

Table 1 Major technology fields for invention applications in Taiwan and WIPO PCT applications in 2021

TIPO					WIPO				
Rank	Technology Fields	Cases	Share	Growth Rate	Rank	Technology Fields	Cases	Share	Growth Rate
1	Semiconductors	6,360	12.9%	19.6%	1	Computer technology	26,092	9.9%	7.2%
2	Computer technology	4,283	8.7%	-1.4%	2	Digital communication	23,603	9.0%	6.9%
3	Electrical machinery	3,135	6.4%	5.1%	3	Medical technology	18,552	7.1%	6.0%
4	Optics	2,566	5.2%	-3.1%	4	Electrical machinery	18,224	6.9%	4.9%
5	Audio-visual technology	2,243	4.6%	1.4%	5	Measurement	12,152	4.6%	-4.3%
6	Surface technology	2,002	4.1%	5.9%	6	Pharmaceuticals	12,147	4.6%	12.8%
7	Measurement	1,956	4.0%	5.6%	7	Audio-visual technology	10,837	4.1%	-6.0%
8	Macromolecular chemistry	1,875	3.8%	-1.1%	8	Transport	10,110	3.8%	-10.5%
9	Organic fine chemistry	1,692	3.4%	-1.6%	9	Biotechnology	8,745	3.3%	9.5%
10	Pharmaceuticals	1,616	3.3%	26.3%	10	Semiconductors	8,346	3.2%	-5.8%
11	Medical technology	1,585	3.2%	-0.1%	11	Optics	7,919	3.0%	-5.4%
12	Basic materials chemistry	1,578	3.2%	-7.2%	12	Other special machines	7,232	2.7%	-3.4%
13	Digital communication	1,426	2.9%	-2.5%	13	Telecommunications	6,371	2.4%	-1.1%
14	Biotechnology	1,362	2.8%	19.1%	14	Civil engineering	6,317	2.4%	-2.8%
15	Other special machines	1,249	2.5%	2.0%	15	Handling	6,256	2.4%	-2.4%

Note:1. TIPO data represents invention applications in Taiwan based on filing year. Sources: TIPO Database, July 2022.

2. WIPO data represents published PCT applications based on publication year. Sources: pct_5a - PCT publications by technology from: WIPO Statistics Database, July 2022.

3. "Electrical machinery" is short for "Electrical machinery, apparatus, energy"; "Surface technology" is short for "Surface technology, coating"; "Macromolecular chemistry" is short for "Macromolecular chemistry, polymers."

Table 2 Top three technology fields of invention applications in Taiwan and WIPO

PCT applications for certain top filing countries (regions)

Nationality	Patent Office	Share of top three technology fields in 2021			Sum of shares
Taiwan	TIPO	Semiconductors 14.5%	Computer technology 12.3%	Electrical machinery 7.1%	33.9%
Mainland China	TIPO	Computer technology 13.9%	Organic fine chemistry 9.0%	Audio-visual technology 8.8%	31.7%
	WIPO	Computer technology 15.6%	Digital communication 15.2%	Audio-visual technology 7.0%	37.8%
US	TIPO	Semiconductors 12.0%	Computer technology 8.4%	Digital communication 7.1%	27.5%
	WIPO	Computer technology 12.4%	Medical Technology 10.8%	Digital communication 9.7%	32.9%
Japan	TIPO	Semiconductors 14.1%	Macromolecular chemistry 9.9%	Surface technology 7.5%	31.5%
	WIPO	Electrical machinery 10.9%	Computer technology 7.1%	Measurement 5.7%	23.7%
R. Korea	TIPO	Semiconductors 18.3%	Computer technology 10.3%	IT methods for management 6.3%	34.9%
	WIPO	Digital communication 11.5%	Electrical machinery 9.3%	Computer technology 8.7%	29.5%
Germany	TIPO	Organic fine chemistry 11.6%	Basic materials chemistry 10.2%	Optics 5.9%	27.7%
	WIPO	Electrical machinery 10.3%	Transport 9.6%	Measurement 6.3%	26.2%

Note: 1. TIPO data represents invention applications in Taiwan based on filing year. Sources: TIPO Database, July 2022.

