

**Table 18. Summary of R&D expenditure**

Million NT\$

Year	R&D expenditure	Growth rate (%)	R&D expenditure as a % of GNI (%)	R&D expenditure as a % of GDP (%)	Gov. sector R&D expenditure as a % of R&D expenditure (%)	Manufacturing industry R&D expenditure as a % of sales (1) (%)	Basic research expenditure as a % of R&D expenditure (%)	Business enterprise R&D expenditure as a % of value-added in industry (2) (%)
1996	137 955	10.3	1.76	1.79	41.6	-	-	-
2001	204 974	3.7	1.98	2.02	33.3	1.26	10.8	1.68
2006	307 037	9.3	2.37	2.43	31.4	1.34	10.2	2.22
2009	367 053	4.7	2.76	2.84	28.8	1.84	11.0	2.79
2010	395 879	7.9	2.73	2.82	27.5	1.60	10.5	2.74
2011	415 357	4.9	2.84	2.91	26.4	1.60	10.5	2.88
2012	433 997	4.5	2.87	2.96	24.7	1.75	10.2	3.02
2013	458 433	5.6	2.92	3.00	23.5	1.85	9.8	3.06
2014	484 541	5.7	2.90	2.98	21.9	1.91	9.5	3.03
2015	511 618	5.6	2.92	3.00	21.2	2.23	9.2	3.08
2016	541 757	5.9	3.01	3.09	21.4	2.33	8.6	3.15
2017	574 502	6.0	3.12	3.19	19.8	2.48	8.1	3.29
2018	615 986	7.2	3.28	3.35	18.8	2.58	7.3	3.52
2019	660 786	7.3	3.40	3.49	18.2	2.91	7.0	3.72

  

Year	R&D expenditure								
	By source of funds					By sector of performance			
	Business enterprise	Government	Higher education	Private non-profit	Abroad	Business enterprise	Government	Higher education	Private non-profit
1991	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-
2001	132 950	68 339	2 719	931	35	130 296	47 732	25 521	1 425
2006	206 177	96 443	3 257	1 071	91	207 238	60 965	37 565	1 270
2009	256 492	105 879	3 361	780	542	258 039	60 455	47 200	1 359
2010	282 066	108 916	3 654	681	563	283 421	62 258	48 777	1 424
2011	300 741	109 467	4 002	656	491	301 477	61 679	50 790	1 410
2012	321 236	107 286	4 131	454	891	322 111	60 207	50 358	1 321
2013	345 369	107 612	4 049	427	976	346 206	59 877	50 895	1 455
2014	373 177	105 915	4 032	410	1 008	373 019	59 606	50 308	1 608
2015	397 673	108 694	3 964	429	859	397 163	62 125	50 761	1 569
2016	420 639	115 722	3 953	451	991	419 989	69 252	50 904	1 612
2017	455 260	113 571	4 248	527	895	454 116	67 420	51 560	1 406
2018	494 932	115 749	4 159	384	763	494 706	65 740	54 758	781
2019	535 313	120 068	4 114	419	873	534 586	69 754	55 577	869

**Note:** 1. R&D expenditure include defense R&D expenditure from 2002.

2. About the data of source of funds and sector of performance, they couldn't link up before 1999 because their classifications are different.

(1) MOEA's *Factory Adjustment and Operation Survey* was not conducted in 1991, 1996, 2001, 2006, 2011, and 2016, so sales for these years are estimates.

(2) Value added in industry are calculated from *National Accounts* by DGBAS, and in accordance with the industrial scope of OECD definition.

**Source:** 1. Ministry of Science and Technology

2. Directorate-General of Budget, Accounting and Statistics

Table 18. Summary of R&amp;D expenditure (continued)

Million NT\$

Year	R&D expenditure										
	By type of R&D			By type of costs							
	Basic research	Applied research	Experimental development	R&D current expenditure			R&D capital expenditure				
				Sub-total	Labor costs	Other current costs	Sub-total	Land and buildings	Instruments and equipment	Capitalized computer software	Other intellectual property products
1991	8 275	33 320	40 170	-	-	-	-	-	-	-	-
1996	15 223	41 463	81 269	-	-	-	-	-	-	-	-
2001	22 143	59 914	122 917	175 730	89 634	86 096	29 244	5 755	23 489	-	-
2006	31 229	81 270	194 539	269 860	143 957	125 903	37 177	2 898	34 279	-	-
2009	40 220	93 129	233 704	333 703	188 458	145 245	33 350	2 488	30 862	-	-
2010	41 731	97 484	256 664	361 227	207 899	153 328	34 652	2 221	32 432	-	-
2011	43 716	98 807	272 834	379 035	216 458	162 578	36 322	2 639	33 682	-	-
2012	44 342	102 122	287 533	395 996	228 827	167 169	38 001	1 890	36 111	-	-
2013	44 796	106 795	306 843	417 795	242 066	175 729	40 638	3 885	36 753	-	-
2014	45 838	111 762	326 941	441 944	263 519	178 425	42 597	5 047	37 551	-	-
2015	47 232	118 117	346 269	464 948	280 622	184 326	46 671	6 368	40 303	-	-
2016	46 807	124 230	370 720	492 964	294 964	198 000	48 793	5 900	39 941	1 531	1 420
2017	46 604	130 937	396 961	517 161	312 520	204 641	57 340	5 394	46 200	3 598	2 148
2018	44 918	141 435	429 634	555 930	336 797	219 133	60 056	3 267	51 003	3 813	1 974
2019	46 082	149 981	464 723	596 224	363 531	232 693	64 562	2 746	55 299	4 810	1 708