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2019

Boeing and Samsung possess the strongest drone-related patent holdings, *IAM* research reveals

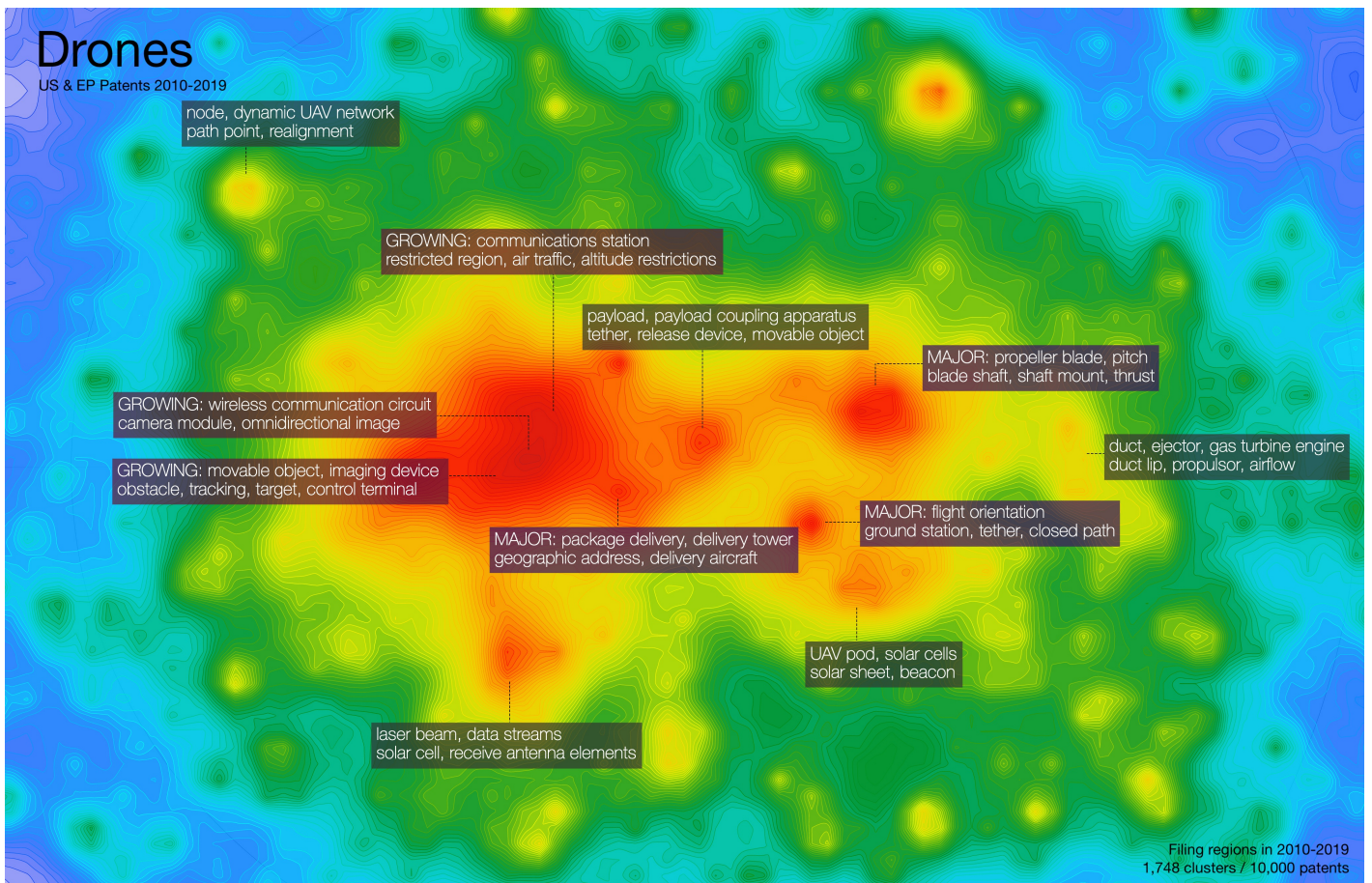
WhiteFox, a drone airspace security company, recently made the [IP-driven acquisition](#) of an East Coast headquartered business. It was done with a view to product line expansion, as well as to boost its technology holdings, and demonstrated how important IP is becoming in this rapidly-developing sector.

