

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total																						
All technologies	185	189	249	246	330	415	466	467	516	525	394	339	480	527	564	674	615	559	545	504	483	602
Equity.....	81	102	108	117	113	160	151	155	194	274	107	74	102	134	77	81	86	69	57	70	50	57
Nonequity.....	104	87	141	129	217	255	315	312	322	251	287	265	378	393	487	593	529	490	488	434	433	545
Information technology.....	47	53	85	98	145	153	173	171	192	186	197	184	223	214	240	306	270	223	256	218	169	168
Equity.....	19	27	39	42	47	46	57	51	48	68	28	33	28	33	17	18	30	18	19	23	16	22
Nonequity.....	28	26	46	56	98	107	116	120	144	118	169	151	195	181	223	288	240	205	237	195	153	146
Biotechnology ^a	31	38	53	42	65	111	103	110	98	66	45	36	98	124	161	164	177	182	147	190	200	350
Equity.....	4	11	9	12	12	34	14	24	16	17	20	8	18	25	22	13	18	18	10	16	12	13
Nonequity.....	27	27	44	30	53	77	89	86	82	49	25	28	80	99	139	151	159	164	137	174	188	337
New materials.....	8	23	24	32	28	50	87	62	61	46	35	21	35	59	33	43	37	29	36	23	22	23
Equity.....	6	17	19	17	15	19	37	17	30	25	19	8	16	28	3	11	8	5	3	7	2	7
Nonequity.....	2	6	5	15	13	31	50	45	31	21	16	13	19	31	30	32	29	24	33	16	20	16
Aerospace/defense.....	23	6	11	9	30	14	27	25	26	42	55	41	52	34	38	51	46	42	38	12	13	26
Equity.....	1	0	4	2	4	1	3	1	4	14	16	8	14	6	13	17	9	9	9	2	1	4
Nonequity.....	22	6	7	7	26	13	24	24	22	28	39	33	38	28	25	34	37	33	29	10	12	22
Automotive.....	15	7	9	8	8	20	22	22	45	49	12	3	4	15	25	25	37	43	32	39	50	22
Equity.....	6	1	5	5	2	10	11	14	32	38	6	1	0	2	4	4	12	11	14	14	10	12
Nonequity.....	9	6	4	3	6	10	11	8	13	11	6	2	4	13	21	21	25	32	18	25	40	10
Chemistry ^b	34	25	24	27	25	35	18	33	48	64	44	35	38	63	46	60	29	59	73	35	40	24
Equity.....	31	21	14	23	20	31	14	30	38	55	22	13	21	28	17	15	10	11	7	8	7	3
Nonequity.....	3	4	10	4	5	4	4	3	10	9	22	22	17	35	29	45	19	48	66	27	33	21
U.S.-owned worldwide																						
All technologies	118	120	177	160	226	224	268	302	351	329	282	271	367	413	449	526	488	448	444	413	386	441
Equity.....	52	70	78	85	77	86	93	91	121	137	57	56	63	79	45	33	51	45	33	42	38	26
Nonequity.....	66	50	99	75	149	138	175	211	230	192	225	215	304	334	404	493	437	403	411	371	348	415
Information technology.....	29	34	62	68	97	86	100	128	140	130	156	152	181	184	214	269	229	183	222	183	133	117
Equity.....	13	17	30	34	29	26	32	34	27	37	17	26	17	21	11	8	19	15	14	11	10	5
Nonequity.....	16	17	32	34	68	60	68	94	113	93	139	126	164	163	203	261	210	168	208	172	123	112
Biotechnology ^a	24	27	45	27	51	64	75	78	64	46	28	33	77	108	125	127	141	162	120	165	165	268
Equity.....	2	9	7	7	8	17	9	16	12	7	8	7	13	18	16	6	10	13	5	11	10	7
Nonequity.....	22	18	38	20	43	47	66	62	52	39	20	26	64	90	109	121	131	149	115	154	155	261
New materials.....	4	14	14	18	14	17	38	30	37	27	27	16	25	40	27	31	27	22	22	17	18	14
Equity.....	4	12	12	12	11	10	23	9	20	13	13	6	11	15	3	7	4	3	2	4	2	2
Nonequity.....	0	2	2	6	3	7	15	21	17	14	14	10	14	25	24	24	23	19	20	13	16	12
Aerospace/defense.....	15	3	8	4	19	7	10	14	18	23	36	25	34	17	16	28	30	21	29	10	9	18
Equity.....	0	0	3	1	2	0	2	1	2	6	8	5	7	2	4	6	5	1	3	1	0	2
Nonequity.....	15	3	5	3	17	7	8	13	16	17	28	20	27	15	12	22	25	20	26	9	9	16
Automotive.....	6	3	4	5	4	11	12	16	35	32	8	2	1	10	17	15	25	29	19	22	38	16
Equity.....	4	1	3	3	1	7	8	11	27	22	4	1	0	1	3	2	7	8	7	10	6	7
Nonequity.....	2	2	1	2	3	4	4	5	8	10	4	1	1	9	14	13	18	21	12	12	32	9
Chemistry ^b	21	17	14	15	17	19	9	12	26	37	24	26	24	46	32	42	15	51	55	24	30	17
Equity.....	20	16	8	14	13	16	7	10	18	29	10	9	13	17	9	5	4	8	5	4	7	1
Nonequity.....	1	1	6	1	4	3	2	2	8	8	14	17	11	29	23	37	11	43	50	20	23	16

