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2020

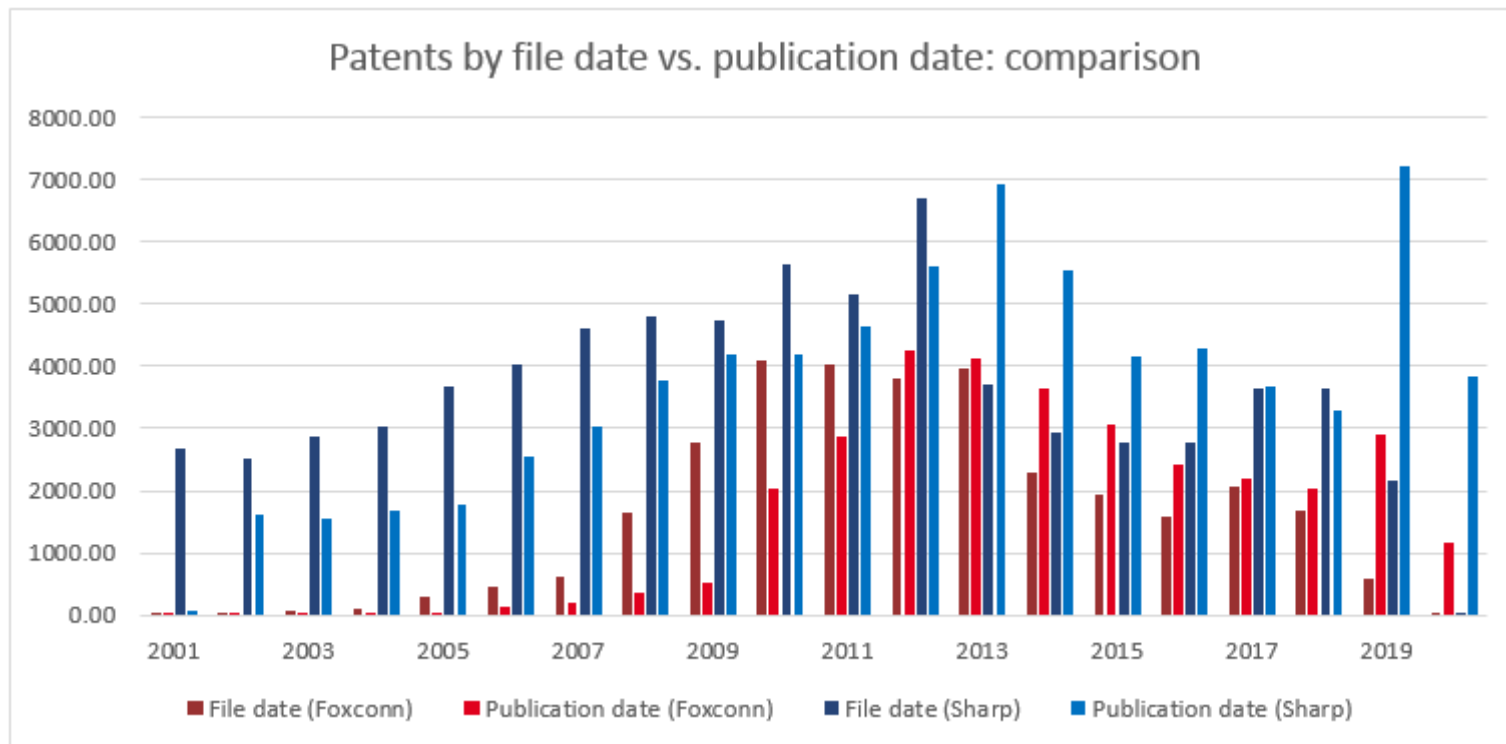
## Foxconn and Sharp – a patent strategy marriage made in heaven

Foxconn, also known as Hon Hai Precision (its parent company), has long been celebrated as a leading player in the IP community. Under chairman Terry Gou’s savvy guidance, the company has built a robust patent portfolio with recognised clout in the US as well as other key jurisdictions. In 2016, when Foxconn [acquired](#) Sharp for a cool \$3.8 billion, there were questions over how the company would deploy the IP that came with it. Around this time Gou also made it clear that [the focus](#) was to be on eliminating deadweight in Foxconn’s holdings.

It’s been a few years since this new strategy was introduced and Foxconn absorbed Sharp’s holdings, meaning we are now in a place to see the full effects of changes. Data analysis shows that Hon Hai has been serious about cutting down its portfolio, although its filings in China have continued to grow, while Sharp has not only been important in terms of monetisation but also for technology development.