The drone industry has taken off in the past five years after initially developing in the military. Drone technology is now penetrating the consumer market and is increasingly being adopted for civil use. Goldman Sachs [forecasted](#) a \$100 billion market opportunity for drones between 2015 and 2020.

Chinese companies are the driving force for innovation in this space and so a familiar narrative plays out. While entities from the country take the lead, their drone-related portfolios lag behind competitors in terms of strength. However, there are a couple of businesses, such as DJI, which are close to rivalling their foreign counterparts.

Patent landscape

The relative youth of the drone industry is evident in an analysis of global R&D activity. [Valuenex](#) examined a sample of 10,000 US and EP patents from 2010-2019 relating to 'drone', 'UAV', 'pilotless aircraft' and other key terms. The overall landscape shows that innovation is in its early stages with a high level of activity across both major and growing areas (see landscape below).

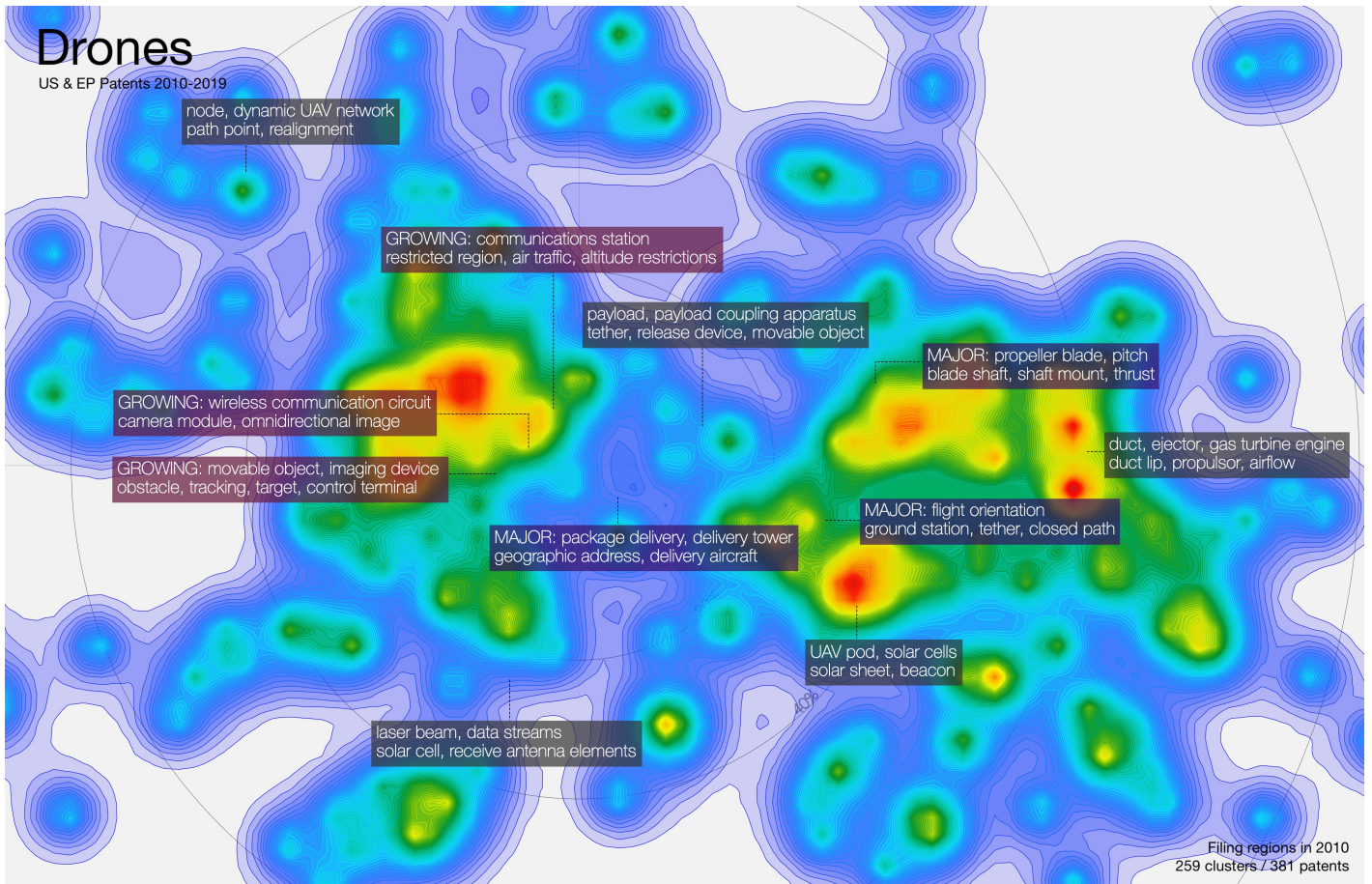


Source: VALUENEX, see full size image [here](#)

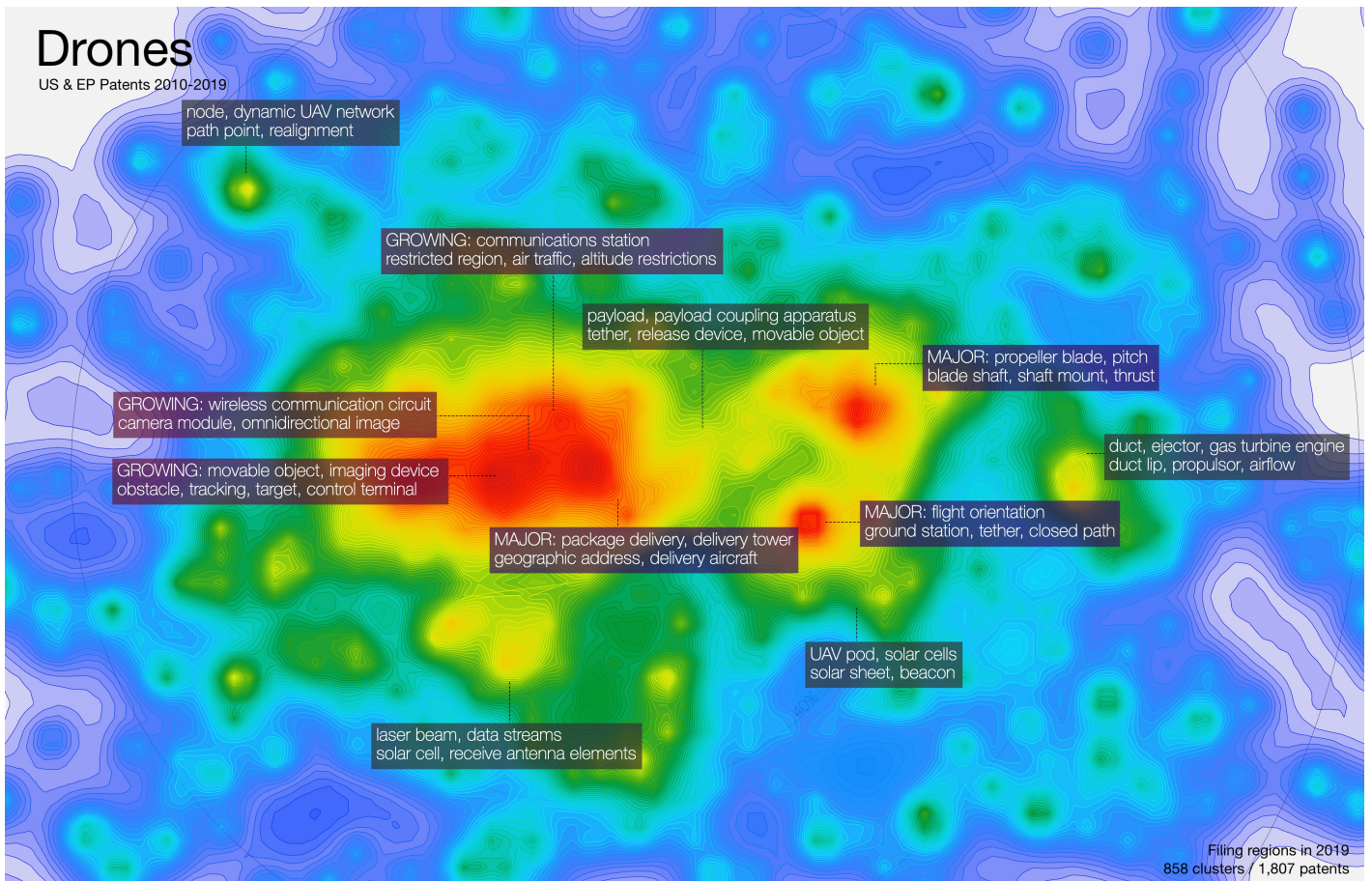
Emerging areas include communication station restricted region, air traffic, altitude restrictions; wireless communication circuit camera module, omnidirectional image; and movable object, imaging device obstacle, tracking, target and control terminal.

