

A global view of innovation

A breakdown of the world's inventions and activity by technology

In our look across global innovation activity, we set out some basic questions that we wanted to answer:

- How does the technology split look across all current innovations?
- What are the specific technology areas that look positioned for a continued high pace of innovation investment?
- Who are the top owners of inventions in high-growth tech?

In an attempt to provide answers and insight, we classified the world's inventions (as represented by published patents) into discrete technology areas, and put an analytical lens over the full set.

The technology areas are bundled into what we call the [Universal Technology Taxonomy \(UTT\)](#) which supports data exploration to answer questions like the above.

The UTT also has a whole range of intelligence which assists with benchmarking, competitor analysis, and investment activity.

With relative ease, the UTT figures out innovation leaders and laggards across certain themes. For example, it can pick out which companies are most actively innovating in sustainable development technologies.

Note: We estimate that there are approximately 25 million protected inventions (currently granted, or pending patent families) registered in territories across the world. If we exclude inventions that are registered in China only then the number drops to 7.9 million. We are specifically looking at this set of 7.9 million assets, disregarding patent families that only include grants or applications in China and nowhere else.

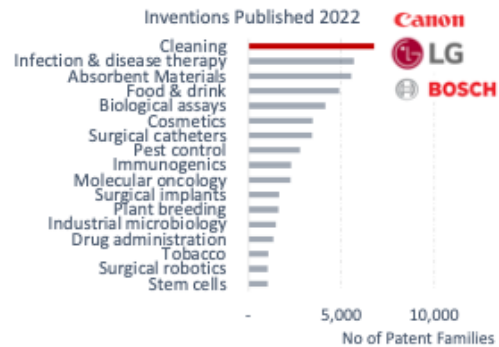
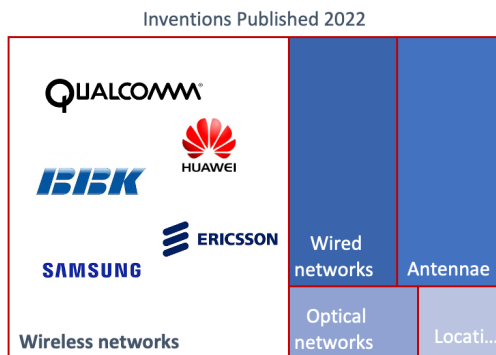
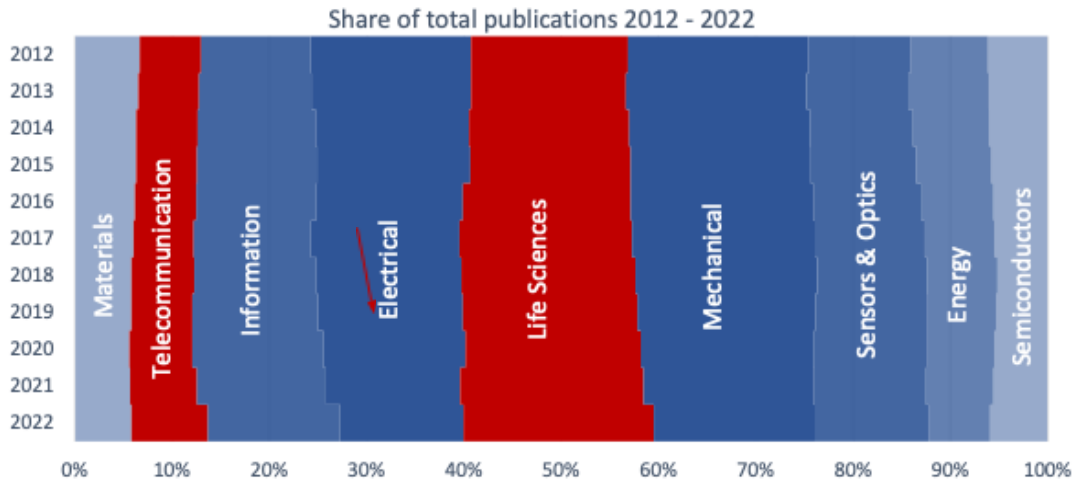
This exclusion is because:

- There are significantly lower barriers to entry for China-specific filings as against other territories;
 - Cipher believes that if the invention has value or real merit, then it will most likely be filed in multiple territories by the owner to protect future associated revenue in key markets (such as the US and Europe).
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Key Messages

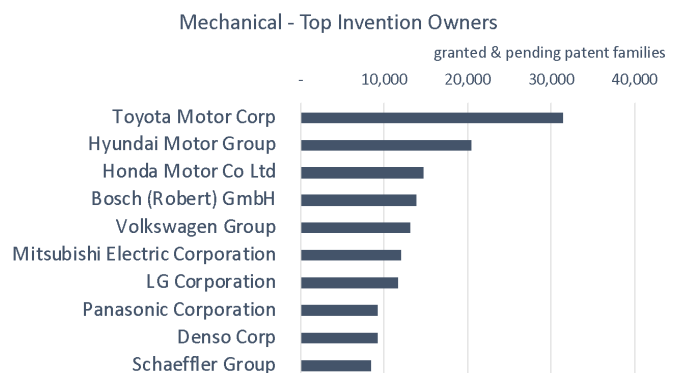
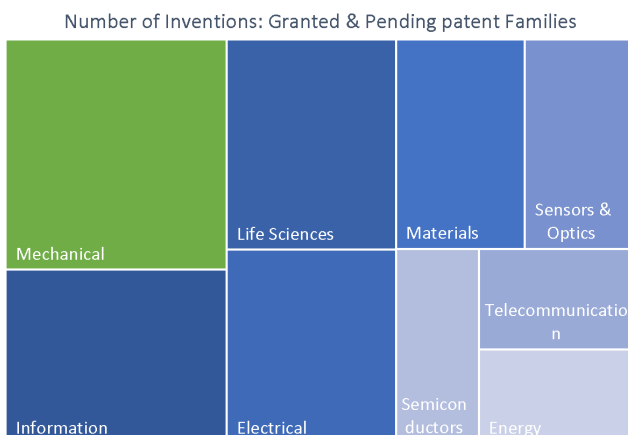
Telecommunications and Life Sciences show inflection points with the highest relative growth in share of activity for the 2022 year to date vs 2021.

Wireless Networks and Cleaning Technology are driving these growths.



Top invention owners

Mechanical is the largest technology area. Top invention owners (including Toyota, Hyundai, Honda, Volkswagen) dominate, with new ideas within furniture, fasteners, airbags, doors and hinges.



The pace of innovation

High-growth technology areas and the innovators within these include **Information/Machine learning** (IBM, Alphabet, Microsoft) and **Sensors & Optics/Lidar** (Denso, Bosch, Toyota).

