



Unique Data. Expert Analysis. Innovative Solutions. One Platform.

Innovation Scorecard

Redacted Report

July 2022





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Executive Summary

Innovation remains a competitive edge and a necessity in a world driven by disruption

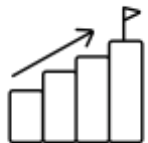


Our Innovation Scorecard focuses not only on activity of Innovation in the organization but also its impact and disruptive potential



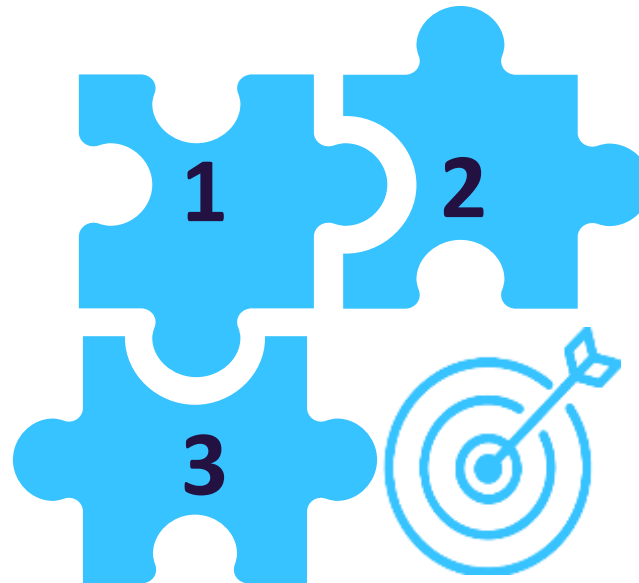
Continuous innovation allows companies to adapt, evolve and grow through disruption

Companies are using innovation as a disruptive change mechanism to stay-on top of dynamically evolving industry landscape



3I framework: Intensity, Impact and Ingenuity

Using 19 KPIs the Scorecard relatively ranks 3,500+ companies spanning across sectors, geographies and themes

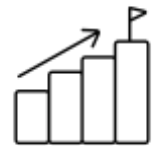


Bottoms-up Quant Data Driven Analysis



Using bottoms-up approach to spot and rank innovative companies. The rankings are based on quantifiable data to ensure that it is objective and can be comparatively measured across companies from different sectors, geographies and themes.

Identify, compares and ranks more than 3,500 largest Public Companies based on their relative performance in 3 Innovation pillars. Helping clients pick and shortlist companies for their respective use cases.

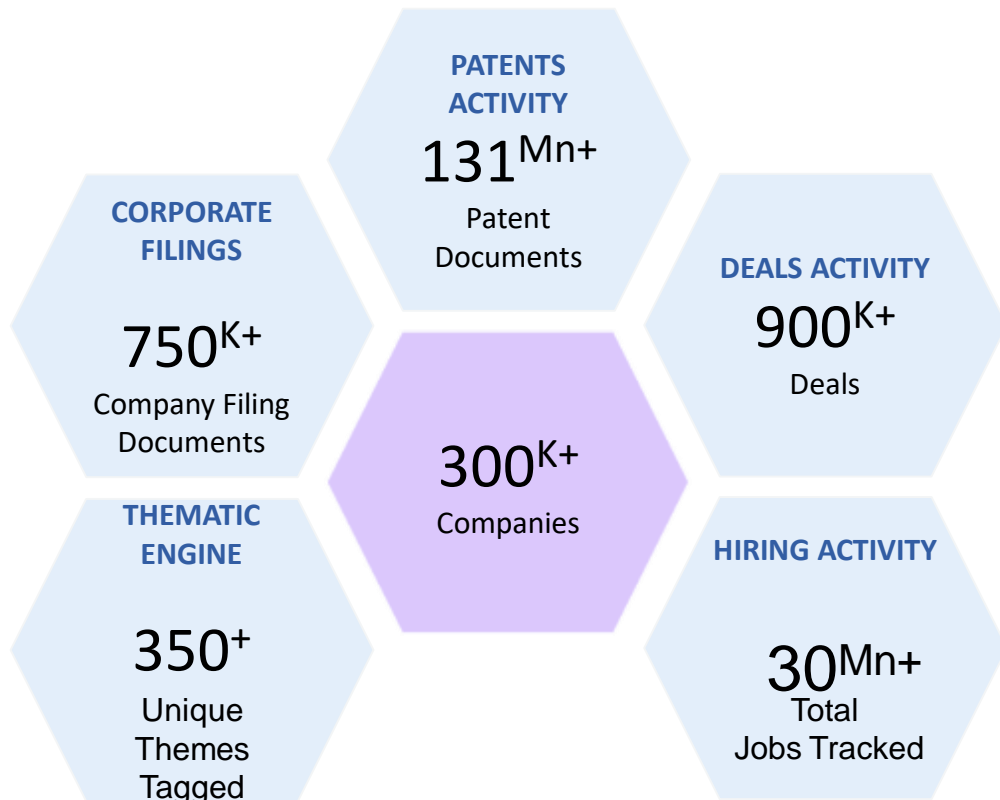


GlobalData's diverse alternative datasets are building blocks for constructing Innovation Scorecard