Developed segments are propeller blade, pitch blade shaft, shaft mount, thrust; package delivery, delivery tower geographic address, delivery aircraft; and flight orientation ground station, tether, closed path.

A comparison of the patent landscape in 2010 and 2019 shows how quickly R&D activity has increased, with companies focusing more on growing areas as well as bolstering existing major segments (see landscapes below).

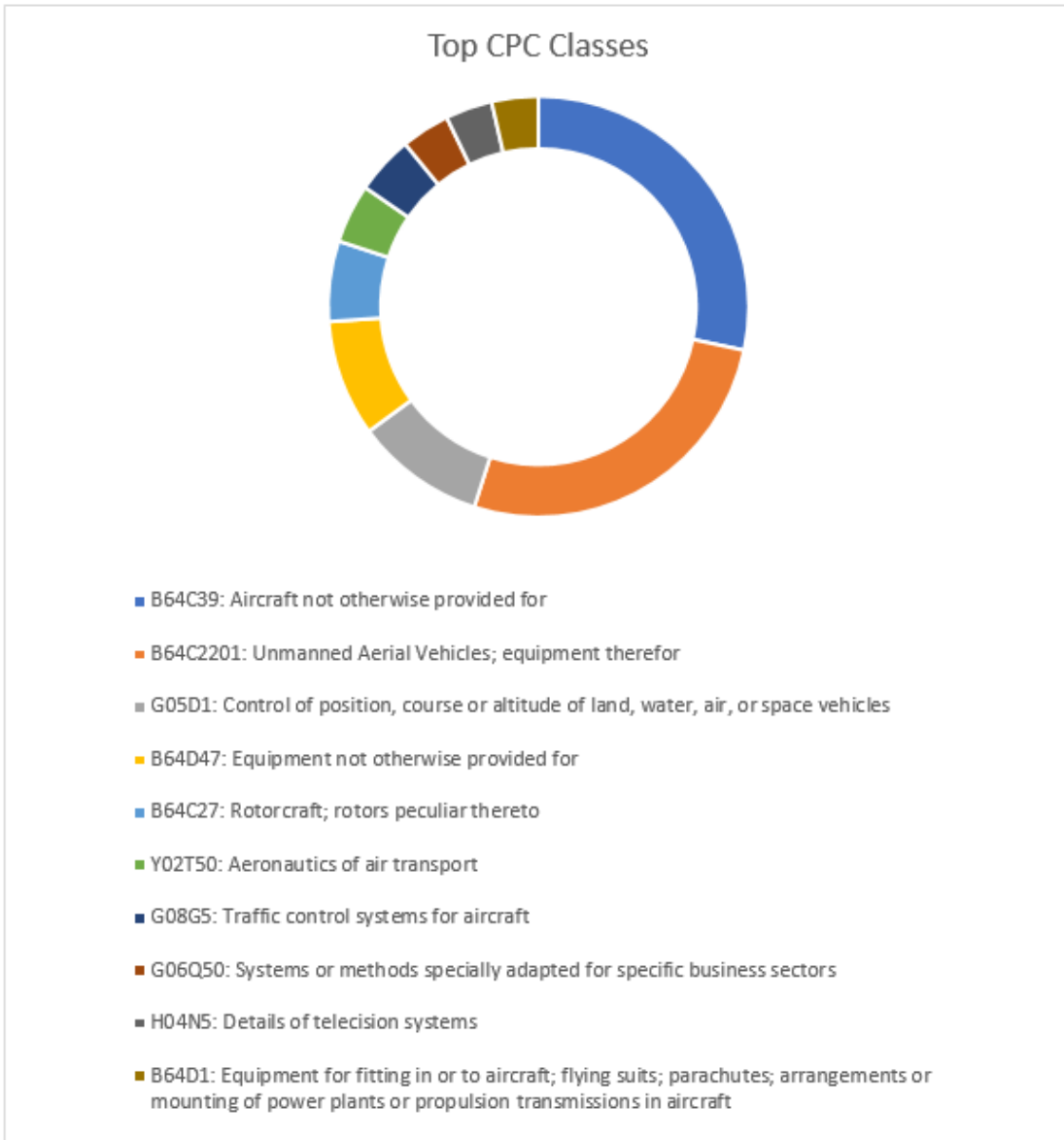


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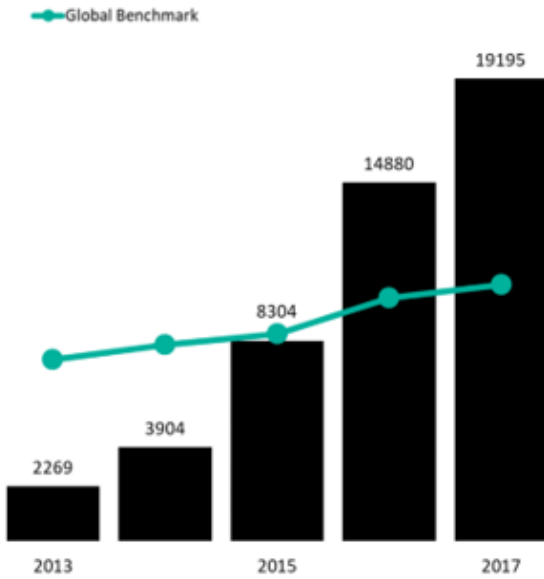