2. WIPO data represents published PCT applications based on publication year. Sources: WIPO IP Facts and Figures, <https://www.wipo.int/edocs/infogdocs/en/ipfactsandfigures/>.

3. "Electrical machinery" is short for "Electrical machinery, apparatus, energy"; "Surface technology" is short for "Surface technology, coating"; "Macromolecular chemistry" is short for "Macromolecular chemistry, polymers."

Table 3 Top 10 invention applicants in Taiwan in selected technology fields in 2021

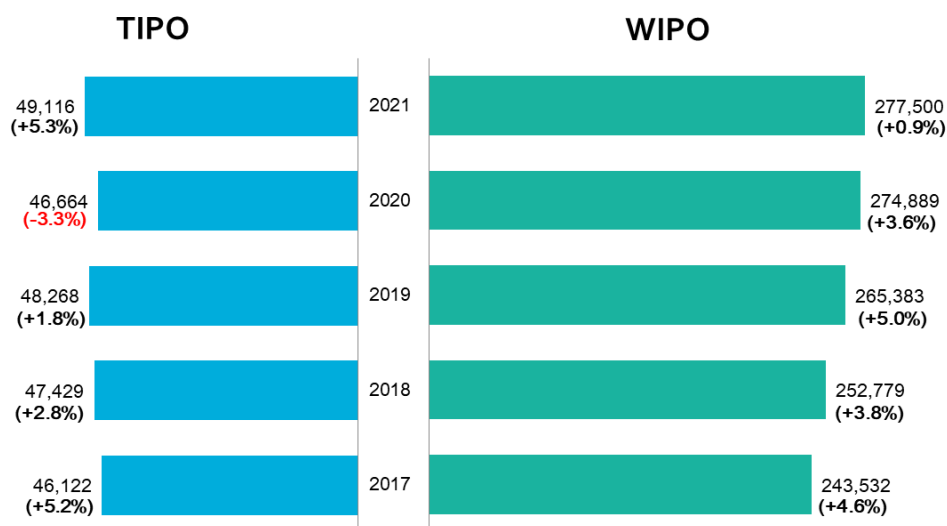
Semiconductors				
Rank	Applicant	Invention Applications		Growth Rate
		2020	2021	
1	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD. (TSMC)	809	1,412	+74.5%
2	TOKYO ELECTRON LIMITED	283	290	+2.5%
3	APPLIED MATERIALS, INC.	220	243	+10.5%
4	KIOXIA CORPORATION	176	234	+33.0%
5	NANYA TECHNOLOGY CORPORATION	104	228	+119.2%
6	SAMSUNG ELECTRONICS CO., LTD.	71	226	+218.3%
7	DISCO CORPORATION	159	142	-10.7%
8	AU OPTRONICS CORPORATION	65	105	+61.5%
9	SCREEN HOLDINGS CO., LTD.	91	101	+11.0%
10	QUALCOMM INCORPORATED	23	87	+278.3%
Computer technology				
Rank	Applicant	Invention Applications		Growth Rate
		2020	2021	
1	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD. (TSMC)	109	191	+75.2%
2	KIOXIA CORPORATION	133	150	+12.8%
3	ACER INCORPORATED	115	136	+18.3%
4	QUALCOMM INCORPORATED	67	134	+100.0%
5	SAMSUNG ELECTRONICS CO., LTD.	87	123	+41.4%
6	REALTEK SEMICONDUCTOR CORPORATION	121	110	-9.1%
7	SILICON MOTION, INC.	95	71	-25.3%
8	MACRONIX INTERNATIONAL CO., LTD.	54	64	+18.5%
8	INTEL CORPORATION	63	64	+1.6%
10	NUVOTON TECHNOLOGY CORPORATION	43	60	+39.5%
Electrical machinery, apparatus, energy				
Rank	Applicant	Invention Applications		Growth Rate
		2020	2021	
1	APPLIED MATERIALS, INC.	57	66	+15.8%
2	ASML NETHERLANDS B.V.	38	65	+71.1%
3	DELTA ELECTRONICS, INC.	50	62	+24.0%
4	DARFON ELECTRONICS CORP.	23	46	+100.0%
5	NITTO DENKO CORPORATION	33	43	+30.3%
6	ADVANCED MICRO-FABRICATION EQUIPMENT INC. CHINA	48	40	-16.7%
7	LG ENERGY SOLUTION, LTD.	--	37	--
8	FOXCONN INTERCONNECT TECHNOLOGY LIMITED	58	36	-37.9%
9	DONGGUAN LUXSHARE TECHNOLOGIES CO., LTD	46	32	-30.4%
9	MOLEX, LLC	26	32	+23.1%
9	PRIMAX ELECTRONICS LTD.	26	32	+23.1%
9	LAM RESEARCH CORPORATION	22	32	+45.5%