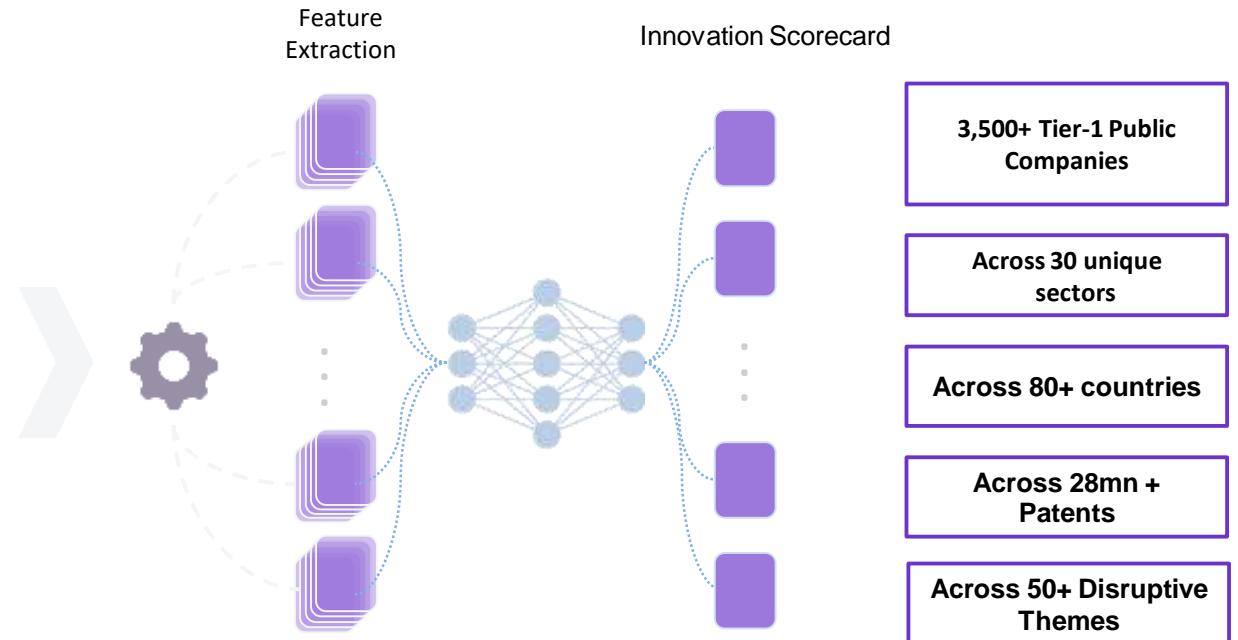


Using in-house underlying alternative datasets, we are excited to launch GlobalData's Innovation Scorecard that will help clients to relatively rank 3,500+ companies on their innovation activity, impact and disruptive potential across geography, sector and theme

GlobalData's Multi-dimensional Alternative Data Capability



GlobalData's Proprietary Thematic Tagging





Innovation Scorecard Framework

GlobalData's 3I Innovation Framework: Intensity, Impact, Ingenuity

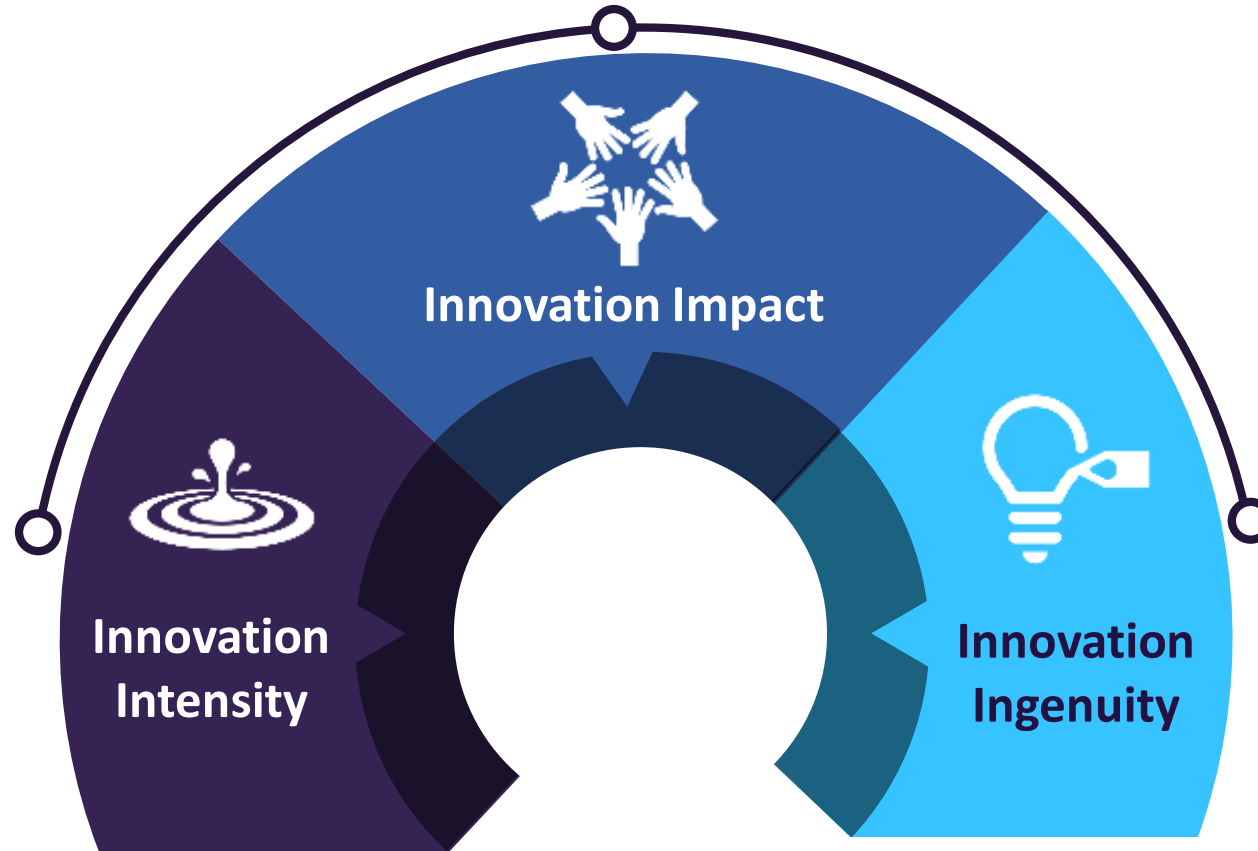


2. External Impact of Innovation

- Average Forward Citations
- Generality
- Tail Innovations
- Global Technological Collaboration
- Number of other Unique Companies citing patents

1. Activity of Innovation

- Count of Filings
- Count of Grants
- Patent Application Growth
- Patent Grants Growth
- R&D as a % of Sales
- Count of Self-Cited Patents
- Innovation Sentiment
- Patents Portfolio Validity
- CVC deals



3. Disruptive Potential of Innovation

- Originality
- Technology Cycle Time
- Share of Hiring Activity in Disruptive Themes
- Share of Patents Granted in Disruptive Themes
- Share of Deals done in Disruptive Themes

We transform the underlying data from all metrics across 3 pillars using logarithmic transformation, z-scores and min-max normalization technique to give a relative score (0 – 1000) and rank 3,500+ Tier 1 Companies in our Innovation Scorecard

Innovation Scorecard: Key Features and Insights



Quant data driven Analysis

Track key Performance Indicators of top Tier 1 Companies based on the three primary pillars: Innovation Premium, Innovation Impact and Innovation Capacity



Commercial Strength of Patent Portfolio

Spot Commercial Strength of Patents Portfolio of any Company using metrics like Originality Index , Technology Cycle Time, Scope-Year Index, Tail Innovations



Relative Benchmarking

Intelligent metrics clubbed together to spot over 3,500+ tier-1 companies doing relatively better than the its peers, along with visual graphical insights



Activity in Disruptive Themes

Spot Innovative Tier-1 Companies by their activity in Disruptive themes as evident by Deals done, Jobs Posted and Patents Granted.