The top three most cited CPC classes for drone technologies are B64C39 (aircraft not otherwise provided for), B64C2201 (unmanned aerial vehicles; equipment therefor) and G05D1 (control of position, course or altitude of land, water, air, or space vehicles), according to [Anaqua's AcclaimIP](#) (see graph below).



Source: Anaqua's AcclaimIP Analytics Software

Patent activity relating to drones began to pick up after 2014 (see graph below).

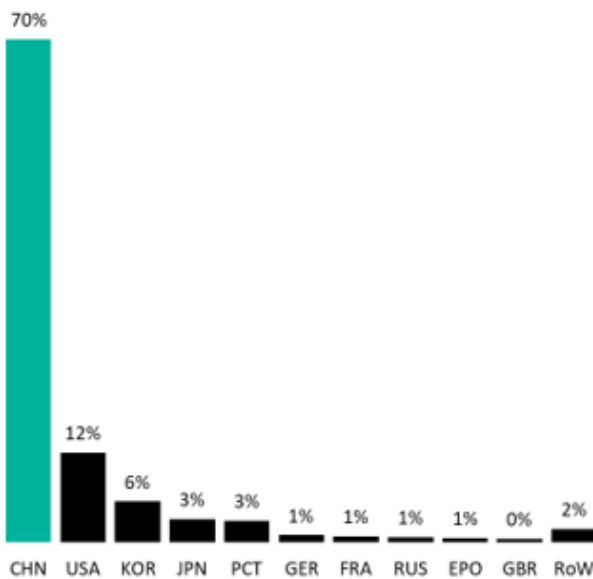
Patent family counts by first priority year



Source: [Derwent, a Clarivate Analytics company](#)

China accounts for 70% of innovation in this space and is leagues ahead of the US, which sits at 12% (see graph below).

