Metal-Organic Framework

Patent Landscape Report

Sample

This sample report showcases a landscape of advancements in Metal-Organic Framework technology by analyzing 29050 patent from 2010 to 2025.

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Executive Summary

This sample report showcases a landscape of advancements in Metal-Organic Framework technology by analyzing 29050 patent from 2010 to 2025. The analysis reveals:

Explosive Growth

MOF patenting has grown ~10× in the last 14 years, with a 2023 peak.
Of 29,050 patents, 12,711 are active and 8,704 pending, signaling strong momentum.

Geographic Dominance

China leads with 13,779 patents, followed by the United States.
Together, the U.S. and China account for ~72% of registrations, with universities as predominant applicants.

Technology Focus

Primary areas are B01 (physical/chemical processes) and C07 (organic chemistry).
Dominant groups include B01J20 (sorbents), C02F1 (water treatment), B01D53 (gas separation), B01J31 (catalysts), and C08G83 (macromoleculars).

Market Potential

80% of filings since 2015 and 8,704 pending patents indicate high near-term commercialization potential.
Applications span gas storage/separation, carbon capture, batteries, and water purification, reflecting broad market pull.

Methodology

The methodology employed in this report integrates AI-driven data analytics, machine learning algorithms, and expert human analysis, thereby ensuring a thorough and precise assessment of patent trends within this technology sector.

Data Collection

The analysis initiates with the collection of patent metadata from reputable global patent databases, including:

- WIPO PATENTSCOPE (World Intellectual Property Organization)
- Lens.org
- USPTO (United States Patent and Trademark Office)
- EPO (European Patent Office)
- National Patent Offices

These datasets encompass structured metadata, including patent titles, abstracts, claims, classifications (e.g., IPC, CPC), applicants, publication dates, citations, and legal status.

AI & Machine Learning Analysis

Using proprietary artificial intelligence (AI) and machine learning models developed by STIMAnalytics, the acquired patent data undergoes the following processing stages:

- Text Mining and Natural Language Processing (NLP): Extracting critical technical terms, concepts, and innovation themes from patent documents.
- Clustering and Classification: Categorizing patents into relevant technological groups and subgroups.
- Trend Analysis: Identifying growth trajectories, emerging technologies, and shifts in innovation focus over time.
- Network Analysis: Mapping interrelationships among applicants, technologies, and jurisdictions.
- Predictive Insights: Forecasting future technological advancements and market trends based on historical and contemporary patenting activities.

Reporting Infrastructure

The analytical results are subsequently integrated into a robust reporting infrastructure, which autonomously generates structured reports and interactive dashboards. These outputs are further enriched with:

- Visual Analytics (charts, graphs, maps)
- Strategic Insights
- Technology Roadmaps
- Company and Academic Profiles

Expert Review

Finally, all reports undergo a rigorous quality assurance process conducted by domain experts and technical editors to ensure:

- Accuracy of technical interpretation
- Consistency in terminology and classification
- Relevance of strategic insights
- Professional formatting and readability

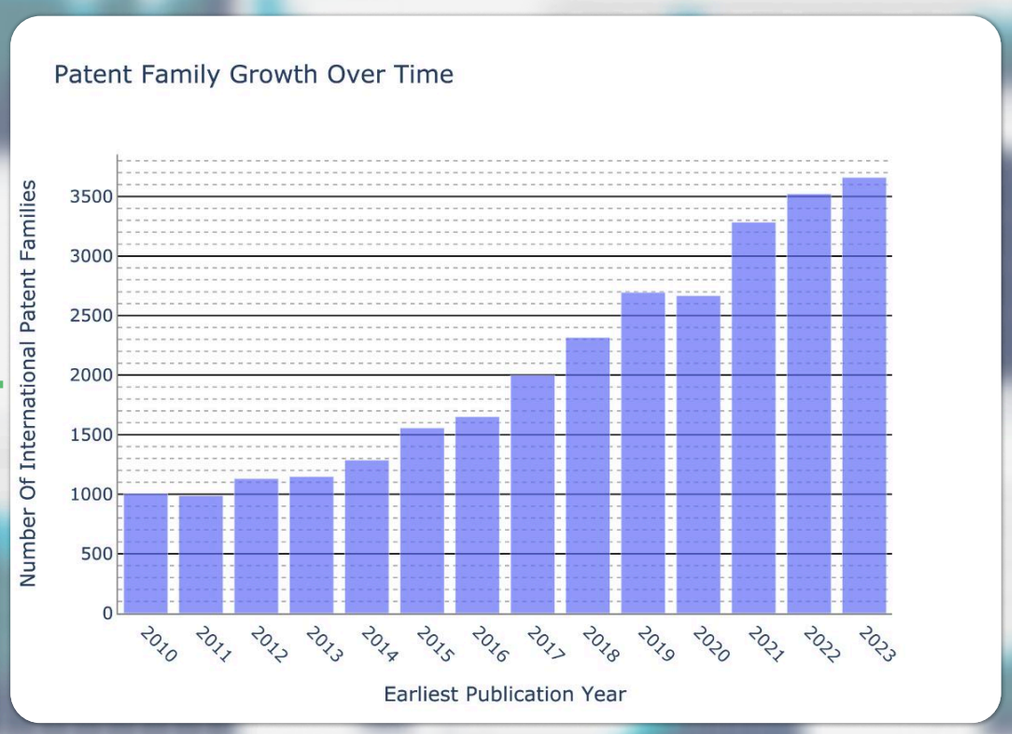
Delivery Formats

The final outputs are delivered in two formats:

- Written Report (PDF): A comprehensive, publication-ready document featuring executive summaries, technology breakdowns, market insights, and key player profiles.
- Interactive Dashboard: A web-based platform enabling users to explore patent trends, filter by technology, applicant, jurisdiction, and time period, and generate customized reports.

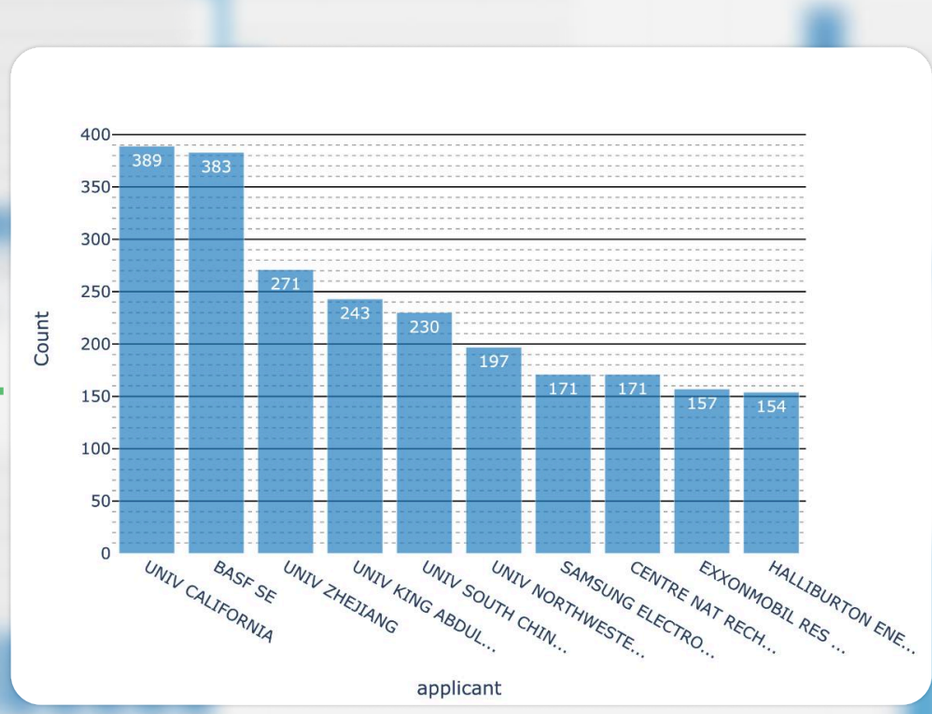
Technology Trends

Patent Landscape Overview



Patent families have shown consistent annual growth since 2010, with a sharp rise post-2017. The trend signals intensified innovation activity, peaking in 2023—highlighting a global acceleration in patent filings.