**Table 3 Top 10 invention applicants in Taiwan in selected technology fields in 2021
(cont.)**

Optics				
Rank	Applicant	Invention Applications		Growth Rate
		2020	2021	
1	ASML NETHERLANDS B.V.	156	126	-19.2%
2	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD. (TSMC)	57	114	+100.0%
3	NITTO DENKO CORPORATION	81	101	+24.7%
4	AU OPTRONICS CORPORATION	105	89	-15.2%
5	CANON KABUSHIKI KAISHA	64	60	-6.3%
6	LARGAN PRECISION CO., LTD.	41	53	+29.3%
7	APPLIED MATERIALS, INC.	44	52	+18.2%
8	SHIN-ETSU CHEMICAL CO., LTD.	42	49	+16.7%
9	SAMSUNG ELECTRO-MECHANICS CO., LTD.	21	44	+109.5%
10	CARL ZEISS SMT GMBH	33	41	+24.2%
Audio-visual technology				
Rank	Applicant	Invention Applications		Growth Rate
		2020	2021	
1	AU OPTRONICS CORPORATION	166	135	-18.7%
2	QUALCOMM INCORPORATED	116	116	0.0%
3	INVENTEC CORPORATION	82	83	+1.2%
4	ACER INCORPORATED	43	45	+4.7%
5	LG DISPLAY CO., LTD.	31	39	+25.8%
5	GUANGDONG OPPO MOBILE TELECOMMUNICATIONS CORP., LTD.	0	39	--
5	REALTEK SEMICONDUCTOR CORPORATION	33	39	+18.2%
8	COMPAL ELECTRONICS, INC.	38	36	-5.3%
9	FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	30	33	+10.0%
10	SONY SEMICONDUCTOR SOLUTIONS CORPORATION	34	31	-8.8%
10	CLOUD NETWORK TECHNOLOGY SINGAPORE PTE. LTD.	26	31	+19.2%

Date: 111.09.07

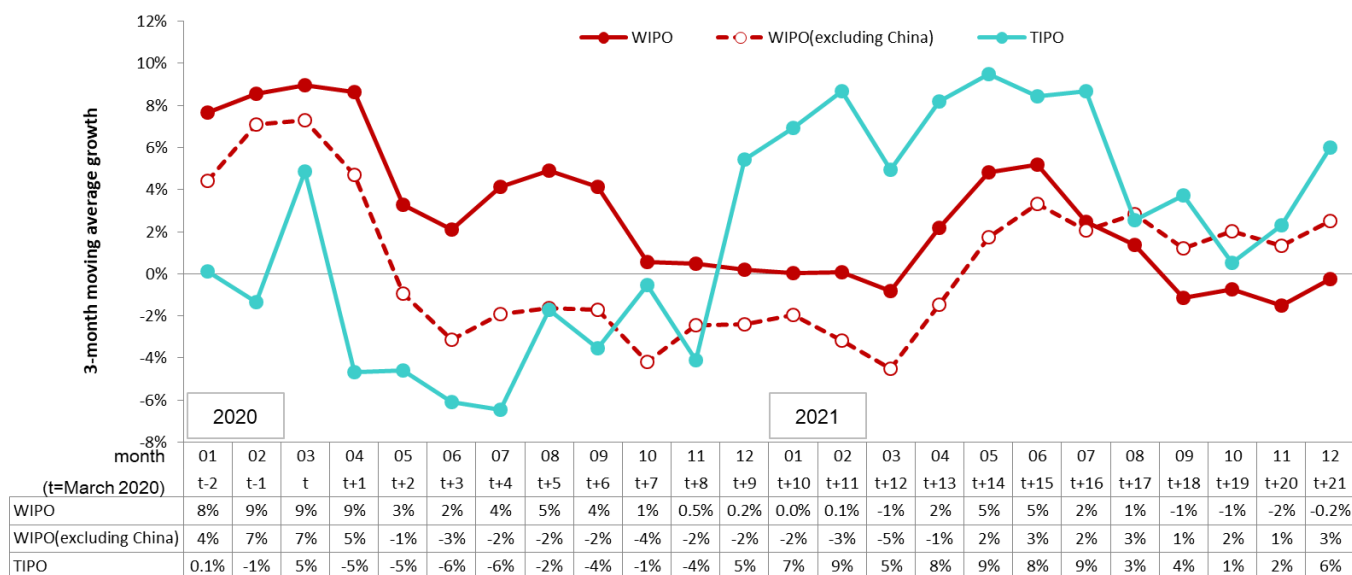
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Note:1. TIPO data represents invention applications in Taiwan based on filing year. Sources: TIPO Database, July 2022.