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Europe-owned worldwide																						
All technologies.....	95	89	126	107	161	227	229	232	249	289	185	153	226	224	255	302	250	233	252	194	231	284
Equity.....	42	47	58	46	55	80	83	93	107	169	68	39	61	84	51	52	45	40	39	42	26	37
Nonequity.....	53	42	68	61	106	147	146	139	142	120	117	114	165	140	204	250	205	193	213	152	205	247
Information technology.....	18	27	50	31	70	89	95	81	86	90	72	65	84	67	64	89	70	83	87	59	79	68
Equity.....	8	15	23	11	25	23	33	32	32	40	16	14	15	17	8	11	13	9	11	10	5	13
Nonequity.....	10	12	27	20	45	66	62	49	54	50	56	51	69	50	56	78	57	74	76	49	74	55
Biotechnology ^a	15	14	15	21	25	61	35	52	51	36	26	18	61	53	95	94	101	73	81	80	91	171
Equity.....	3	5	4	6	4	20	6	10	7	12	13	5	13	15	14	7	12	12	7	11	5	11
Nonequity.....	12	9	11	15	21	41	29	42	44	24	13	13	48	38	81	87	89	61	74	69	86	160
New materials.....	8	13	15	20	15	20	34	22	23	28	21	8	14	37	14	23	13	14	22	8	7	12
Equity.....	6	9	13	12	7	10	21	11	15	18	11	4	8	22	0	7	3	2	3	2	0	4
Nonequity.....	2	4	2	8	8	10	13	11	8	10	10	4	6	15	14	16	10	12	19	6	7	8
Aerospace/defense.....	13	2	7	6	19	10	18	15	15	28	31	26	30	20	29	31	23	28	23	5	5	17
Equity.....	1	0	2	1	4	1	1	0	3	9	12	6	10	4	12	11	6	6	6	1	0	2
Nonequity.....	12	2	5	5	15	9	17	15	12	19	19	20	20	16	17	20	17	22	17	4	5	15
Automotive.....	12	5	6	4	6	10	12	8	16	20	4	0	0	5	13	13	18	19	17	28	27	12
Equity.....	4	0	2	2	2	3	5	4	10	15	2	0	0	2	2	3	6	6	8	11	7	9
Nonequity.....	8	5	4	2	4	7	7	4	6	5	2	0	0	3	11	10	12	13	9	17	20	3
Chemistry ^b	16	12	14	13	12	18	12	23	29	36	29	23	21	33	26	43	23	29	47	22	30	10
Equity.....	13	8	10	11	9	14	9	22	23	32	15	8	11	19	13	11	9	7	7	5	5	1
Nonequity.....	3	4	4	2	3	4	3	1	6	4	14	15	10	14	13	32	14	22	40	17	25	9
Japan-owned worldwide																						
All technologies.....	42	61	79	81	91	121	145	121	100	105	67	70	69	80	72	86	90	54	59	72	54	73
Equity.....	20	37	31	37	31	56	55	46	44	78	27	18	19	17	6	9	14	5	6	16	10	16
Nonequity.....	22	24	48	44	60	65	90	75	56	27	40	52	50	63	66	77	76	49	53	56	44	57
Information technology.....	15	15	29	37	48	31	43	31	31	31	35	46	34	43	40	44	47	28	32	43	31	42
Equity.....	7	8	8	13	12	16	19	10	7	19	9	11	5	6	4	3	5	3	1	10	6	10
Nonequity.....	8	7	21	24	36	15	24	21	24	12	26	35	29	37	36	41	42	25	31	33	25	32
Biotechnology ^a	7	11	16	10	11	29	31	25	10	11	6	3	8	15	11	15	20	13	11	18	9	16
Equity.....	1	1	1	4	2	6	6	8	1	4	3	0	4	4	0	0	2	1	0	2	2	0
Nonequity.....	6	10	15	6	9	23	25	17	9	7	3	3	4	11	11	15	18	12	11	16	7	16
New materials.....	0	6	6	11	14	30	45	32	22	12	9	6	8	6	5	10	6	4	10	6	6	6
Equity.....	0	5	5	6	7	9	17	6	9	7	7	2	4	2	0	2	3	0	1	3	0	3
Nonequity.....	0	1	1	5	7	21	28	26	13	5	2	4	4	4	5	8	3	4	9	3	6	3
Aerospace/defense.....	6	1	0	1	1	0	4	1	0	2	3	6	0	0	0	1	2	2	1	1	3	2
Equity.....	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Nonequity.....	6	1	0	1	1	0	3	1	0	2	3	6	0	0	0	1	2	2	1	1	2	1
Automotive.....	2	3	3	3	2	10	10	11	18	24	2	2	3	7	6	5	7	2	6	5	9	4
Equity.....	1	1	3	2	0	5	5	8	13	23	1	1	0	1	1	1	3	0	3	2	2	4
Nonequity.....	1	2	0	1	2	5	5	3	5	1	1	1	3	6	5	4	4	2	3	3	7	0
Chemistry ^b	8	8	9	12	8	14	5	14	11	15	11	5	9	8	5	6	6	8	4	3	2	5
Equity.....	8	7	5	9	7	14	5	12	8	15	6	3	5	4	0	3	3	1	0	1	0	2
Nonequity.....	0	1	4	3	1	0	0	2	3	0	5	2	4	4	5	3	3	7	4	2	2	3