### Filing trends

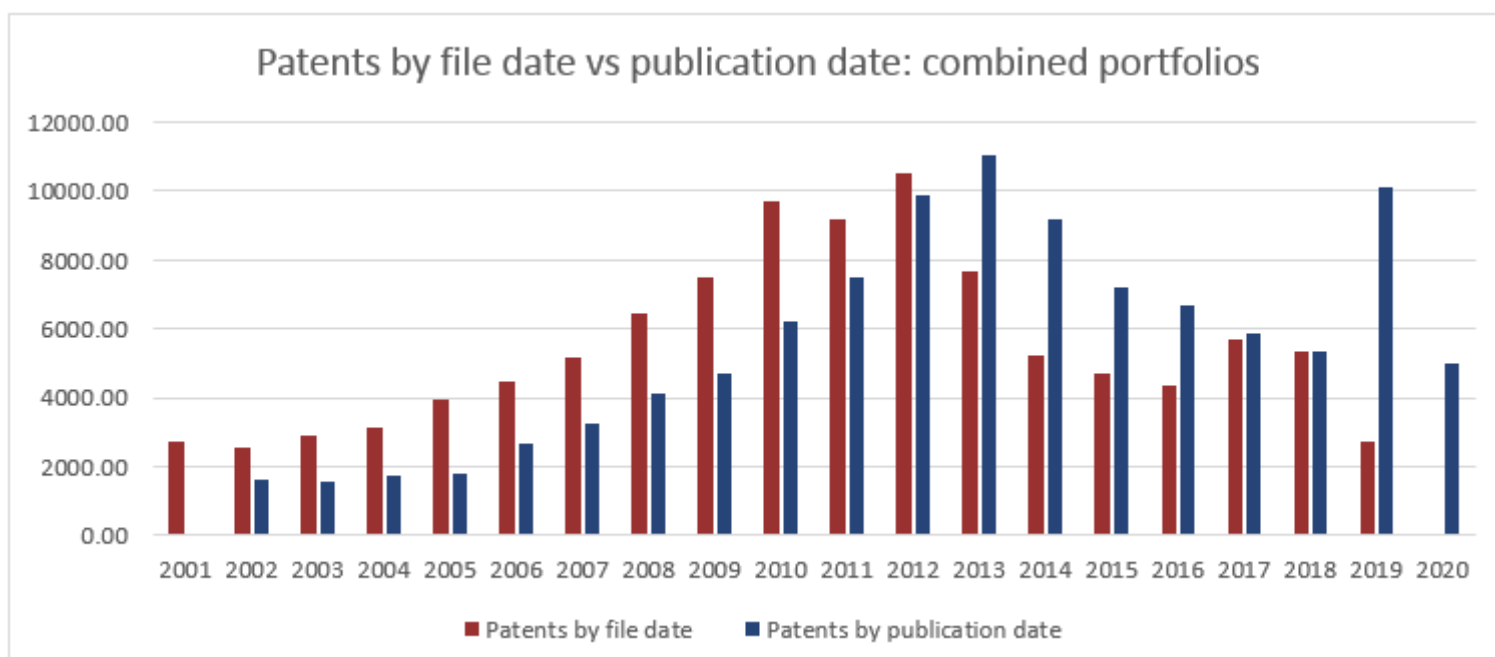
In 2015, Gou [stated](#) that Foxconn had been filing far too many patents and that quality over quantity would become the order of the day. Analysis of the company’s output shows that filing levels had already started to drop before Gou went public, with a plunge in volume from 2013 to 2014 (see graph below).



Source: [Anaqua's AcclaimIP Analytics Software](#); Data is accurate as of 9th July 2020.

The data for 2019 and 2020 is incomplete given the 18-month lag between when a patent is filed and when it is published.

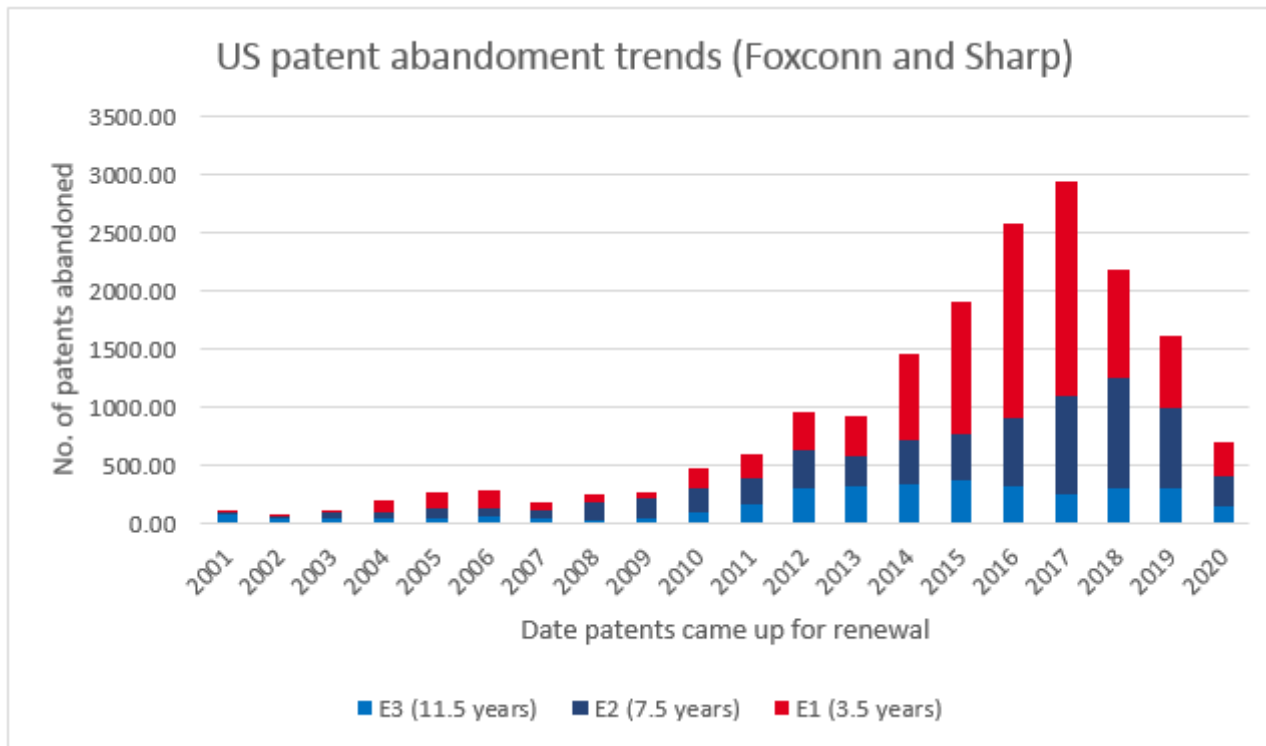
The combined Foxconn/Sharp portfolio shows that filing levels remained low in 2016, but activity picked up slightly in 2017 and 2018 (see graph below).



Source: [Anaqua's AcclaimIP Analytics Software](#); Data is accurate as of 9th July 2020.