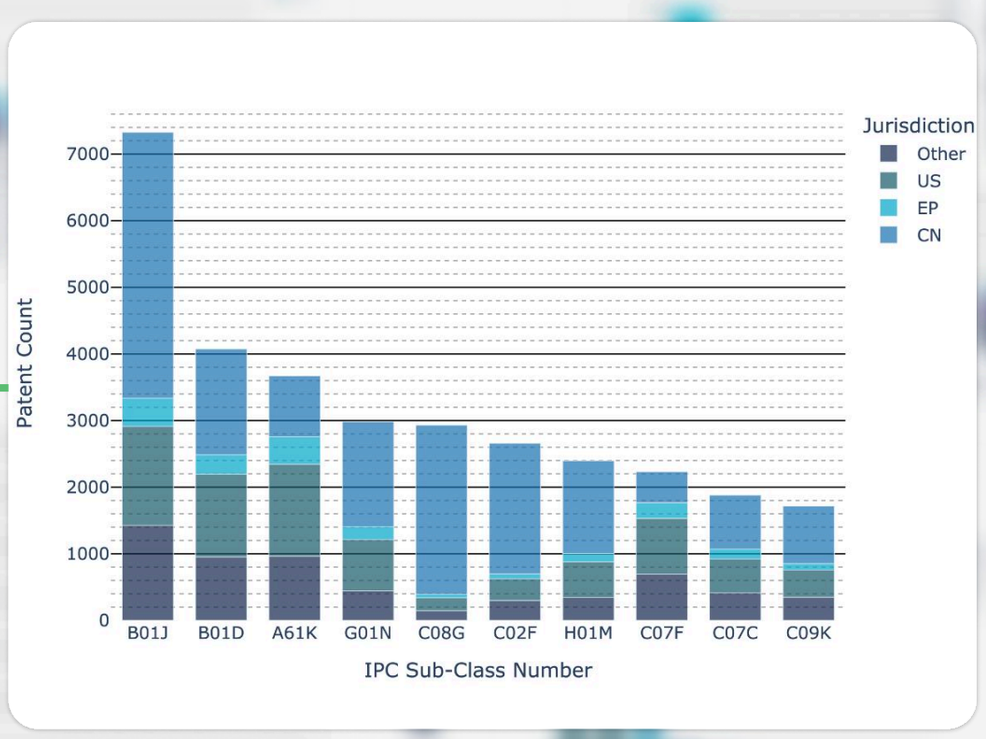
Top Patent Applicants



Leading patent applicants are dominated by universities and major research institutions, with Univ California and BASF SE topping the list. Academia remains a key driver of global innovation output.

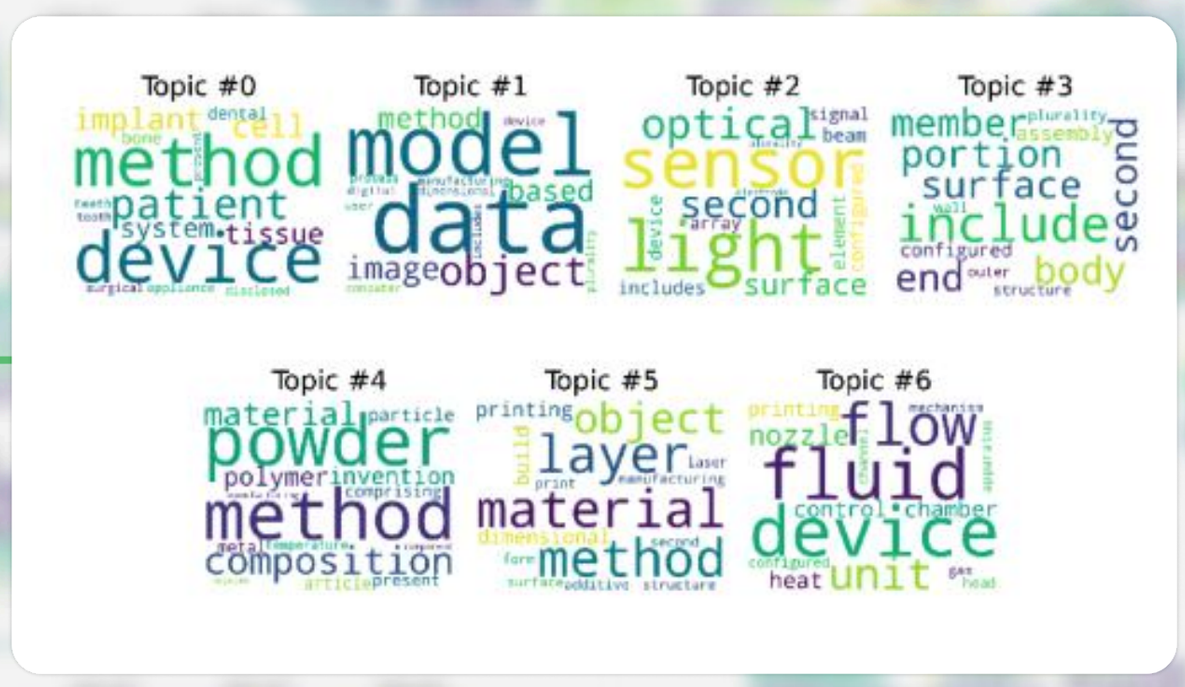
Technology Trends

Top Technologies by Sub-Class



Patent activity is highly concentrated in chemical and pharmaceutical-related sub-classes, especially B01J and A61K. China dominates filings, highlighting its aggressive push in materials science and biopharma innovation sectors.

Key Patent Themes



Strategic Recommendations:

Policy Makers

1. Focus on fostering innovation in high-growth sectors.
2. Encourage investments in sustainable technologies.
3. Support industry-specific research and development initiatives.

Investors

1. Prioritize companies with strong intellectual property in emerging technologies.
2. Monitor the latest advancements in new industrial applications and sectors.

Manufacturers

1. Embrace new technology adoption to improve operational efficiency.
2. Invest in scalable solutions for long-term growth.
3. Focus on sustainability and circular economy practices.

Our Industrial Expertise

Energy

Exploring innovations in the oil, gas, electricity, and renewable energy sectors.

Chemical

Advancing chemical processes, products, and catalysts for industrial applications.

Health and Pharma

Analyzing new pharmaceutical products, health services, and medical technologies.

ICT & Software

Examining trends in information and communication technology, software, and hardware.

Mining Industry

Investigating improvements in iron, steel, aluminum, copper, and other related industries.

New Materials

Researching advancements in advanced materials, nanotechnology, and their applications.

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