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
NT-owned worldwide																						
All technologies.....	19	26	24	20	25	40	30	43	77	98	43	14	47	69	58	77	82	70	39	56	72	85
Equity.....	12	20	12	16	17	33	18	32	51	79	19	5	23	29	19	17	22	12	10	7	6	10
Nonequity.....	7	6	12	4	8	7	12	11	26	19	24	9	24	40	39	60	60	58	29	49	66	75
Information technology.....	1	3	9	7	8	10	11	9	24	30	16	6	15	17	19	35	42	30	19	26	27	32
Equity.....	0	3	6	6	5	6	6	6	13	23	3	1	7	6	5	4	11	1	2	2	3	4
Nonequity.....	1	0	3	1	3	4	5	3	11	7	13	5	8	11	14	31	31	29	17	24	24	28
Biotechnology ^a	3	5	4	1	3	6	2	7	9	5	11	1	11	9	12	12	20	14	6	18	22	46
Equity.....	0	3	0	0	3	6	0	3	3	2	7	1	3	4	4	1	7	2	2	1	2	2
Nonequity.....	3	2	4	1	0	0	2	4	6	3	4	0	8	5	8	11	13	12	4	17	20	44
New materials.....	0	5	3	0	1	2	4	5	11	4	4	2	4	8	3	3	6	2	3	2	4	3
Equity.....	0	4	2	0	0	2	2	4	6	3	2	1	4	5	2	2	2	2	0	0	0	1
Nonequity.....	0	1	1	0	1	0	2	1	5	1	2	1	0	3	1	1	4	0	3	2	4	2
Aerospace/defense.....	1	1	1	1	1	3	2	1	2	5	2	5	11	19	12	15	9	12	6	1	2	5
Equity.....	0	0	0	0	0	0	0	0	0	3	1	0	5	5	4	6	2	3	1	1	0	2
Nonequity.....	1	1	1	1	1	3	2	1	2	2	1	5	6	14	8	9	7	9	5	0	2	3
Automotive.....	1	0	1	1	1	3	1	2	10	12	0	0	0	1	3	2	3	7	5	3	9	3
Equity.....	1	0	1	1	0	3	1	2	9	12	0	0	0	0	0	1	1	1	4	1	0	3
Nonequity.....	0	0	0	0	1	0	0	0	1	0	0	0	0	1	3	1	2	6	1	2	9	0
Chemistry ^b	10	9	3	4	5	10	1	9	15	19	6	3	7	11	8	7	2	3	3	7	4	0
Equity.....	10	8	1	4	4	10	1	9	14	18	5	3	5	7	6	5	1	2	1	2	1	0
Nonequity.....	0	1	2	0	1	0	0	0	1	1	1	0	2	4	2	2	1	1	2	5	3	0
U.S.-only owned																						
All technologies.....	43	39	45	59	84	77	108	124	146	118	139	124	175	211	224	263	242	244	231	207	167	209
Equity.....	16	14	17	25	25	22	18	20	24	21	17	21	21	25	14	16	21	19	11	11	12	8
Nonequity.....	27	25	28	34	59	55	90	104	122	97	122	103	154	186	210	247	221	225	220	196	155	201
Information technology.....	18	16	8	30	34	35	43	58	68	59	86	78	102	104	130	156	134	99	133	98	49	50
Equity.....	6	6	6	14	10	8	6	7	4	5	5	10	7	8	4	3	8	5	7	4	4	3
Nonequity.....	12	10	2	16	24	27	37	51	64	54	81	68	95	96	126	153	126	94	126	94	45	47
Biotechnology ^a	6	11	21	11	27	25	38	33	34	20	11	16	27	53	52	55	51	87	56	82	87	133
Equity.....	0	4	4	2	4	8	2	6	5	3	3	3	2	3	4	5	2	4	2	3	4	2
Nonequity.....	6	7	17	9	23	17	36	27	29	17	8	13	25	50	48	50	49	83	54	79	83	131
New materials.....	0	2	4	4	4	4	12	10	12	7	7	7	13	17	11	13	14	12	10	8	8	5
Equity.....	0	1	2	0	4	2	4	1	4	2	4	3	4	4	1	3	2	3	0	2	2	0
Nonequity.....	0	1	2	4	0	2	8	9	8	5	3	4	9	13	10	10	12	9	10	6	6	5
Aerospace/defense.....	4	2	3	1	9	4	5	9	11	9	19	7	13	6	5	10	13	8	10	5	4	4
Equity.....	0	0	2	1	0	0	1	1	1	3	3	2	1	0	1	2	1	1	2	0	0	0
Nonequity.....	4	2	1	0	9	4	4	8	10	6	16	5	12	6	4	8	12	7	8	5	4	4
Automotive.....	1	1	0	1	0	1	3	5	6	6	6	1	1	4	8	6	12	18	9	6	12	8
Equity.....	1	0	0	0	0	0	2	3	3	1	3	0	0	0	2	0	3	4	2	1	2	1
Nonequity.....	0	1	0	1	0	1	1	2	3	5	3	1	1	4	6	6	9	14	7	5	10	7
Chemistry ^b	4	1	1	4	6	2	4	3	5	11	9	9	10	21	14	13	3	23	24	9	9	11
Equity.....	4	1	0	3	5	2	3	2	4	6	3	3	6	4	1	2	0	3	0	1	1	1
Nonequity.....	0	0	1	1	1	0	1	1	1	5	6	6	4	17	13	11	3	20	24	8	8	10