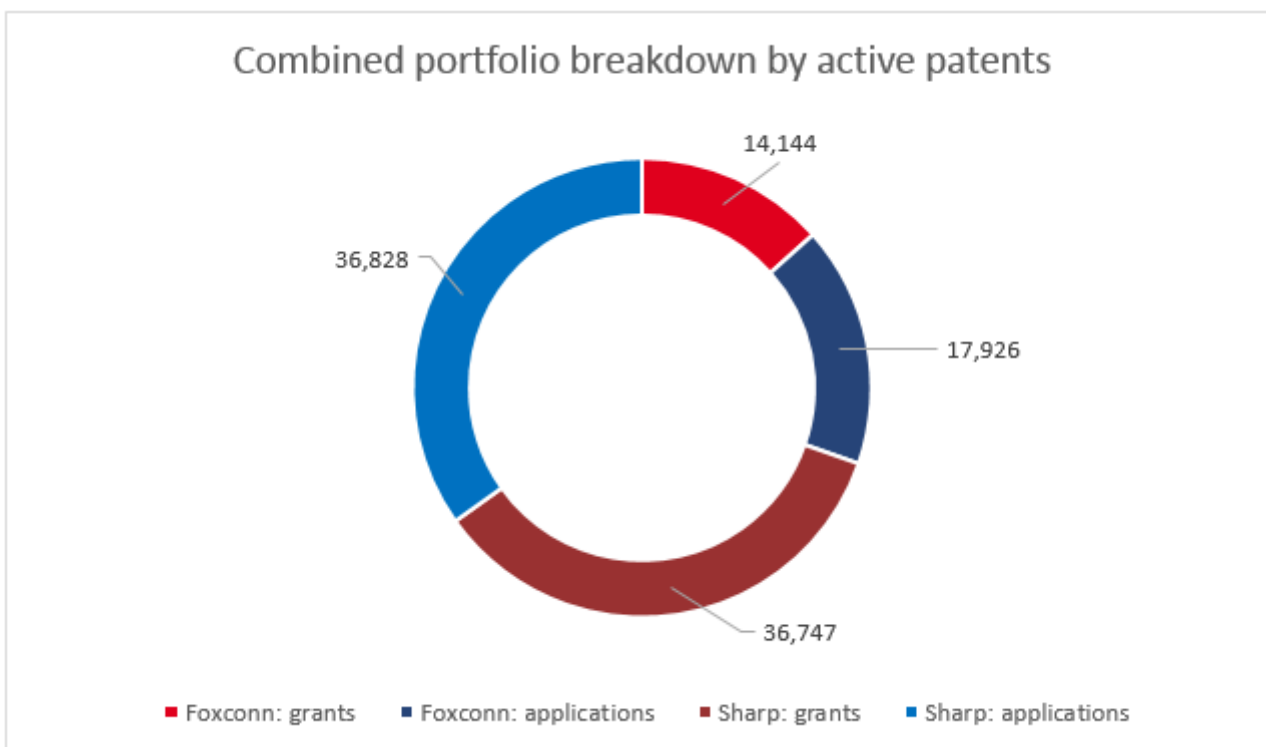
The data for 2019 and 2020 is incomplete given the 18-month lag between when a patent is filed and when it is published.

Being selective with patent filings was not the only way that Foxconn streamlined its portfolio. The process has also involved the abandonment of significant numbers of US patents (see graph below). Each year between 2015 and 2018 the company has let about 40% of its patents which were up for renewal lapse. In 2017, this level reached just over 50%. Isolating by company shows that Foxconn accounted for a majority of these abandonments. In 2017, it allowed 70% of its patents up for renewal to lapse which amounted to 2,457 assets. In comparison, Sharp has been abandoning around 20% of its assets since 2014, which equates to about 500 patents each year.



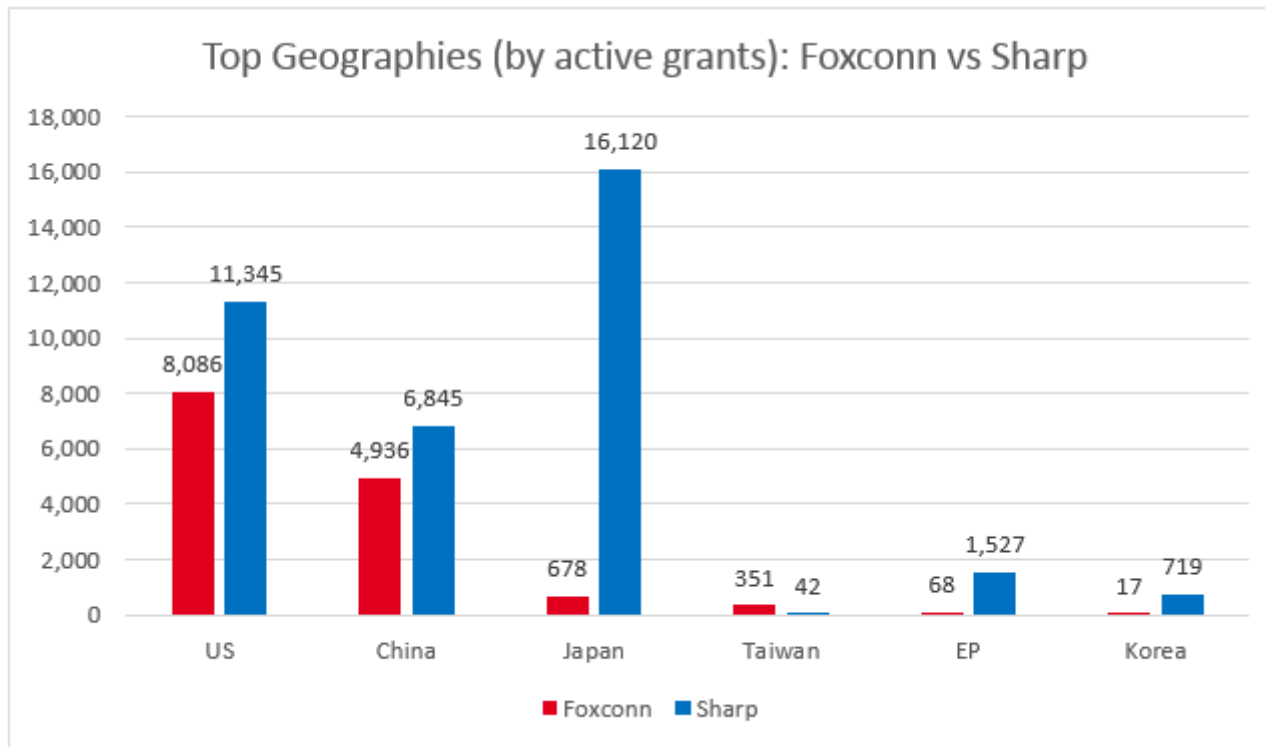
Source: Anaqua's AcclaimIP Analytics Software; Data is accurate as of 9th July 2020.