Slice and dice by Sector, Themes and Geographies

Use the granular Sector, Themes & Geographies mapping in our Innovation Scorecard to deep dive on your niche targets



Companies impacting Sector Innovation

Identify top companies driving sector innovation based on count of collaborative & joint patent applications and count of forward citations.

Innovation Scorecard: Illustrative View



Final Rank

Intensity (50% weight)

Impact (30% weight)

Ingenuity (20% weight)

Consolidated Scores

Innovation Scorecard					Innovation Intensity										Innovation Impact						Innovation Ingenuity					Consolidated Score	
Rank	Company Name	Stock Ticker	Country (HQ)	Sector	Count of Fillings	Count of Grants	Patent Application Growth 3-year CAGR	Patent Grants Growth 3-year CAGR	R&D as a % of Sales	Share of Self-Cited Patents	Innovation Sentiment	Patents Portfolio Validity	Volume of CVC deals done	Innovation Intensity (Overall Pillar Score)	Average Forward Citations	Generality Index	Tail Innovations	Global Technological Collaboration	Number of Companies citing your patents	Innovation Impact (Overall Pillar Score)	Originality Index	Technology Cycle Time	Share of Hiring Activity in Disruptive Themes	Share of Patents Granted in Disruptive Themes	Share of Deals done in Disruptive Themes	Innovation Ingenuity (Overall Pillar Score)	Consolidated Score
1	Alphabet Inc	GOOGL	United States	Technology	1000	1000	373	372	819	752	839	454	935	767	530	998	1000	540	1000	812	998	591	862	868	921	833	793.8
2	Alibaba Group Holding L	BABA	China	Retailing	1000	1000	570	778	592	795	888	449	1000	828	383	994	274	372	871	682	997	769	305	881	976	858	789.9
3	Tencent Holdings Ltd	0700	China	Technology	1000	1000	524	661	0	769	919	616	1000	799	431	995	0	681	857	710	996	757	692	855	977	864	785.3
4	Baidu Inc	BIDU	China	Technology	955	967	583	728	793	870	887	508	1000	832	520	997	0	44	759	649	998	798	0	855	967	839	778.5
5	Amazon.com Inc	AMZN	United States	Retailing	833	1000	454	491	769	829	849	392	1000	757	668	997	1000	13	902	776	997	601	728	868	929	830	777.0
6	Qualcomm Inc	QCOM	United States	Technology	1000	1000	286	310	887	642	840	475	667	733	420	995	1000	1000	1000	825	996	682	793	714	945	792	772.3
7	Meta Platforms, Inc.	MVRS	United States	Technology	801	931	450	510	844	838	805	450	842	736	612	997	1000	13	1000	784	997	634	884	861	968	845	772.1
8	Samsung Electronics Co L	005930	South Korea	Technology	1000	1000	254	285	696	691	913	525	515	727	433	999	1000	1000	1000	830	999	629	616	721	994	776	767.8
9	Apple Inc	AAPL	United States	Technology	1000	1000	362	374	628	795	858	510	421	742	618	999	1000	41	1000	789	999	602	763	769	819	787	765.3
10	Microsoft Corp	MSFT	United States	Technology	1000	1000	228	273	769	664	876	393	1000	732	528	995	1000	102	1000	767	997	600	942	854	955	836	763.2
11	Intel Corp	INTC	United States	Technology	1000	1000	263	281	840	634	903	478	667	731	537	997	1000	382	1000	798	998	613	0	795	908	766	758.5
12	International Business M	IBM	United States	Technology	1000	1000	162	198	666	736	909	413	596	705	505	997	1000	696	1000	820	998	622	0	825	902	780	754.5
13	LG Electronics Inc	066570	South Korea	sumer Packaged Gd	1000	1000	232	284	245	650	937	472	596	700	431	999	1000	972	1000	826	999	592	838	733	913	779	753.4
14	BOE Technology Group Co	000725	China	Technology	1000	1000	484	538	413	778	906	487	421	761	484	998	0	987	885	764	999	711	455	538	944	713	752.4
15	Kia Corp	000270	South Korea	Automotive	1000	1000	476	395	0	857	927	484	667	747	276	999	144	1000	936	724	999	601	564	803	933	796	750.0
16	Dell Technologies Inc	DELL	United States	Technology	850	1000	404	377	592	780	937	504	310	715	537	992	505	32	1000	737	993	630	870	763	1000	804	739.6
17	Hyundai Motor Co	005380	South Korea	Automotive	1000	1000	263	270	317	743	858	502	1000	729	270	999	144	1000	1000	738	999	586	0	793	961	762	738.4
18	Johnson & Johnson	JNJ	United States	aceuticals and Hea	1000	1000	229	221	789	725	864	468	310	706	301	996	1000	1000	972	782	996	484	507	738	910	736	734.8
19	Toyota Motor Corp	7203	Japan	Automotive	1000	1000	221	323	0	572	915	476	935	697	270	999	144	1000	1000	738	999	572	654	838	924	807	731.5
20	Cisco Systems Inc	CSCO	United States	Technology	705	847	236	257	732	704	878	477	1000	652	627	988	1000	3	1000	785	991	644	984	828	948	837	728.9

• We transform the underlying data from all metrics across 3 pillars using logarithmic transformation, z-scores and min-max normalization technique to give a relative score (0 – 1000) and rank 3,500+ Tier 1 Companies in our Innovation Scorecard

• Scorecard Captures 3 views based on using the cumulative data over these 3 time periods: 10 Year View, 5 Year View and 3 Year View

User Persona: Fund Manager



Outperform the benchmark index by investing in the companies that can create alpha for their portfolio by identifying most innovative companies using the insights driven by 19+ high value KPIs from Innovation Scorecard.