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
U.S.-Europe owned																						
All technologies.....	38	35	67	44	78	82	100	114	111	115	87	92	125	129	158	174	151	135	165	132	151	150
Equity.....	16	21	31	20	27	25	43	41	45	51	23	22	26	34	22	9	17	18	19	25	18	14
Nonequity.....	22	14	36	24	51	57	57	73	66	64	64	70	99	95	136	165	134	117	146	107	133	136
Information technology.....	5	12	31	12	31	29	37	46	43	39	38	38	48	45	49	60	39	49	62	40	51	35
Equity.....	3	7	16	4	11	6	16	18	16	13	6	8	6	8	5	3	5	6	7	4	2	2
Nonequity.....	2	5	15	8	20	23	21	28	27	26	32	30	42	37	44	57	34	43	55	36	49	33
Biotechnology ^a	9	6	10	9	15	22	23	31	20	16	11	15	40	38	60	60	71	54	55	61	60	95
Equity.....	1	3	2	2	2	6	4	6	3	2	2	4	8	9	8	0	4	7	3	7	4	5
Nonequity.....	8	3	8	7	13	16	19	25	17	14	9	11	32	29	52	60	67	47	52	54	56	90
New materials.....	4	5	6	8	5	6	14	10	9	11	13	4	5	19	10	14	7	7	10	6	5	6
Equity.....	4	4	6	7	3	3	12	4	7	6	5	2	4	9	0	4	1	0	2	1	0	2
Nonequity.....	0	1	0	1	2	3	2	6	2	5	8	2	1	10	10	10	6	7	8	5	5	4
Aerospace/defense.....	6	1	4	3	9	3	4	5	7	9	15	11	14	6	8	10	9	10	14	4	2	10
Equity.....	0	0	1	0	2	0	0	0	1	1	5	3	4	0	3	1	3	0	0	1	0	1
Nonequity.....	6	1	3	3	7	3	4	5	6	8	10	8	10	6	5	9	6	10	14	3	2	9
Automotive.....	3	1	1	2	3	6	5	4	9	8	1	0	0	3	7	6	9	7	7	12	16	6
Equity.....	2	0	0	1	1	3	3	3	6	4	1	0	0	1	1	1	2	3	3	7	3	4
Nonequity.....	1	1	1	1	2	3	2	1	3	4	0	0	0	2	6	5	7	4	4	5	13	2
Chemistry ^b	4	5	6	3	6	7	3	3	10	13	10	14	7	18	13	25	10	21	29	12	20	5
Equity.....	3	4	4	3	4	4	2	3	6	10	4	4	3	9	5	1	3	4	5	2	5	0
Nonequity.....	1	1	2	0	2	3	1	0	4	3	6	10	4	9	8	24	7	17	24	10	15	5
U.S.-Japan owned																						
All technologies.....	25	31	51	47	51	51	49	50	60	66	35	46	41	45	40	47	50	38	31	41	27	33
Equity.....	12	21	22	30	16	28	24	20	30	45	10	9	7	7	1	2	2	5	0	3	4	1
Nonequity.....	13	10	29	17	35	23	25	30	30	21	25	37	34	38	39	45	48	33	31	38	23	32
Information technology.....	6	5	18	22	30	17	18	20	19	22	23	32	22	29	23	29	31	19	17	26	15	16
Equity.....	4	3	5	12	7	10	9	6	2	13	5	7	2	4	0	0	1	3	0	2	2	0
Nonequity.....	2	2	13	10	23	7	9	14	17	9	18	25	20	25	23	29	30	16	17	24	13	16
Biotechnology ^a	6	8	12	7	7	15	14	10	6	6	2	2	5	10	7	6	12	13	7	12	7	12
Equity.....	1	1	1	3	0	1	3	3	1	0	1	0	2	3	0	0	0	1	0	0	1	0
Nonequity.....	5	7	11	4	7	14	11	7	5	6	1	2	3	7	7	6	12	12	7	12	6	12
New materials.....	0	3	2	6	4	6	9	8	9	8	4	3	6	1	3	4	1	3	2	2	3	2
Equity.....	0	3	2	5	4	4	6	2	6	5	2	0	2	0	0	0	0	0	0	1	0	0
Nonequity.....	0	0	0	1	0	2	3	6	3	3	2	3	4	1	3	4	1	3	2	1	3	2
Aerospace/defense.....	5	0	0	0	0	0	1	0	0	2	1	5	0	0	0	1	1	1	1	1	2	1
Equity.....	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity.....	5	0	0	0	0	0	0	0	0	2	1	5	0	0	0	1	1	1	1	1	2	1
Automotive.....	1	1	2	1	1	2	4	7	13	16	1	1	0	2	2	2	3	0	1	2	4	0
Equity.....	0	1	2	1	0	2	3	5	12	15	0	1	0	0	0	1	1	0	0	1	1	0
Nonequity.....	1	0	0	0	1	0	1	2	1	1	1	0	0	2	2	1	2	0	1	1	3	0
Chemistry ^b	7	5	5	6	4	7	2	5	7	8	4	1	2	2	0	3	1	6	2	2	0	1
Equity.....	7	5	3	6	3	7	2	4	5	8	2	0	0	0	0	1	0	1	0	1	0	0
Nonequity.....	0	0	2	0	1	0	0	1	2	0	2	1	2	2	0	2	1	5	2	1	0	1