Regardless of Foxconn's streamlining efforts the company still owns a robust portfolio. Foxconn's and Sharp's assets combined amount to 105,645 active patents globally. Of these, 50,891 are grants and 54,754 are applications. Sharp's contribution to the portfolio is significant, accounting for 73,575 active assets (see graph below).



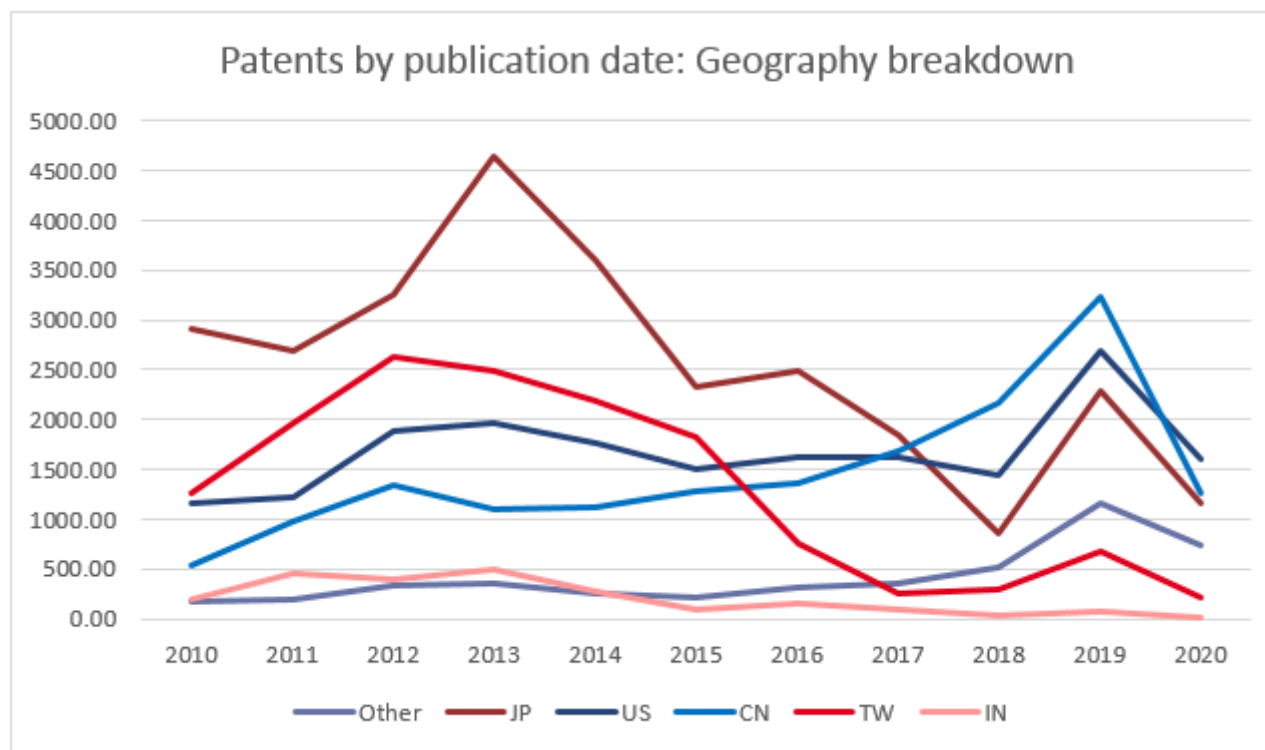
Source: Anaqua's AcclaimIP Analytics Software; Data is accurate as of 9th July 2020.

The United States is the most important jurisdiction for patent protection, followed by Japan and China, with 19,431, 16,798, and 11,781 active grants respectively. Notably, there are only 393 active grants registered in Taiwan. This is a strong reflection of Foxconn's commitment to cutting deadweight - the company held the title of the island's [leading patent applicant](#) for 14 years. The graph below shows the top geographies for Foxconn and Sharp when considered as separate entities.



Source: Anaqua's AcclaimIP Analytics Software; Data is accurate as of 9th July 2020.

Drilling down into filing activity by geography shows that application levels have dropped in all major markets, except for China which has become increasingly important (see graph below). Both Foxconn and Sharp have contributed to the growth there.



Source: Anaqua's AcclaimIP Analytics Software; Data is accurate as of 9th July 2020.

The data for 2019 and 2020 is incomplete given the 18-month lag between when a patent is filed and when it is published.

### Tech development

Analysts from [Valuenex](#) pulled the patent application data for Sharp and Foxconn from 1st January 2010 to 30th June 2020, using Derwent World Patents Index, to get an idea of how their R&D strategies evolved following the 2016 merger (see images below).

In 2010 the two companies had significant overlap in the technologies they were developing and their core coverage areas were about the same size. By 2019 Sharp's coverage had expanded whereas Foxconn's became smaller, and they were shifting away from one another.