Reasons you need Innovation Scorecard



- Improve your stock selection by predicting the winners and losers in every sector by identifying strong stocks based on company's IP portfolio.
- Identify the disruptive potential of the companies in your investment portfolio
- Gather evidence to weigh up the profitability of assets based on company behavior data to know when to hold, buy or sell assets

Priorities



- Identify disruptive leaders and challengers earlier than others
- Assess and interpret the quality and Impact of company's patents portfolio
- Research prospective companies with significant improvement in their rankings in the Innovation Scorecard

What keeps them up at night?



- What are the Innovative disruptive threats to the companies in the investment portfolio
- How quickly can we react to Black Swan events
- How can we improve our stock selection approach?
- Which companies are the strongest in their sector based on the potential of their IP Portfolio.



'The Innovation Scorecard helps me in my stock selection process by highlighting the disruptive innovative leaders and challenging innovators in each sector. This is invaluable in an industry whereby accessing real-time, accurate data is key for making measured decisions'



Comparative Analysis

Comparison of Top 20 Most Innovative Companies: 10 Years vs. Last 5 Years vs. Last 3 Years



Company Name	Rank (10 Year)	Rank (5 Year)	Rank (3 Year)
Alphabet	1	1	3
Tencent Holdings	2	3	1
Qualcomm	3	6	10
Alibaba Group Holding	4	2	2
Samsung Electronics	5	8	6
Microsoft	6	10	16
Dell Technologies	7	16	15
Intel	8	11	13
Amazon.com	9	5	9
Apple	10	9	5
International Business Machines	11	12	14
LG Electronics	12	13	17
Meta Platforms	13	7	8
General Motors	14	22	23
Koninklijke Philips	15	54	72
Telefonaktiebolaget LM Ericsson	16	26	40
Siemens	17	27	47
Nokia	18	76	97
Toyota Motor	19	19	20
Hewlett Packard Enterprise	20	42	56

Top 20 Club: New Entrants and Dropouts (3 years vs 10 years)



Companies entering top 20 club in last 3 years



Companies dropping out of top 20 club in last 3 years



US, Japan and Chinese firms are leaders in terms of most CVC deals



Company Name	CVC Deals	Country (HQ)	Sector
Tencent Holdings	443	China	Technology and Communications
The Goldman Sachs Group	315	United States	Financial Services
SoftBank Group	147	Japan	Technology and Communications
IP Group	147	United Kingdom	Business and Consumer Services
BlackRock	123	United States	Financial Services
Alibaba Group Holding	117	China	Retailing
KKR & Co	74	United States	Financial Services
Digital Garage	71	Japan	Technology and Communications
Itochu	59	Japan	Retailing
JD.com	58	China	Retailing
Mitsui	57	Japan	Oil and Gas
Mastercard	53	United States	Financial Services
JPMorgan Chase	53	United States	Financial Services
Baidu	52	China	Technology and Communications
Citigroup	51	United States	Financial Services
SBI Holdings	47	Japan	Financial Services
Visa	42	United States	Financial Services
Naver	40	South Korea	Technology and Communications
Novartis	38	Switzerland	Pharmaceuticals and Healthcare
Barclays	37	United Kingdom	Financial Services



Tencent Investment is the corporate venture arm of Tencent Holdings, that prefers to invest in the wireless internet, new media, online games, social games and e-commerce sectors. Also, Tencent Collaboration Fund is a venture capital fund under Tencent Investment, that makes investment mainly in the internet sector, targeting innovative startups. Tencent, the 23-year-old firm has invested in over 1,200 companies and in 2021 alone, it deployed more than US \$20 billion across 278 companies. Despite its willingness to reduce its influence over other tech giants, Tencent has not slowed down its overall investment pace.



SoftBank Group offers venture funding and strategic support to exceptional entrepreneurs building disruptive enduring businesses. It manages US \$600 million across three funds and invest across a company's lifecycle, from early to growth stages. In 2017, it launched its massive tech-focused Vision Fund. Through its US \$98 billion Vision Fund and its other investment arms, SoftBank secured a 15% stake in Uber, poured US \$4.4 billion into WeWork and injected US \$1.4 billion in Paytm.



IP Group's portfolio include holdings in early-stage to mature businesses including broad range of novel commercial innovations across technology, life-sciences, biotech and cleantech. In 2013, IP Group had established IP Venture Fund II, a £30m venture capital fund in partnership with the European Investment Fund (EIF). IP Venture Fund II alongside IP Group invests in new spin-out companies from IP Group's university partnerships and other collaborations with the EIF effectively investing alongside IP Group on a 4 to 1 ratio.



Novartis Venture Fund is a venture capital firm focused on companies that develop novel therapeutics and platforms. Novartis Venture Fund manages over USD 750 million in committed capital and more than 40 portfolio companies across North America, Europe and Israel. NVF is engaged in seed investments as well as later-stage investments across life science, oncology, biotechnology, and digital health sectors., creating attractive returns for entrepreneurs and investors.





ITOCHU Technology Ventures (ITV) conducts the venture capital business for ITOCHU. ITV aims to invest and help in building leading information technology companies by leveraging a vast array of resources both local and globally throughout ITOCHU and its group companies. Some of its portfolio companies have become leading public listed companies, including Raksul Inc. Mercari, Inc., and Uzabase, Inc. In 2020, ITV established Technology Ventures V Venture Capital Investment Limited Partnership ("TV5") which was the largest-ever, at 10 billion yen.