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
U.S.-NT owned																						
All technologies.....	12	15	14	10	13	14	11	14	34	30	21	9	26	28	27	42	45	31	17	33	41	49
Equity.....	8	14	8	10	9	11	8	10	22	20	7	4	9	13	8	6	11	3	3	3	4	3
Nonequity.....	4	1	6	0	4	3	3	4	12	10	14	5	17	15	19	36	34	28	14	30	37	46
Information technology.....	0	1	5	4	2	5	2	4	10	10	9	4	9	6	12	24	25	16	10	19	18	16
Equity.....	0	1	3	4	1	2	1	3	5	6	1	1	2	1	2	2	5	1	0	1	2	0
Nonequity.....	0	0	2	0	1	3	1	1	5	4	8	3	7	5	10	22	20	15	10	18	16	16
Biotechnology ^a	3	2	2	0	2	2	0	4	4	4	4	0	5	7	6	6	7	8	2	10	11	28
Equity.....	0	1	0	0	2	2	0	1	3	2	2	0	1	3	4	1	4	1	0	1	1	0
Nonequity.....	3	1	2	0	0	0	0	3	1	2	2	0	4	4	2	5	3	7	2	9	10	28
New materials.....	0	4	2	0	1	1	3	2	7	1	3	2	1	3	3	0	5	0	0	1	2	1
Equity.....	0	4	2	0	0	1	1	2	3	0	2	1	1	2	2	0	1	0	0	0	0	0
Nonequity.....	0	0	0	0	1	0	2	0	4	1	1	1	0	1	1	0	4	0	0	1	2	1
Aerospace/defense.....	0	0	1	0	1	0	0	0	0	3	1	2	7	5	3	7	7	2	4	0	1	3
Equity.....	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	3	1	0	1	0	0	1
Nonequity.....	0	0	1	0	1	0	0	0	0	1	1	2	5	3	3	4	6	2	3	0	1	2
Automotive.....	1	0	1	1	0	2	0	0	7	2	0	0	0	1	0	1	1	4	2	2	6	2
Equity.....	1	0	1	1	0	2	0	0	6	2	0	0	0	0	0	0	1	1	2	1	0	2
Nonequity.....	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	3	0	1	6	0
Chemistry ^b	6	6	2	2	1	3	0	1	4	5	1	2	5	5	5	1	1	1	0	1	1	0
Equity.....	6	6	1	2	1	3	0	1	3	5	1	2	4	4	3	1	1	0	0	0	1	0
Nonequity.....	0	0	1	0	0	0	0	0	1	0	0	0	1	1	2	0	0	1	0	1	0	0
Europe-only owned																						
All technologies.....	44	30	36	42	55	97	87	72	86	104	59	40	66	43	58	79	60	60	55	42	45	89
Equity.....	17	12	18	19	16	26	20	22	32	60	21	8	15	30	18	31	13	15	13	11	5	10
Nonequity.....	27	18	18	23	39	71	67	50	54	44	38	32	51	13	40	48	47	45	42	31	40	79
Information technology.....	9	8	9	12	25	48	40	27	27	29	22	17	25	8	6	14	12	20	11	13	15	13
Equity.....	3	4	4	5	10	10	11	10	8	10	5	3	4	5	1	6	1	3	2	3	2	4
Nonequity.....	6	4	5	7	15	38	29	17	19	19	17	14	21	3	5	8	11	17	9	10	13	9
Biotechnology ^a	6	5	3	11	10	29	10	17	26	14	7	1	12	9	26	24	17	14	19	13	22	60
Equity.....	2	0	2	4	2	8	2	3	4	6	5	0	1	5	6	7	3	4	3	3	0	4
Nonequity.....	4	5	1	7	8	21	8	14	22	8	2	1	11	4	20	17	14	10	16	10	22	56
New materials.....	4	5	5	9	4	8	13	5	7	12	2	2	6	9	4	3	5	4	4	2	0	4
Equity.....	2	3	4	4	1	3	3	2	4	7	1	0	1	8	0	0	1	0	0	1	0	2
Nonequity.....	2	2	1	5	3	5	10	3	3	5	1	2	5	1	4	3	4	4	4	1	0	2
Aerospace/defense.....	6	1	3	3	10	4	12	9	6	17	16	13	14	3	13	15	13	10	7	1	2	5
Equity.....	1	0	1	1	2	1	1	0	2	7	7	3	4	1	5	8	3	5	6	0	0	0
Nonequity.....	5	1	2	2	8	3	11	9	4	10	9	10	10	2	8	7	10	5	1	1	2	5
Automotive.....	8	2	4	1	2	1	3	2	3	4	3	0	0	0	3	6	7	10	8	13	5	1
Equity.....	1	0	1	1	1	0	0	0	2	3	1	0	0	0	0	1	3	3	4	3	3	0
Nonequity.....	7	2	3	0	1	1	3	2	1	1	2	0	0	0	3	5	4	7	4	10	2	1
Chemistry ^b	8	3	5	4	1	3	5	5	8	9	8	4	5	7	6	9	8	4	13	4	5	3
Equity.....	6	2	4	4	1	2	3	5	7	9	4	0	2	5	5	4	3	1	1	2	0	0
Nonequity.....	2	1	1	0	0	1	2	0	1	0	4	4	3	2	1	5	5	3	12	2	5	3