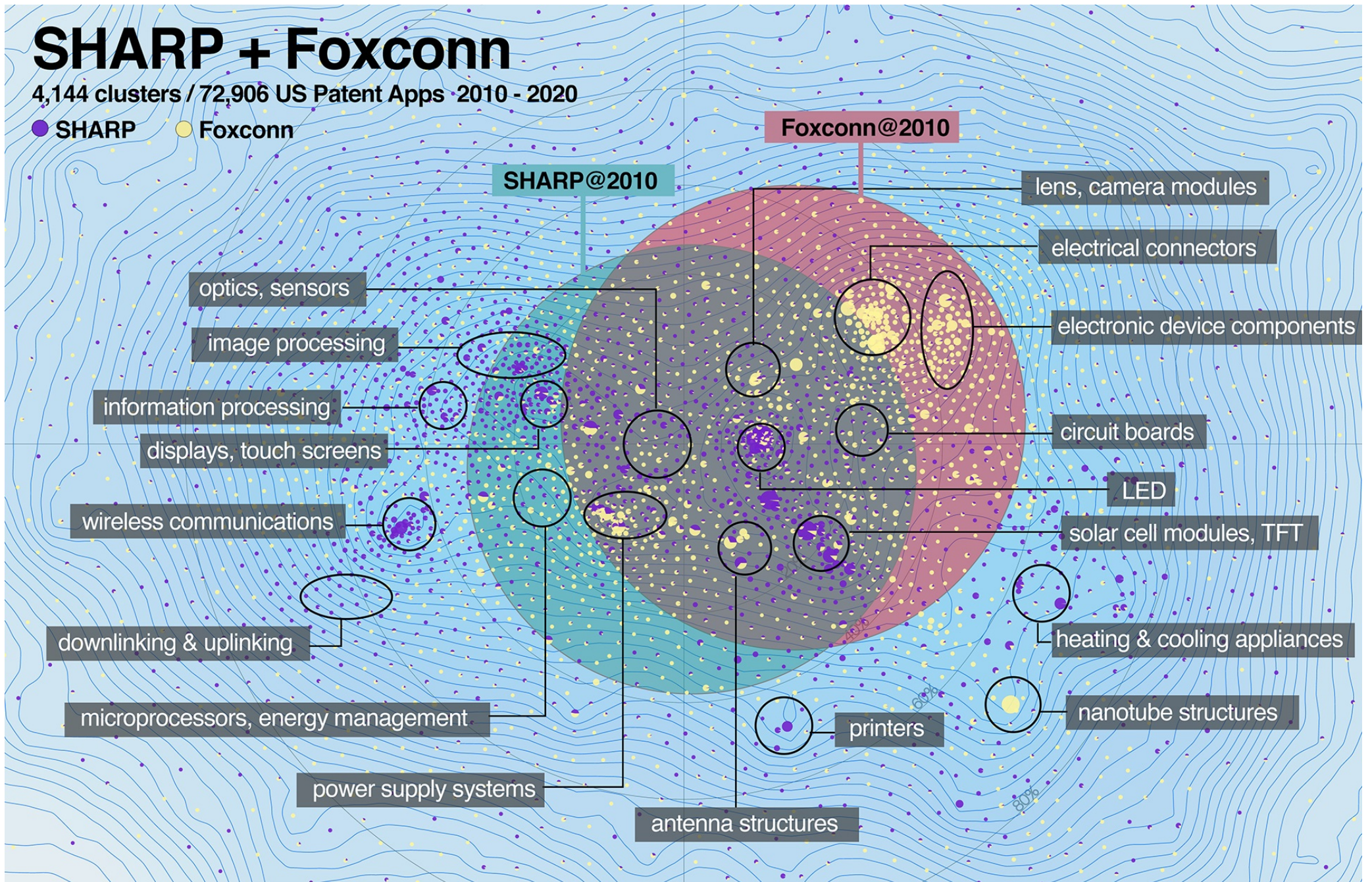
The assumption with a merger is that the R&D strategy will align to some degree, but in this case there is clear divergence. It appears that prior to the acquisition the two were converging in technology development but have since gone separate ways.

This is an indication that the merger has allowed Sharp to expand its R&D efforts and move into new territories, and that Foxconn is either encouraging or pushing it to broaden research. This element of diversification is particularly important given that Foxconn, as a result of the covid-19 pandemic, is seeing its [biggest drop](#) in revenue for seven years. Its enterprise products are performing well, but its consumer electronics, which account for 50% of sales, are currently performing weakly. Sharp's portfolio expansion could prove to be a saving grace given the circumstances.