Mapping Most Innovative Companies by Sector

Top Ranked Innovative Companies in Technology Sector



Companies	Sector Rank	Overall Rank	Innovation Intensity Pillar Rank	Innovation Impact Pillar Rank	Innovation Ingenuity Pillar Rank	Country (HQ)	Theme
	1	1	6	5	101	United States	Artificial Intelligence, Big Data, Cloud
	2	3	3	60	19	China	Machine Learning, Artificial Intelligence
	3	4	1	157	83	China	Big Data, Artificial Intelligence
	4	6	19	12	63	United States	Artificial Intelligence, Augmented & Virtual Reality, Digital Media
	5	7	21	3	348	United States	5G, AI Chips, Computer Vision
	6	8	25	1	452	South Korea	4G, 5G, Cloud, Mobile, Mobile Payments
	7	9	18	10	373	United States	Artificial Intelligence, Cloud, Mobile Payments
	8	10	20	20	90	United States	Artificial Intelligence, Big Data, Cloud
	9	11	22	7	533	United States	5G, AI Chips, Application Security
	10	12	34	4	419	United States	AI Chips, Blockchain, Artificial Intelligence

Top Ranked Innovative Companies in Pharmaceuticals & Healthcare Sector



Companies	Sector Rank	Overall Rank	Innovation Intensity Pillar Rank	Innovation Impact Pillar Rank	Innovation Ingenuity Pillar Rank	Country (HQ)	Theme
	1	18	35	13	740	United States	Microbiome, Healthtech
	2	73	76	104	1034	Switzerland	Digital Therapeutics , Genomics
	3	82	80	203	715	Germany	Digital Therapeutics
	4	165	189	150	1352	Germany	Precision and Personalized Medicine
	5	167	153	247	1626	United States	Genomics , Nano Tech
	6	168	161	239	1568	Switzerland	Nano Tech , Precision & Personalized Medicine
	7	216	158	786	734	United States	Healthtech, Precision and Personalized Medicine
	8	242	265	259	1468	France	Nano Tech , Digital Therapeutics
	9	247	227	257	1891	United States	Genomics , Nano Tech
	10	281	297	292	1597	United States	Genomics , Healthtech , Nano Tech

Top Ranked Innovative Companies in Aerospace & Defense Sector













Companies	Sector Rank	Overall Rank	Innovation Intensity Pillar Rank	Innovation Impact Pillar Rank	Innovation Ingenuity Pillar Rank	Country (HQ)	Theme
 BOEING	1	25	28	80	616	United States	Electric Aircraft , Space Systems
 Raytheon Technologies	2	43	47	107	664	United States	Drones , Electric Aircraft, Quantum Computing
 SAFRAN AEROSPACE · DEFENCE · SECURITY	3	84	80	180	839	France	Drones
AIRBUS	4	104	117	203	786	The Netherlands	Electric Aircraft , Space Systems
TEXTRON	5	123	111	224	1314	United States	Electric Aircraft
	6	142	163	279	590	United Kingdom	Electric Aircraft
THALES	7	157	216	190	634	France	IOT, Space Systems
 Hanwha Aerospace	8	299	217	697	1292	South Korea	Drones, Electric Aircraft
 NORTHROP GRUMMAN	9	389	551	410	594	United States	Space systems
 LOCKHEED MARTIN	10	441	981	227	595	United States	Space Systems

To explore innovative company ranking for the other sectors, access the full report [here](#)



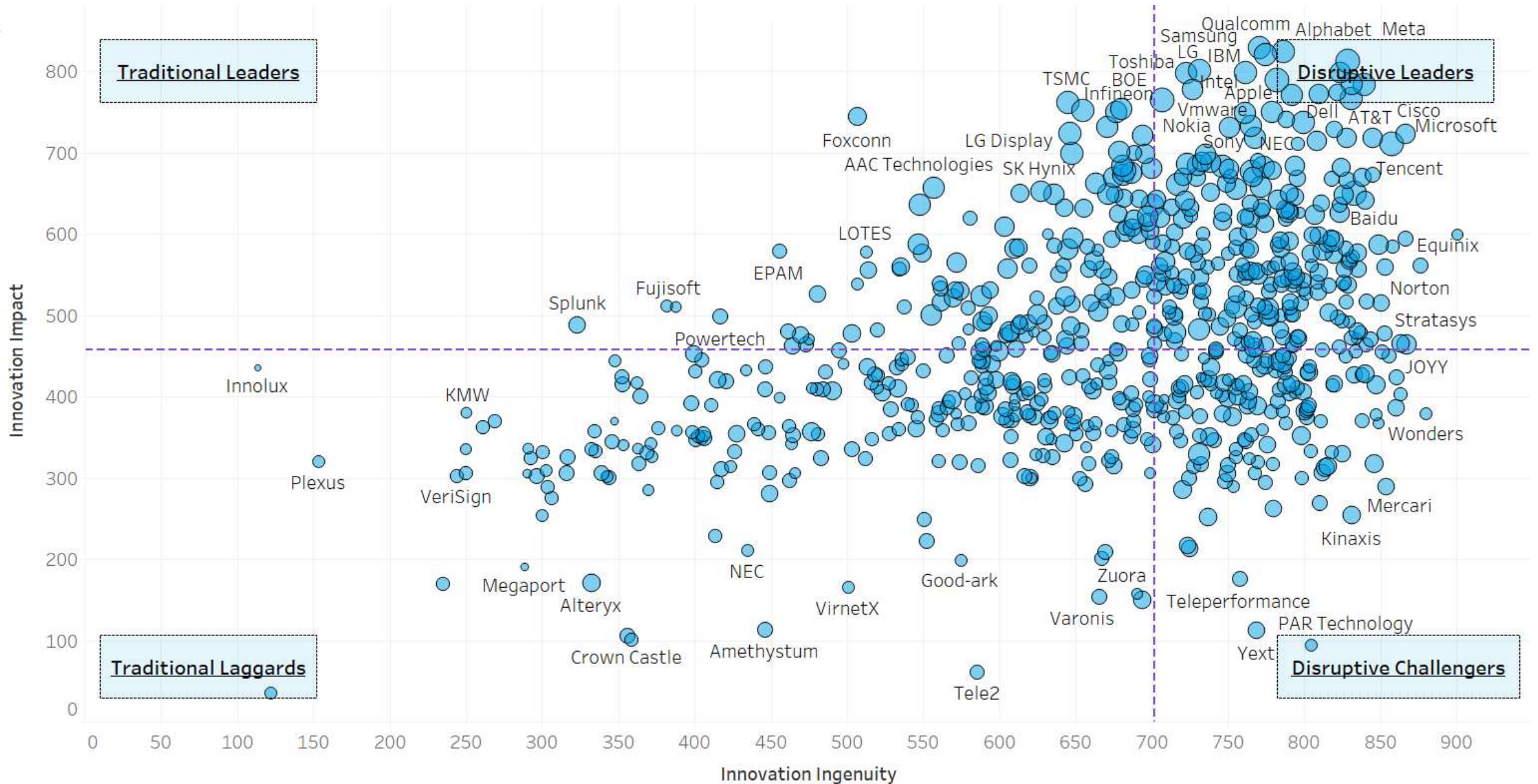
Top Ranked Innovative Companies in Consumer Sector