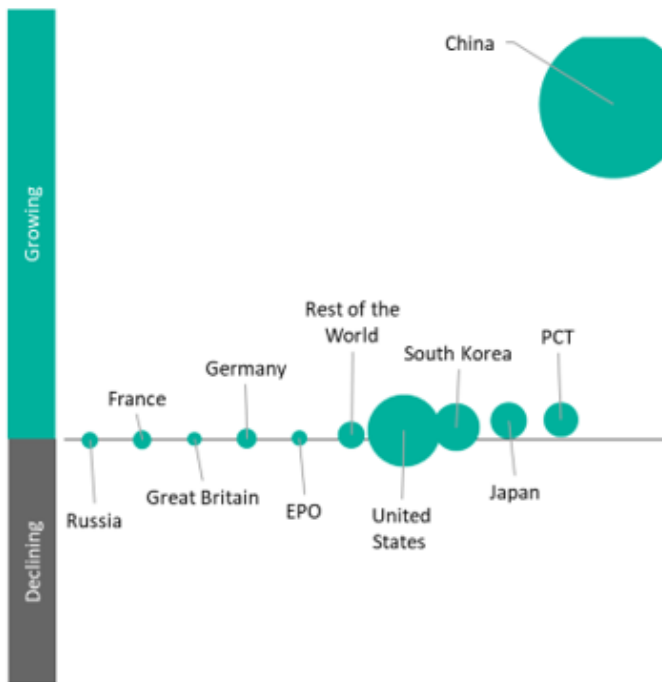
Top innovation sources based on priority country



Source: [Derwent, a Clarivate Analytics company](#)

Japan and South Korea are other important players which are growing their presence in the drone industry (see graph below).

Trends in innovation country

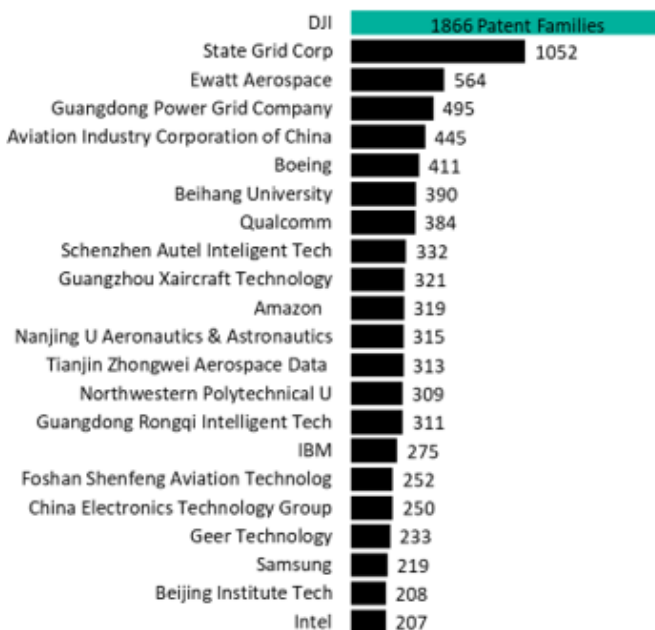


Source: Derwent, a Clarivate Analytics company

Key players

In terms of patent volume, Chinese companies are dominant. DJI has the largest holding of drone-related rights, according to patent family count by first priority year (see graph below). It is followed by the State Grid Corporation of China, the state-owned electric utility monopoly, and Ewatt Aerospace, a Chinese manufacturer of industrial drones. In addition to the State Grid Corporation of China, the Guangdong Power Grid Company, Aviation Industry Corporation of China, and China Electronics Technology Group are state-owned entities. A number of Chinese universities also feature.