# SHARP + Foxconn

4,144 clusters / 72,906 US Patent Apps 2010 - 2020

● SHARP ● Foxconn

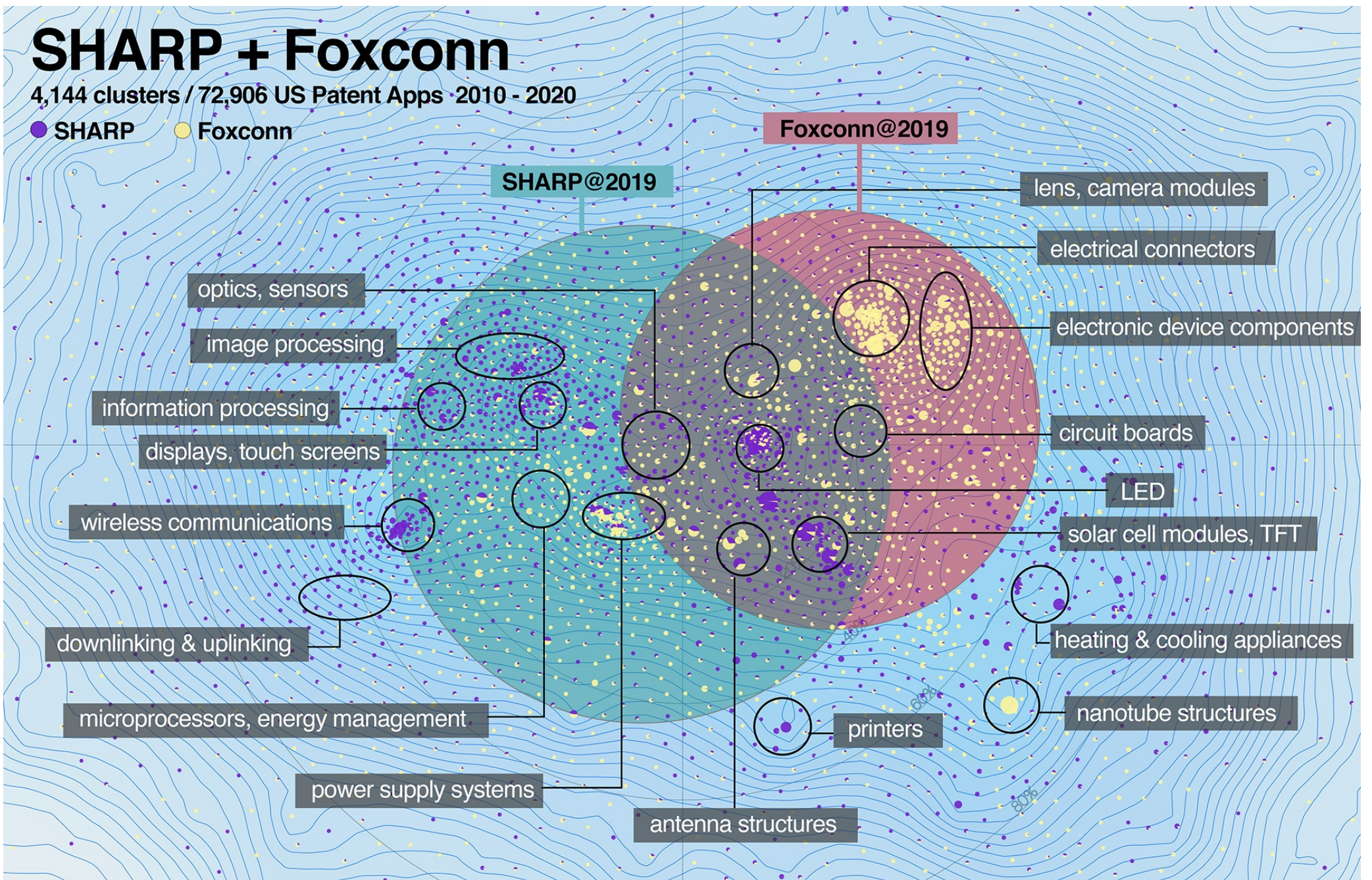


Source: VALUENEX; see full size image [here](#)

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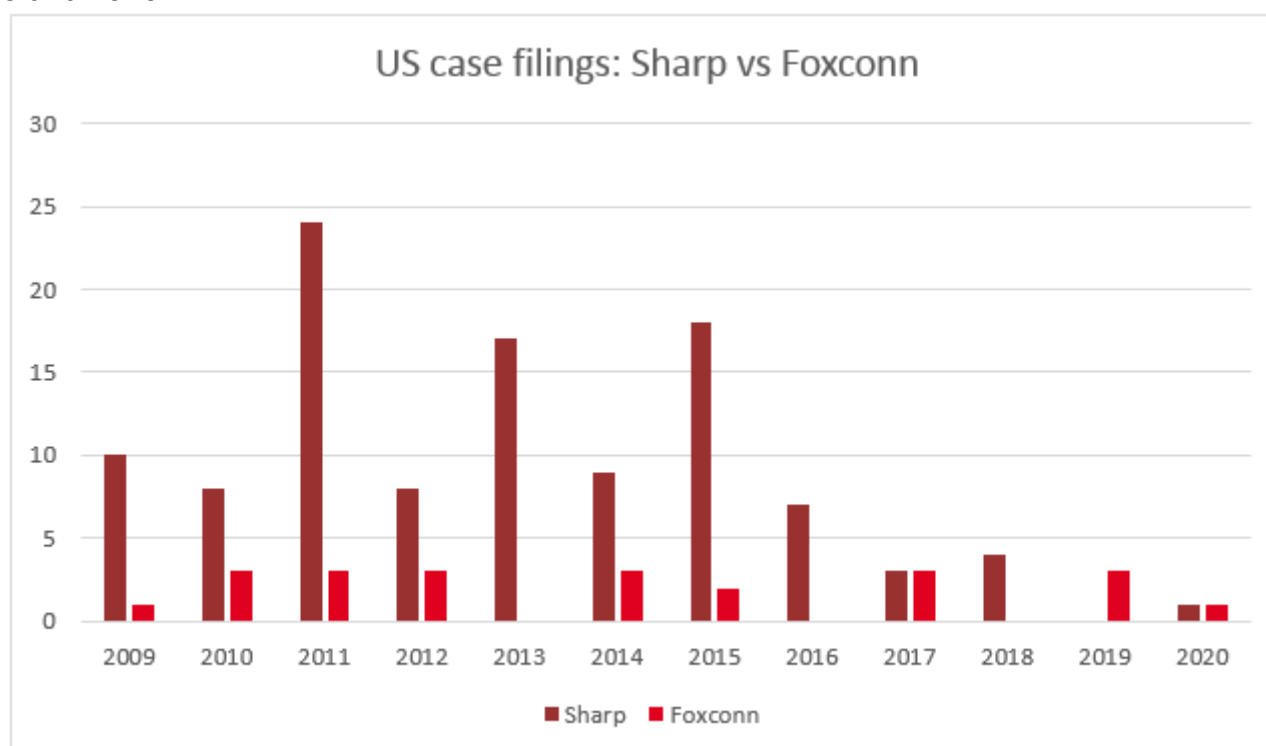


Source: VALUENEX; see full size image [here](#)

## Monetisation strategy

Sharp has made headlines over the years for its increasingly aggressive stance on patent assertion, particularly when it comes to licensing its standard essential patents. Last year [we reported](#) on it joining fellow Avanci member Nokia in filing patent infringement suits against Daimler, while just a few months ago [its conflict](#) with Oppo escalated with the latter filing two countersuits. Notably, the company was successful in reaching a licence agreement with Samsung in 2019.