Companies	Sector Rank	Overall Rank	Innovation Intensity Pillar Rank	Innovation Impact Pillar Rank	Innovation Ingenuity Pillar Rank	Country (HQ)	Theme
 LG Electronics	1	13	43	2	434	South Korea	5G,AI Chips , Computer Vision
	2	34	15	109	1614	China	Ecommerce
 统一企业中国控股有限公司 UNI-PRESIDENT CHINA HOLDINGS LTD.	3	38	14	275	672	China	Health & Wellness
 TCL 创享智慧生活 The Creative Life	4	40	13	266	775	China	Virtual & Augmented Reality
 GREE 格力	5	46	4	510	1179	China	Ecommerce
	6	50	86	34	596	Japan	Lithium-Ion Batteries
 muRata INNOVATOR IN ELECTRONICS	7	55	51	81	1189	Japan	Industrial Automation
 GoerTek GoerTek Audio Technologies	8	93	48	504	858	China	Augmented Reality, Virtual Reality
 Uni-President	9	137	82	689	776	Taiwan	Health & Wellness
	10	139	65	452	2000	China	AI Chips,Automated Home



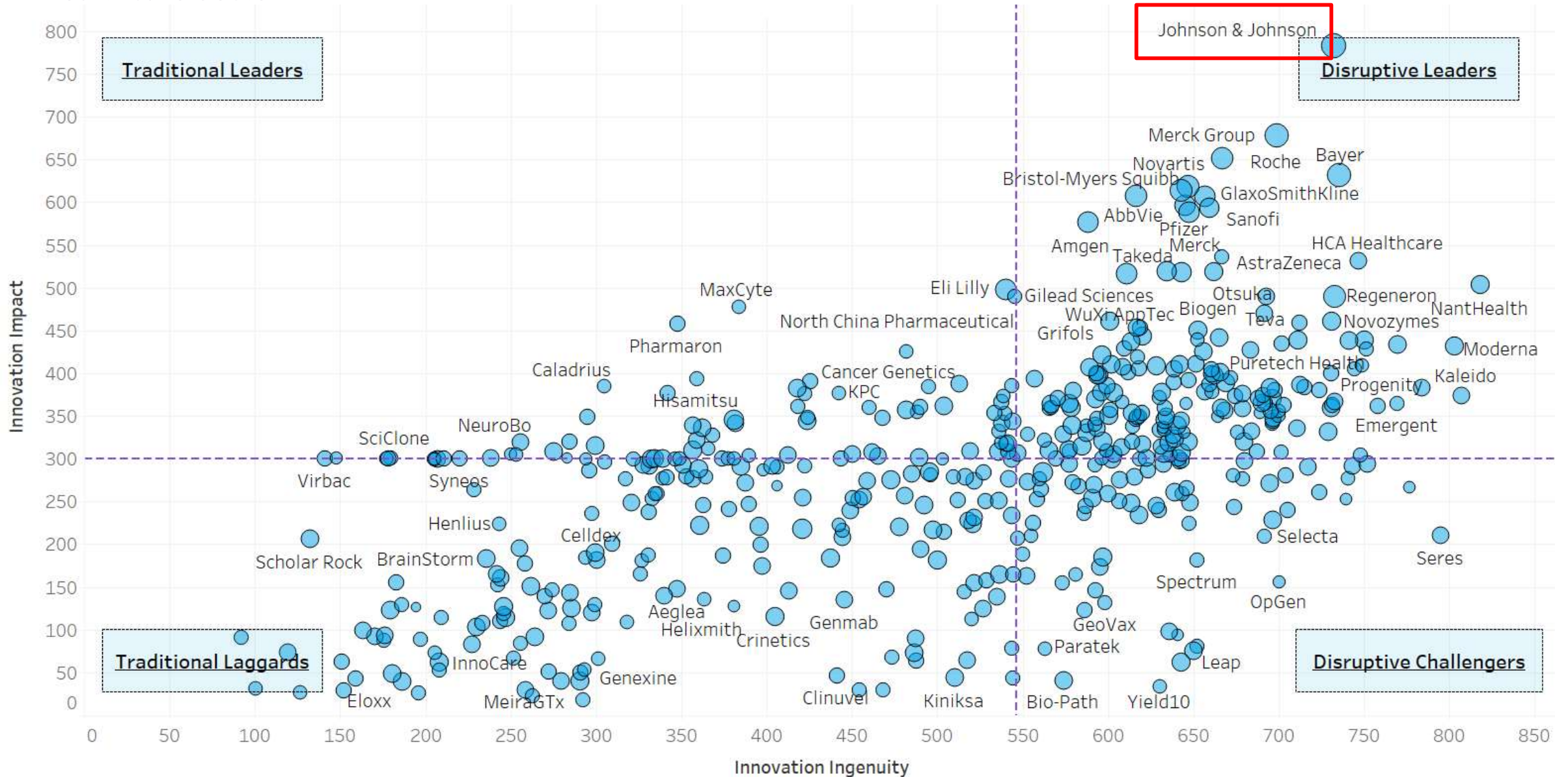
Identifying Leaders, Challengers and Laggards based on Innovation

Leaders, Challengers and Laggards based on Innovation Impact & Disruptive Potential: Technology Sector