2. WIPO data represents PCT applications based on filing year. Sources: PCT Yearly Review 2022, A1.

Fig.1 Invention applications in Taiwan and WIPO PCT applications in 2017-2021



Note:1. TIPO data represents invention applications in Taiwan based on filing year. Sources: TIPO Database, July 2022.

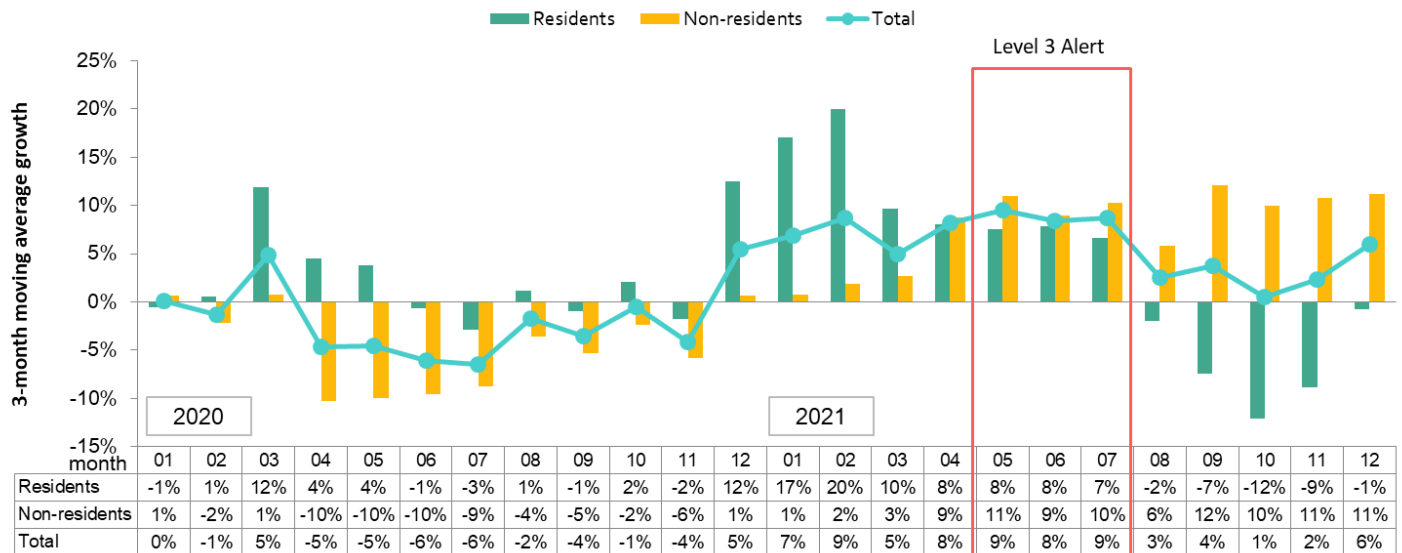
2. WIPO data represents PCT applications based on filing year. Sources: PCT Yearly Review 2022, S1.

3. To smooth fluctuations in filings due to seasonality, monthly growth rates were calculated using the moving average of three-month periods with those of a year earlier.