While Sharp has been involved in far more US lawsuits, 109 patent cases since 2009 compared to Foxconn's 22, it is not necessarily more litigious. It has acted as the plaintiff in only five instances compared to Foxconn's six. However, the last time Foxconn initiated a patent infringement suit was in 2014 (when it filed three cases). Sharp, on the other hand, has asserted its patents in three instances since the merger took place, once in 2017, 2018 and 2020.



Source: Lex Machina; Data is accurate as of 9 July 2020.

Foxconn and Sharp both have a history as active sellers on the secondary market. It was assumed that the combined company would continue utilising this tool, although Hon Hai previously [suggested](#) that licensing would be the preferred way of monetising Sharp's assets.

According to [Richardson Oliver Insights](#) Sharp has divested 875 assets since 2014 and Foxconn 1,026 (see tables below). Notably, two of the latter's largest outbound transfers were to Cloud Network Technology Singapore, a subsidiary of Foxconn, and to ScienBiziP, which is the independent entity that handles Foxconn and Sharp portfolio management. After eliminating businesses that are affiliated with Hon Hai its outbound transfers drop to 142 assets. Sharp has sold off patents to both NPEs and operating companies, but deals with corporates have clearly been favoured. It has transferred patents to some well-known heavyweights, including Philips, Dolby, Merck and Huawei.

Foxconn and Sharp's activity on the secondary market is not limited to sales, with each recording a number of inbound purchases. Foxconn has acquired 188 assets since 2014 and Sharp 199.

### Sharp outbound patent transfers since 2014

New owner	# of assets	Entity type
KONINKLIJKE PHILIPS N.V.	173	Operating company
XIAMEN SAN'AN OPTOELECTRONICS CO., LTD.	77	Operating company
DOLBY LABORATORIES LICENSING CORPORATION	75	Operating company
FG INNOVATION COMPANY LIMITED	70	Unidentifiable
UNIFIED INNOVATIVE TECHNOLOGY, LLC	67	Operating company
DOLBY INTERNATIONAL AB	58	Operating company
VELOS MEDIA, LLC	51	Patent pool
MERCK PATENT GMBH	45	Operating company
MICROSOFT TECHNOLOGY LICENSING, LLC	39	Operating company
ELUX INC.	33	Operating company
III HOLDINGS 10, LLC	29	NPE

HUAWEI TECHNOLOGIES CO., LTD.	26	Operating company
GE PHOSPHORS TECHNOLOGY, LLC	16	Operating company
LEDCOMM LLC	16	NPE
NANTENERGY, INC.	14	Operating company
KATANA SILICON TECHNOLOGIES LLC	9	NPE
MURATA MANUFACTURING CO., LTD.	9	Operating company
NICHIA CORPORATION	8	Operating company
MERCK LTD.	6	Operating company
GOLDEN VALLEY HOLDINGS LIMITED	5	NPE
LACAMAS LIFE SCIENCES, INC.	5	Operating company*
TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.	5	Operating company
DATAQUILL LIMITED	4	NPE
DWP ENERGY SOLUTIONS, LLC	3	Operating company*
ENPLAS CORPORATION	3	Operating company
THE HILLMAN GROUP, INC.	3	Operating company
DOLBY LABORATORIES LICENSING CORPORATION   DOLBY LABORATORIES LICENSING CORPORATION	2	Operating company
KONICA MINOLTA, INC.   NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY	2	Operating company/NPE (research institute)
LG ELECTRONICS INC.	2	Operating company
NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY	2	NPE (research institute)
NORCON TECHNOLOGIES LLC	2	Operating company
OLYMPUS IMAGING CORP.	2	Operating company
ONED MATERIAL LLC	2	Operating company
TANDIE TECHNOLOGIES, LLC	2	Unidentifiable
DENKA COMPANY LIMITED	1	Operating company
EPISTAR CORPORATION	1	Operating company
FUJITSU SEMICONDUCTOR LIMITED	1	Operating company
MITSUI CHEMICALS, INC	1	Operating company
NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY   KONICA MINOLTA INC	1	NPE (research institute)/operating company

NEC CORPORATION   KABUSHIKI KAISHA TOSHIBA   MITSUBISHI ELECTRIC CORPORATION	1	Operating company
OSAKA PREFECTURE UNIVERSITY PUBLIC CORPORATION	1	NPE (university)
SHENZHEN LIANCHUANG INTELLECTUAL PROPERTY SERVICE CENTER	1	Operating company
TAIYO YUDEN CO., LTD.   SHINKO ELECTRIC INDUSTRIES CO., LTD.   RENESAS ELECTRONICS CORPORATION	1	Operating company
TOYO TIRE & RUBBER CO., LTD.	1	Operating company

Source: Richardson Oliver Insights (ROI); Note a \* denotes a company that is either a subsidiary or an affiliate of Sharp