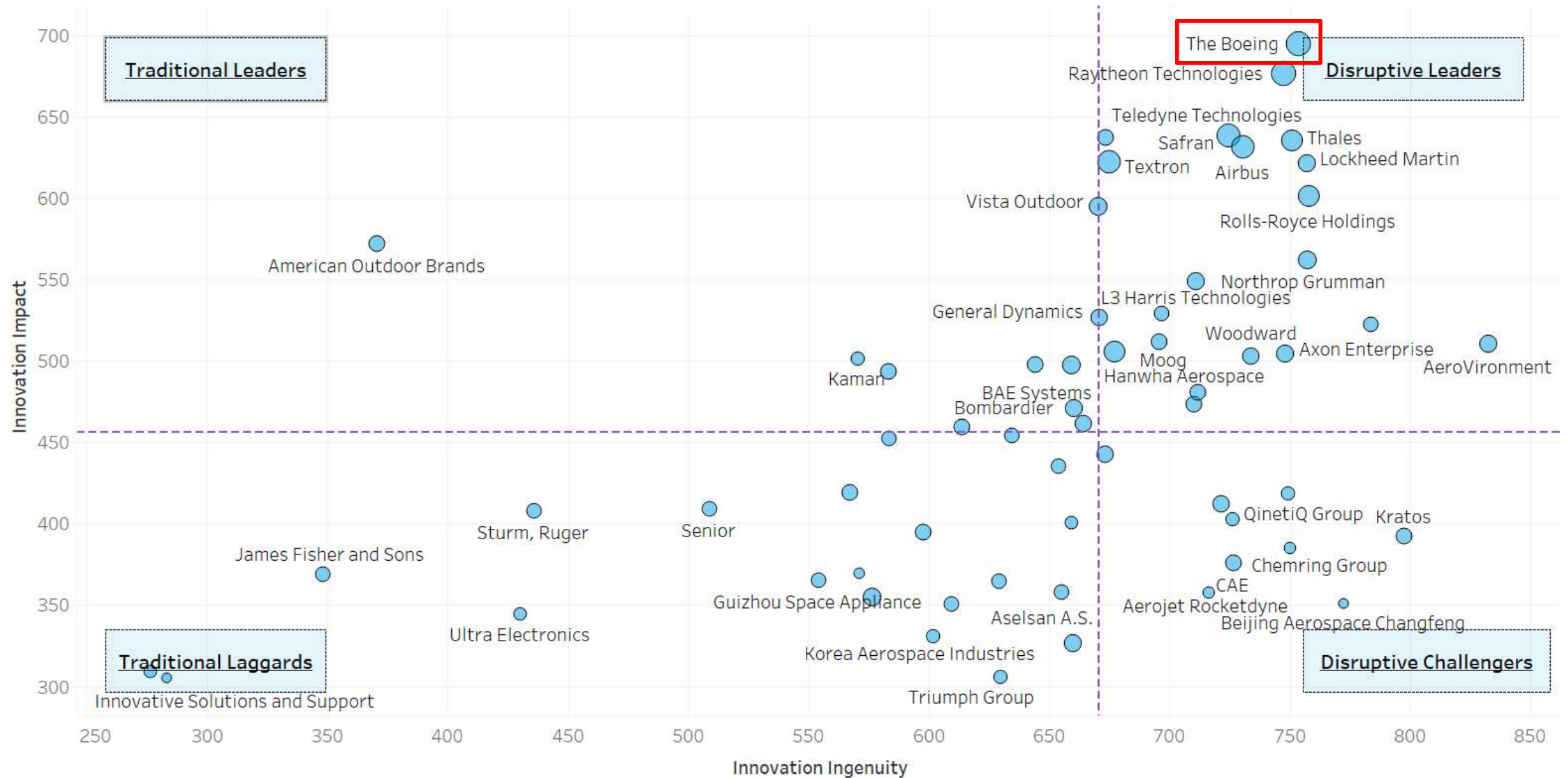
Note: The size of the bubble refers to the score in Innovation Intensity (activity of innovation)

Leaders, Challengers and Laggards based on Innovation Impact & Disruptive Potential: Pharmaceuticals & Healthcare Sector



Note: The size of the bubble refers to the score in Innovation Intensity (activity of innovation)

Leaders, Challengers and Laggards based on Innovation Impact & Disruptive Potential: Aerospace & Defense Sector



Note: The size of the bubble refers to the score in Innovation Intensity (activity of innovation)

Leaders, Challengers and Laggards based on Innovation Impact & Disruptive Potential: Consumer Sector



Note: The quadrants are divided based on the Sector Median Scores on both axis. The size of the bubble refers to the score in Innovation Intensity (activity of innovation)



Built-in Analytics and Key Highlights

Company Analytics



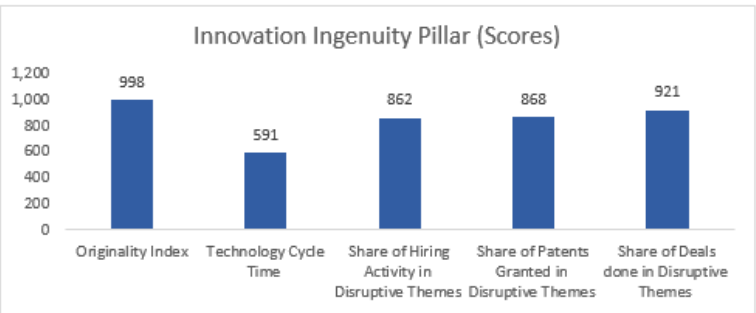
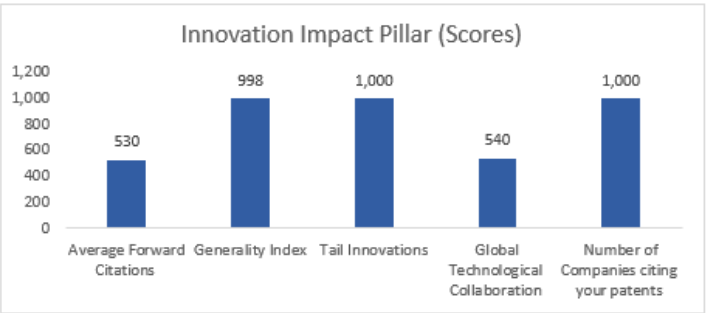
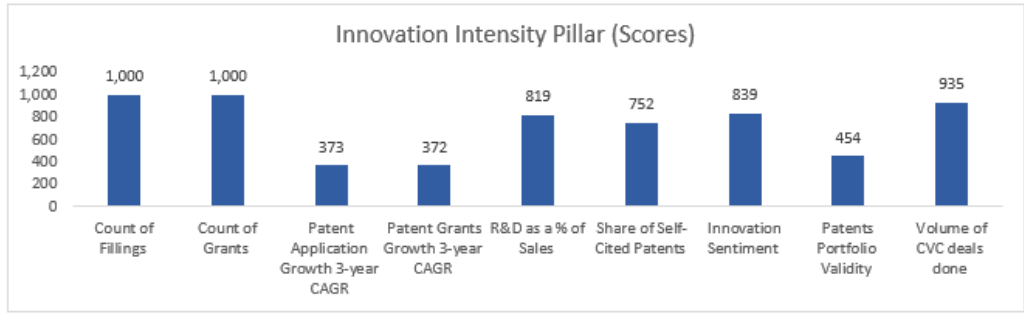
Select a Company to populate its underlying data, its scores in various pillars and visual representation of scores in various KPIs