Fig. 2 Monthly growth rate of invention applications in Taiwan and WIPO PCT applications in 2020-2021

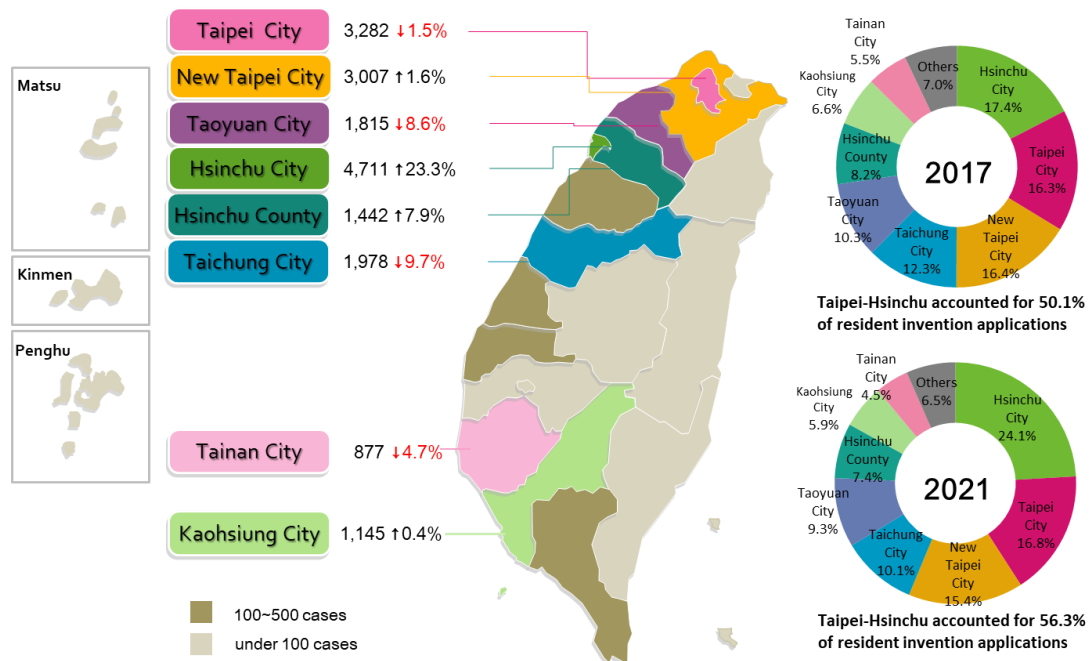
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Note: To smooth fluctuations in filings due to seasonality, monthly growth rates were calculated using the moving average of three-month periods with those of a year earlier.

Fig. 3 Monthly growth rate of invention applications by residents and non-residents in Taiwan in 2020-2021