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Europe-Japan owned																						
All technologies.....	9	17	17	17	19	29	31	25	18	21	20	17	19	23	16	23	18	9	19	10	15	23
Equity.....	6	10	8	3	7	14	14	14	6	17	13	8	9	8	2	3	6	0	4	4	2	8
Nonequity.....	3	7	9	14	12	15	17	11	12	4	7	9	10	15	14	20	12	9	15	6	13	15
Information technology.....	4	6	8	5	9	7	14	4	7	6	6	9	7	9	7	8	7	4	9	4	8	14
Equity.....	2	3	2	0	1	3	3	1	2	3	3	3	1	2	1	1	1	0	1	2	1	5
Nonequity.....	2	3	6	5	8	4	11	3	5	3	3	6	6	7	6	7	6	4	8	2	7	9
Biotechnology ^a	0	1	1	1	0	7	1	4	1	5	2	1	3	4	3	6	6	0	4	2	1	2
Equity.....	0	0	0	0	0	3	0	1	0	4	1	0	2	0	0	0	2	0	0	1	0	0
Nonequity.....	0	1	1	1	0	4	1	3	1	1	1	1	1	4	3	6	4	0	4	1	1	2
New materials.....	0	2	3	3	6	5	7	4	3	2	5	2	1	4	0	3	1	1	6	0	1	1
Equity.....	0	2	3	1	3	3	6	3	1	2	5	2	1	2	0	1	1	0	1	0	0	0
Nonequity.....	0	0	0	2	3	2	1	1	2	0	0	0	0	2	0	2	0	1	5	0	1	1
Aerospace/defense.....	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Equity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity.....	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Automotive.....	1	2	1	1	0	3	3	2	2	3	0	0	0	2	2	0	1	1	2	3	4	4
Equity.....	1	0	1	0	0	0	1	1	0	3	0	0	0	0	1	1	0	1	0	1	1	4
Nonequity.....	0	2	0	1	0	3	2	1	2	0	0	0	0	1	1	0	0	1	1	2	3	0
Chemistry ^b	1	2	2	4	2	5	3	8	2	4	6	4	7	4	4	3	5	2	2	1	2	2
Equity.....	1	1	2	2	2	5	3	7	1	4	3	3	5	3	0	2	3	0	0	0	0	1
Nonequity.....	0	1	0	2	0	0	0	1	1	0	3	1	2	1	4	1	2	2	2	1	2	1
Europe-NT owned																						
All technologies.....	4	7	6	4	9	19	11	21	34	49	19	4	16	29	23	26	21	29	13	10	20	22
Equity.....	3	4	1	4	5	15	6	16	24	41	11	1	11	12	9	9	9	7	3	2	1	5
Nonequity.....	1	3	5	0	4	4	5	5	10	8	8	3	5	17	14	17	12	22	10	8	19	17
Information technology.....	0	1	2	2	5	5	4	4	9	16	6	1	4	5	2	7	12	10	5	2	5	6
Equity.....	0	1	1	2	3	4	3	3	6	14	2	0	4	2	1	1	6	0	1	1	0	2
Nonequity.....	0	0	1	0	2	1	1	1	3	2	4	1	0	3	1	6	6	10	4	1	5	4
Biotechnology ^a	0	2	1	0	0	3	1	0	4	1	6	1	6	2	6	4	7	5	3	4	8	14
Equity.....	0	2	0	0	0	3	0	0	0	0	5	1	2	1	0	0	3	1	1	0	1	2
Nonequity.....	0	0	1	0	0	0	1	0	4	1	1	0	4	1	6	4	4	4	2	4	7	12
New materials.....	0	1	1	0	0	1	0	3	4	3	1	0	2	5	0	3	0	2	2	0	1	1
Equity.....	0	0	0	0	0	1	0	2	3	3	0	0	2	3	0	2	0	2	0	0	0	0
Nonequity.....	0	1	1	0	0	0	0	1	1	0	1	0	0	2	0	1	0	0	2	0	1	1
Aerospace/defense.....	0	0	0	0	0	3	2	1	2	2	0	2	2	11	8	6	1	7	2	0	1	2
Equity.....	0	0	0	0	0	0	0	0	0	1	0	0	2	3	4	2	0	1	0	0	0	1
Nonequity.....	0	0	0	0	0	3	2	1	2	1	0	2	0	8	4	4	1	6	2	0	1	1
Automotive.....	0	0	0	0	1	0	1	0	2	5	0	0	0	0	1	1	1	1	0	0	2	1
Equity.....	0	0	0	0	0	0	1	0	2	5	0	0	0	0	0	1	0	0	0	0	0	1
Nonequity.....	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	2	0
Chemistry ^b	3	2	1	2	3	3	1	7	9	10	5	1	2	4	3	6	0	2	3	5	3	0
Equity.....	3	1	0	2	2	3	1	7	9	9	4	1	1	2	3	4	0	2	1	1	0	0
Nonequity.....	0	1	1	0	1	0	0	0	0	1	1	0	1	2	0	2	0	0	2	4	3	0