#### Foxconn (Hon Hai) outbound patent transfers since 2014

New owner	# of assets	Entity type
CLOUD NETWORK TECHNOLOGY SINGAPORE PTE. LTD.	668	Operating company*
SCIENBIZIP CONSULTING(SHENZHEN)CO.,LTD.	181	Operating company*
POLIGHT TECHNOLOGIES LTD.	73	Operating company
INGRASYS TECHNOLOGY INC.	52	Operating company
SHENZHENSHI YUZHAN PRECISION TECHNOLOGY CO., LTD.   CLOUD NETWORK TECHNOLOGY SINGAPORE PTE. LTD.	28	Operating company*
BEIJING JINGDONG CENTURY TRADING CO., LTD.	6	Operating company
SHENZHEN JINGJIANG YUNCHUANG TECHNOLOGY CO., LTD.	3	Unidentifiable
APPLE INC.	2	Operating company
FUYU PRECISION COMPONENT(KUNSHAN)CO.,LTD.	2	Operating company*
GOPRO, INC.	2	Operating company
JI ZHUN PRECISION INDUSTRY (HUI ZHOU) CO., LTD.	2	Operating company*
FUSHIRUI PRECISION INDUSTRY (JINCHENG) CO., LTD.	1	Operating company*
HENAN YUZHAN PRECISION TECHNOLOGY CO.,LTD	1	Operating company*
PATHUNT IP MANAGEMENT LIMITED	1	Unidentifiable
REGAIN BIOTECH CORP.	1	Operating company
SHENZHEN TREASURE CITY TECHNOLOGY CO., LTD.	1	Unidentifiable
SHENZHENSHI YUZHAN PRECISION TECHNOLOGY CO., LTD.	1	Operating company*
YE XIN TECHNOLOGY CONSULTING CO., LTD.	1	Unidentifiable

Source: ROI; Note a \* denotes a company that is either a subsidiary or an affiliate of Foxconn. Due to the complexity of Hon Hai's corporate tree some assets may have been excluded.

**Foxconn (Hon Hai) and Sharp inbound patent transfers since 2014**

<b>Foxconn (Hon Hai)</b>		<b>Sharp</b>	
Prior owner	# of assets	Prior owner	# of assets
YE XIN TECHNOLOGY CONSULTING CO., LTD.	47	FUJI ELECTRIC CO., LTD.	65
PREMIER IMAGE TECHNOLOGY CORPORATION	28	ADVANCED LCD TECHNOLOGIES DEVELOPMENT CENTER CO., LTD.	47
MYVU CORPORATION	27	FUTURE VISION, INC.	12
ICF TECHNOLOGY CO., LTD.	26	FUJITSU LIMITED	12
ALTUS TECHNOLOGY INC.	22	FUJITSU DISPLAY TECHNOLOGY CORPORATION	6
SURE TALENT INVESTMENT LIMITED	10	INTERNATIONAL CENTER FOR MATERIALS RESEARCH	4
MOBINNOVA CORP.	10	PHOENIX TECHNOLOGIES K.K.	3
MOBINNOVA HONG KONG LIMITED	8	NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY	3
ICF TECHNOLOGY LIMITED.	2	MELTEX INC.   SUMITOMO OSAKA CEMENT CO., LTD.	3
EVER LIGHT TECHNOLOGY LIMITED	2	HONDA MOTOR CO., LTD.	3
APTOS CORPORATION	2	FG INNOVATION COMPANY LIMITED	3
SURE TALENT INVESTMENTS LIMITED	1	SHIMADZU CORPORATION	2
SCIENBIZIP CONSULTING(SHENZHEN)CO.,LTD.	1	NIPPON SHEET GLASS CO., LTD.	2
PREMIER CAMERA TAIWAN LTD.	1	NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY   KATAYANAGI INSTITUTE	2
MOTIONTK INC.	1	MITSUBISHI DENKI KABUSHIKI KAISHA	2
		IHI CORPORATION (FORMERLY ISHIKAWAJIMA-HARIMA HEAVY INDUSTRIES, CO., LTD.) (CO-OWNER)	2
		YODOGAWA HU-TECH CO., LTD.	1
		U-TEC CORPORATION (FORMERLY KABUSHIKI KAISHA UCHIYAMA KOMPO)	1
		TOPPAN PRINTING CO., LTD.	1
		SUMIRON CO., LTD.	1
		SONY CORPORATION	1
		SEKISUI CHEMICAL CO., LTD.	1
		SANYO ELECTRIC CO., LTD.   JVC KENWOOD CORPORATION   PIONEER CORPORATION	1
		SANYO ELECTRIC CO., LTD.	1



		ROBERT BOSCH GMBH	1
		PIONEER CORPORATION	1
		OSAKA UNIVERSITY   NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	1
		ONED MATERIAL LLC	1
		NTT-ME CORPORATION	1
		NTT SOFTWARE CORPORATION	1
		NORITAKE CO., LIMITED	1
		NEW ENERGY AND INDUSTRIAL TECHNOLOGY DEVELOPMENT	1
		NATIONAL UNIVERSITY CORPORATION HOKKAIDO UNIVERSITY	1
		NATIONAL INSTITUTE OF ADVANCED SCIENCE AND TECHNOLOGY	1
		NANOSYS, INC.	1
		MELTEX, INC.	1
		MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.   SANYO ELECTRIC CO., LTD.   MITSUBISHI DENKI KABUSHIKI KAISHA	1
		KYOTO UNIVERSITY	1
		KABUSHIKI KAISHA EKISHO SENTAN GIJUTSU KAIHATSUE CENTER	1
		JVC KENWOOD CORPORATION   PIONEER CORPORATION   HITACHI, LTD.	1
		JFE STEEL CORPORATION	1
		FUJI ELECTRIC HOLDINGS CO., LTD.	1
		FARADION LIMITED	1
		ALCOVE SURFACES GMBH	1

Source: ROI

**IAM says:**

*This week's data shows the extent of Foxconn's efforts to trim its own holdings and capitalise on Sharp's portfolio. While both companies have certainly worked to eliminate deadweight in their holdings, the strategy has been applied more strictly to the former.*

*Hon Hai is facing one of its toughest years with [revenue dropping](#) almost 12% due to covid-19. From a business perspective, it continues to look for ways to expand geographically, announcing [plans to invest](#) further in India, and is also exploring other technology options, like its [new chipmaking project](#) in China. The company is in a strong position from an IP point of view. It can continue to monetise Sharps assets, which are diverse technologically and also include SEPs, and can also cut back on filing activity or renewals if it needs to preserve cash. The current economic climate is unpredictable, but as far as patent strategy goes Foxconn is well prepared.*