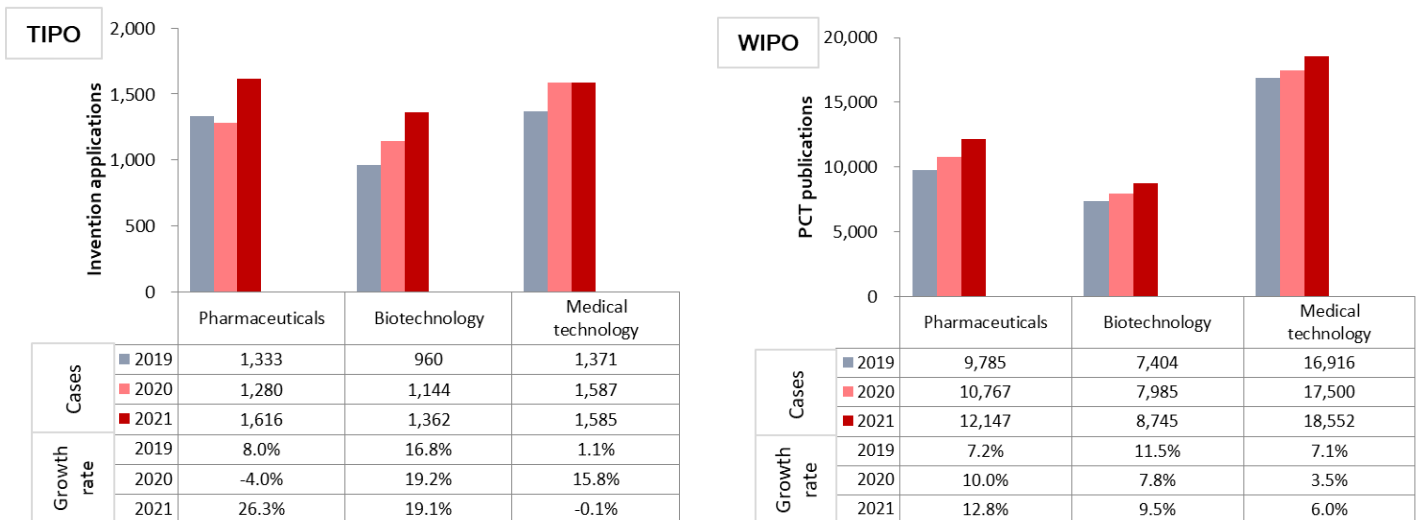


Note: This map of Taiwan is downloaded from <https://kiwislife.com>.

Fig. 4 Distribution of resident invention patent applications in Taiwan in 2017 and 2021

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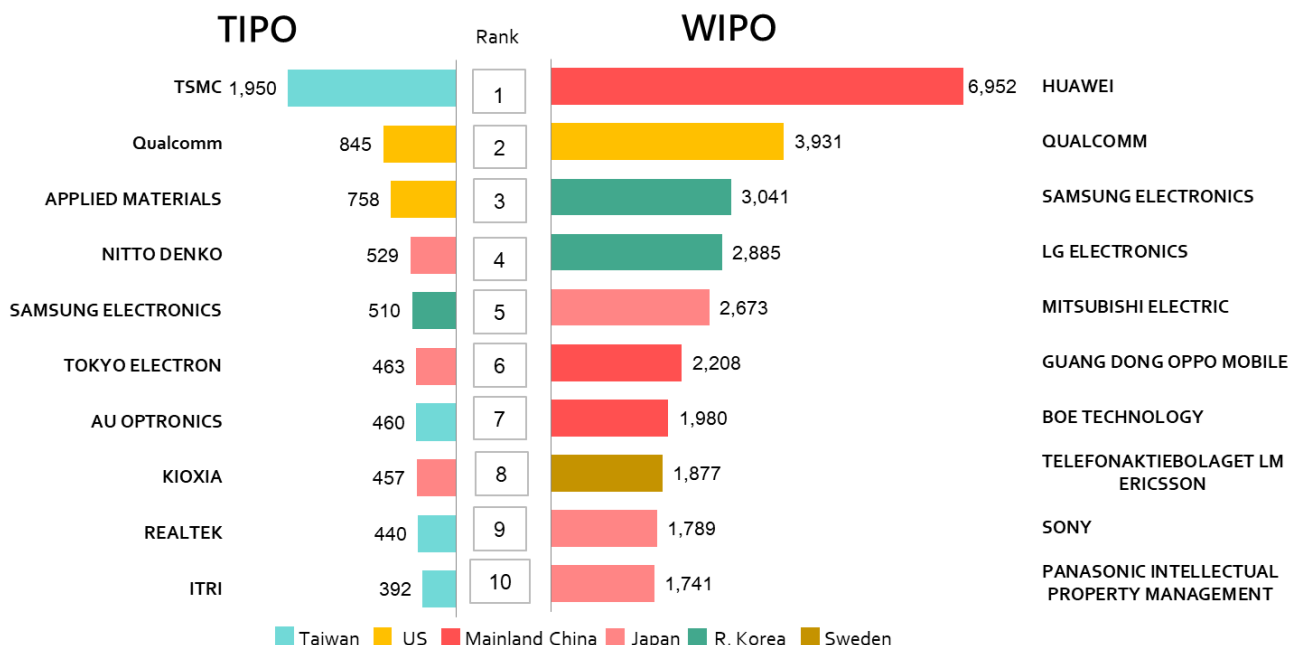
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Note:1. TIPO data represents invention applications in Taiwan based on filing year. Sources: TIPO Database, July 2022.