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Japan-only owned																						
All technologies.....	7	11	9	17	18	39	61	39	18	3	11	6	7	7	10	11	12	3	5	16	6	13
Equity.....	2	4	0	4	5	12	14	6	6	1	4	1	1	1	1	3	5	0	0	9	3	6
Nonequity.....	5	7	9	13	13	27	47	33	12	2	7	5	6	6	9	8	7	3	5	7	3	7
Information technology.....	4	3	2	10	8	7	10	7	4	1	6	4	4	2	6	4	5	2	5	11	4	8
Equity.....	1	1	0	1	3	3	6	3	3	1	1	1	1	0	1	1	3	0	0	6	2	4
Nonequity.....	3	2	2	9	5	4	4	4	1	0	5	3	3	2	5	3	2	2	5	5	2	4
Biotechnology ^a	1	2	2	2	3	7	15	8	2	0	1	0	0	1	1	1	0	0	0	2	1	2
Equity.....	0	0	0	1	1	2	3	2	0	0	1	0	0	1	0	0	0	0	0	1	1	0
Nonequity.....	1	2	2	1	2	5	12	6	2	0	0	0	0	0	1	1	0	0	0	1	0	2
New materials.....	0	1	1	2	4	19	28	20	10	2	0	1	0	1	2	3	3	0	1	3	1	2
Equity.....	0	0	0	0	0	2	4	1	2	0	0	0	0	0	0	1	1	0	0	2	0	2
Nonequity.....	0	1	1	2	4	17	24	19	8	2	0	1	0	1	2	2	2	0	1	1	1	0
Aerospace/defense.....	0	1	0	1	1	0	3	1	0	0	2	0	0	0	0	0	1	0	0	0	1	1
Equity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Nonequity.....	0	1	0	1	1	0	3	1	0	0	2	0	0	0	0	0	1	0	0	0	0	0
Automotive.....	0	0	0	1	1	4	3	0	2	0	1	1	3	3	0	3	2	0	0	0	0	0
Equity.....	0	0	0	1	0	2	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Nonequity.....	0	0	0	0	1	2	2	0	2	0	0	1	3	3	0	3	1	0	0	0	0	0
Chemistry ^b	0	0	2	2	1	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	2
Equity.....	0	0	0	1	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Nonequity.....	0	0	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Japan-NT owned																						
All technologies.....	1	2	2	0	3	2	4	7	4	15	1	1	2	5	6	5	10	4	4	5	6	4
Equity.....	0	2	1	0	3	2	3	6	2	15	0	0	2	1	2	1	1	0	2	0	1	1
Nonequity.....	1	0	1	0	0	0	1	1	2	0	1	1	0	4	4	4	9	4	2	5	5	3
Information technology.....	1	1	1	0	1	0	1	0	1	2	0	1	1	3	4	3	4	3	1	2	4	4
Equity.....	0	1	1	0	1	0	1	0	0	2	0	0	1	0	2	1	0	0	0	1	1	1
Nonequity.....	1	0	0	0	0	0	0	0	1	0	0	1	0	3	2	2	4	3	1	2	3	3
Biotechnology ^a	0	0	1	0	1	0	1	3	1	0	1	0	0	0	0	2	2	0	0	2	0	0
Equity.....	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity.....	0	0	1	0	0	0	1	1	1	0	1	0	0	0	0	2	2	0	0	2	0	0
New materials.....	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	1	1
Equity.....	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
Nonequity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
Aerospace/defense.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Equity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Automotive.....	0	0	0	0	0	1	0	2	1	5	0	0	0	0	2	0	1	1	3	0	1	0
Equity.....	0	0	0	0	0	1	0	2	1	5	0	0	0	0	0	0	0	0	2	0	0	0
Nonequity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	0	1	0	
Chemistry ^b	0	1	0	0	1	1	0	1	1	3	0	0	0	2	0	0	0	0	0	0	0	0
Equity.....	0	1	0	0	1	1	0	1	1	3	0	0	0	1	0	0	0	0	0	0	0	0
Nonequity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

