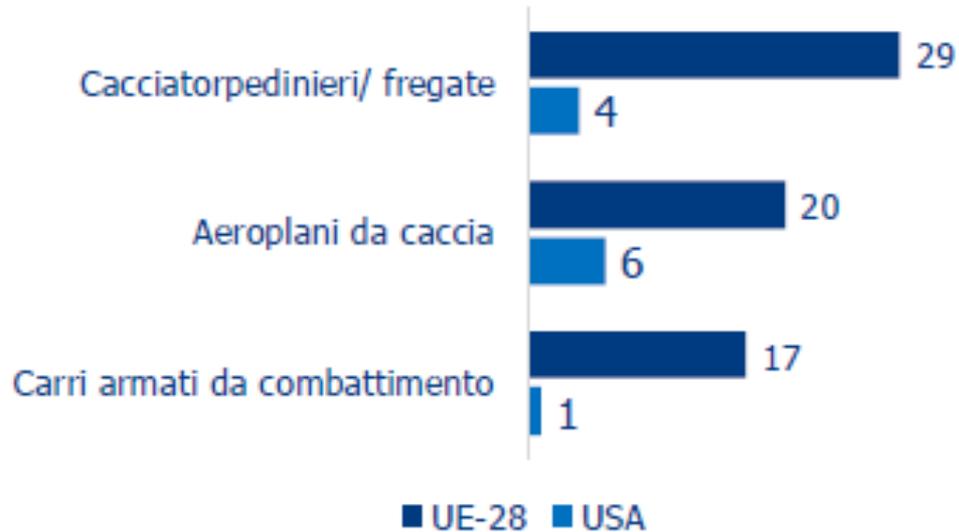
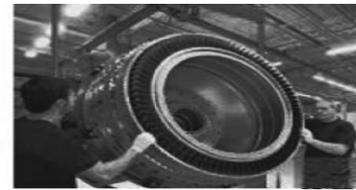
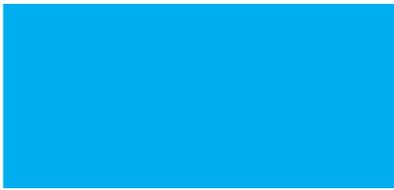
R&S autofinanziata 2016

1	BOEING (USA)	4.627
2	AIRBUS (FR-DE)	2.970
3	SAFRAN (FR)	1.106
4	LOCKHEED MARTIN (USA)	988
5	RAYTHEON (USA)	755
6	THALES (FR)	743
7	NORTHROP GRUMMAN (USA)	705
8	TEXTRON (USA)	677
9	LEONARDO (ITA)	562
10	EMBRAER (BRA)	387



Classifica delle 10 aziende del settore AD&S a livello globale per spesa in R&S autofinanziata (milioni di euro), 2016





La duplicazione dei sistemi in uso nella difesa dell'EU-28:
Confronto con USA (numero di tipi di sistemi d'arma per alcune categorie), 2017