2. WIPO data represents published PCT applications based on publication year. Sources: PCT Yearly Review 2022, A20.

Fig. 5 Health-related technology fields for invention applications in Taiwan and WIPO PCT applications in 2019-2021

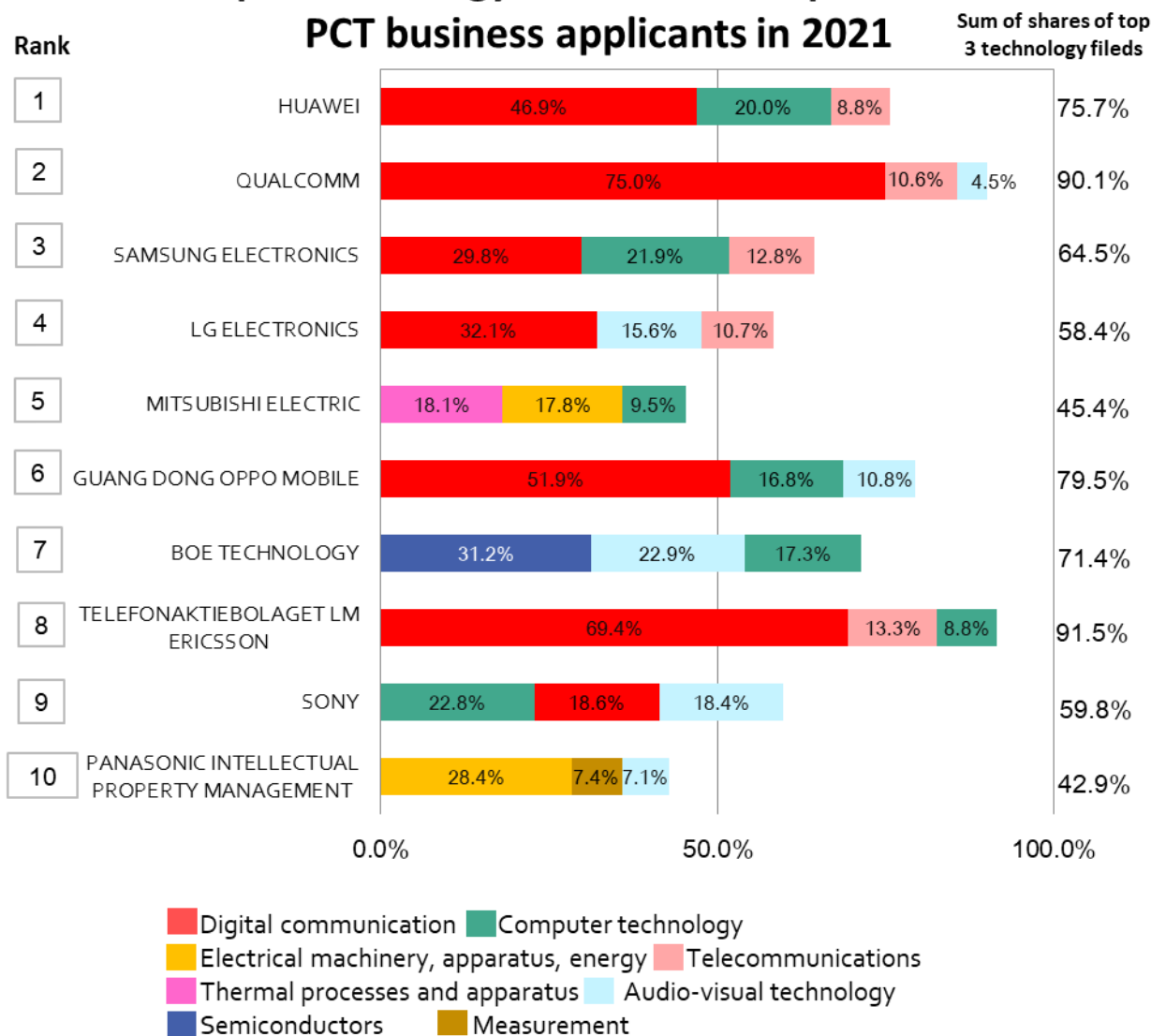


Note:1. TIPO data represents invention applications in Taiwan based on filing year. Sources: TIPO Database, July 2022.

2. WIPO data represents published PCT applications based on publication year. Sources: PCT Yearly Review 2022, A15.

Fig. 6 Top 10 applicants for invention applications in Taiwan and WIPO PCT applications in 2021

Top 3 technology fields for the top 10 WIPO PCT business applicants in 2021



Sources: PCT Yearly Review 2022, A16.

Fig. 7 Top 3 technology fields for the top 10 WIPO PCT business applicants in 2021