International technology alliances, by regional ownership category, technology, and type (equity/nonequity): 1980–2001

International technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
NT-only owned																							
All technologies.....	2	2	2	6	0	5	4	1	5	4	2	0	3	7	2	4	6	6	5	8	5	10	
Equity.....	1	0	2	2	0	5	1	0	3	3	1	0	1	3	0	1	1	2	2	2	0	1	
Nonequity.....	1	2	0	4	0	0	3	1	2	1	1	0	2	4	2	3	5	4	3	6	5	9	
Information technology.....	0	0	1	1	0	0	4	1	4	2	1	0	1	3	1	1	1	1	1	3	3	0	6
Equity.....	0	0	1	0	0	0	1	0	2	1	0	0	0	3	0	0	0	0	0	1	0	0	1
Nonequity.....	0	0	0	1	0	0	3	1	2	1	1	0	1	0	1	1	1	1	2	3	0	5	
Biotechnology ^a	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	1	1	2	3	4	
Equity.....	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
Nonequity.....	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	2	3	4	
New materials.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Equity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nonequity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aerospace/defense.....	1	1	0	1	0	0	0	0	0	0	1	0	2	3	1	2	1	3	0	1	0	0	
Equity.....	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	2	0	1	0	0	
Nonequity.....	1	1	0	1	0	0	0	0	0	0	0	0	1	3	1	1	0	1	0	0	0	0	
Automotive.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	
Equity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nonequity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	
Chemistry ^b	1	0	0	0	0	3	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	
Equity.....	1	0	0	0	0	3	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	
Nonequity.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	

NT non-Triad (country or region other than United States, Europe, or Japan)

^aIncludes biotechnology pharmaceuticals.

^bExcludes biotechnology; includes nonbiotechnological pharmaceuticals.

NOTES: Data are annual counts of new technology alliances formed by domestic and multinational corporations worldwide. Alliances may be classified in more than one technology. Total number of alliances at the top of the table is the sum of the following exclusive ownership categories: U.S.-only, U.S.-Europe, U.S.-Japan, U.S.-NT, Europe-only, Europe-Japan, Europe-NT, Japan-only, Japan-NT, and NT-only. The country assignment is based on the headquarters of the ultimate parent company of the alliance members, not on the location of the members. Data were revised from previous editions to include exclusively joint research or development agreements, contract R&D, equity joint ventures, and research corporations. Previous counts included cross holdings (where two companies take a minority interest in each other), mutual second sourcing, and cross-licensing agreements. This change, however, had little effect on overall trends. The data now provide detail on the structure of the alliances in terms of equity versus nonequity alliances.

SOURCE: Maastricht Economic Research Institute on Innovation and Technology, Cooperative Agreements and Technology Indicators database, special tabulations.

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