Top patent assignees

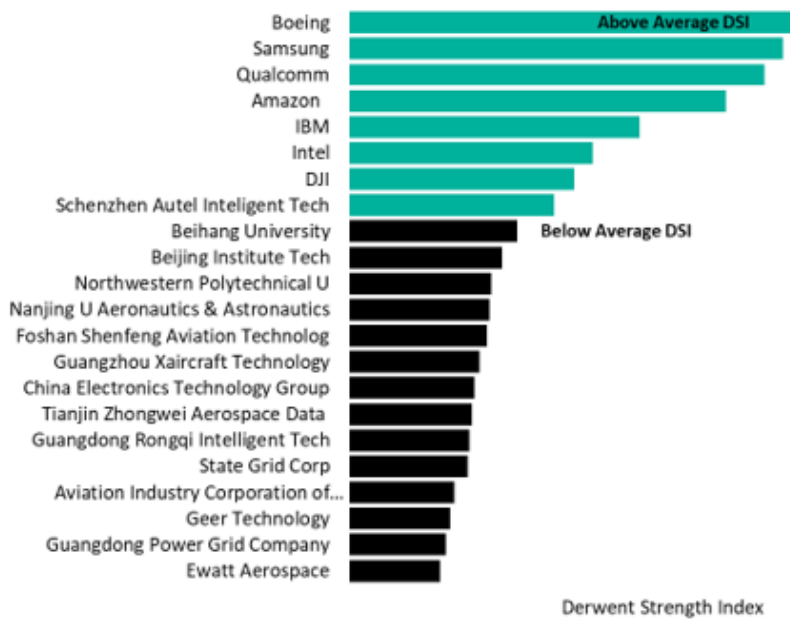


Source: Derwent, a Clarivate Analytics company

A significant reshuffling of the rankings occurs when isolating for strength. Boeing comes in at number one, followed by Samsung (see graph below). Qualcomm, Amazon and IBM round off the top five.

Although the list is dominated by American companies, DJI and Shenzhen Autel Intelligent Tech are not far behind their rivals.

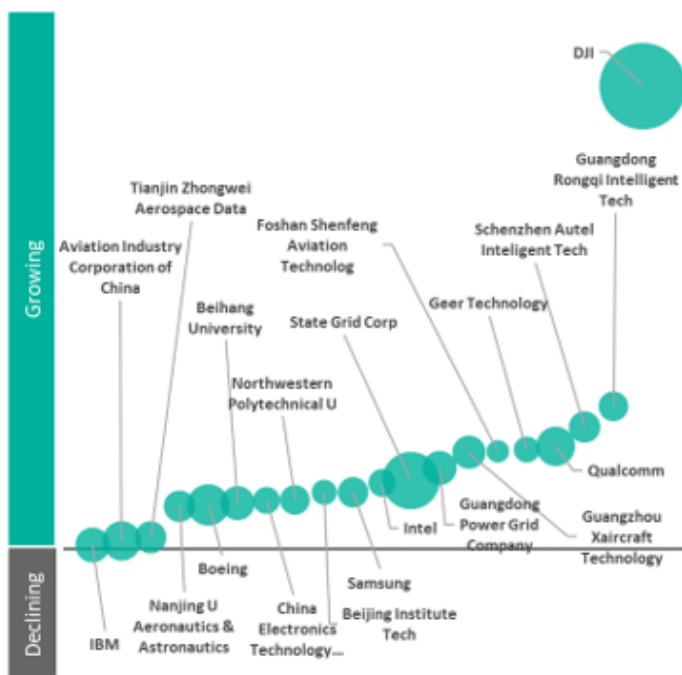
Strength analysis of top 20 patent assignees



Source: Derwent, a Clarivate Analytics company

Analysis of growth trends shows that DJI not only possesses the largest portfolio but is also the most active player in the industry (see graph below). Notably Qualcomm appears as one of the top growing companies.

Trend analysis of top patent assignees



Source: Derwent, a Clarivate Analytics company

IAM says:

The drone industry is not one to ignore. It is popular commercially as well as being an important military technology and is increasingly being employed by governments for civil purposes.

Our analysis shows that the industry is still in its early stages, meaning that things are likely to be in a state of flux for a good while yet. Those who develop the most innovative drone technologies will be highly attractive to governments and defence entities.

American companies may (generally) lead the way in terms of strength, but as in so many other areas the Chinese government has invested heavily in developing drone technologies and that is reflected in overall patent holdings. Should the quality of portfolios improve – and foreign filings increase – this looks like yet another industry that the Chinese will dominate in the years to come.

Note: Derwent search based on keywords around drones, UAVs, flying/aerial robots and class codes for the same. Search results are limited to most recent complete five years (based on priority filing year). Total dataset size: 62,264 patent families.

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TAGS

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