Type a Company here & Filter



Analytics	Company Name		Company Info		
		Alphabet Inc	Count of Fillings	Counts of Grants	Patent Grants Growth 3-year CAGR
Company Rank	1	27,893	10,726	12%	17.04%
		Number of Companies citing your patents	Stock Ticker	Country (HQ)	Theme
Sector	Technology and Communications	885	GOOGL	United States	AI Chips,Ambient Commerce,Artificial Intelligence,Augmented Reality,Autonomous Vehicles,Big

Innovation Intensity Score	Innovation Impact Score	Innovation Ingenuity Score	Consolidated Score
767	812	833	794



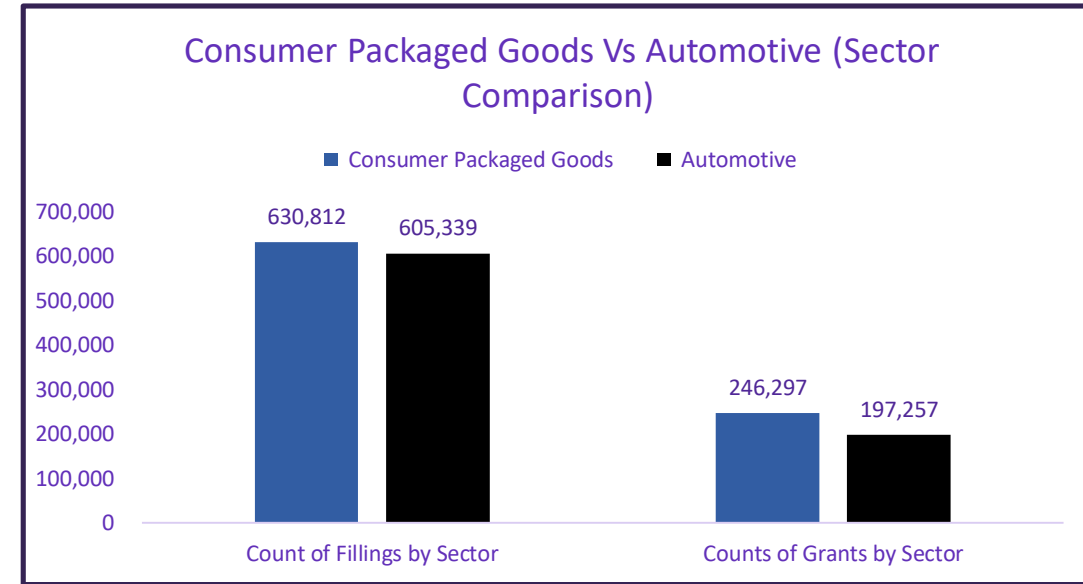
Sector & Country Analytics



Select Sector and Country to populate; compare its aggregated underlying data with other sector & country and its relative visual representation

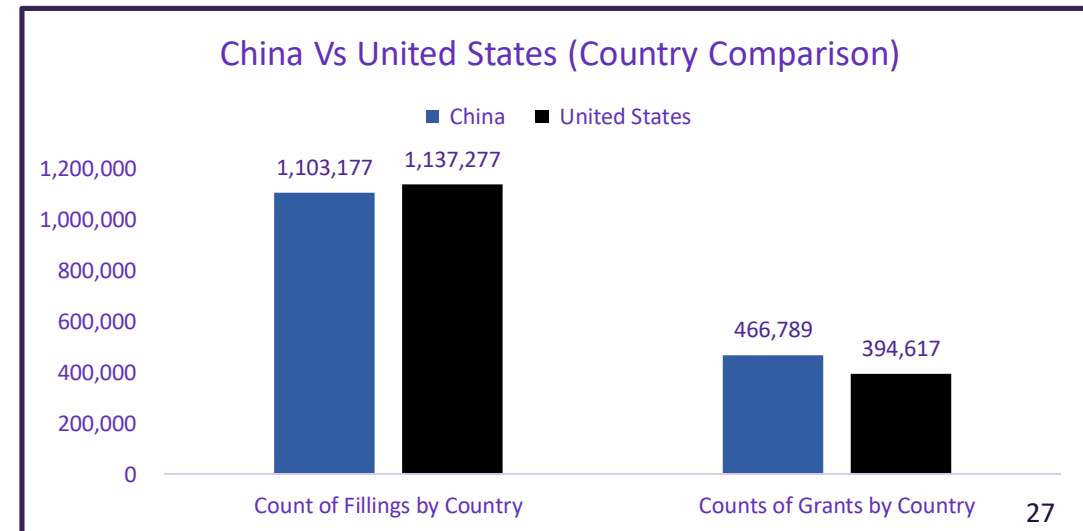
Type a Sector here & Filter

Select Sector	Count of Fillings by Sector	Counts of Grants by Sector
Consumer Packaged Goods	630,812	246,297
Automotive	605,339	197,257



Type a Country here & Filter

Select Country	Count of Fillings by Country	Counts of Grants by Country
China	1,103,177	466,789
United States	1,137,277	394,617



Themes Analytics

Select a Theme to shortlist Companies ; compare its aggregated underlying data with other theme and its relative visual representation

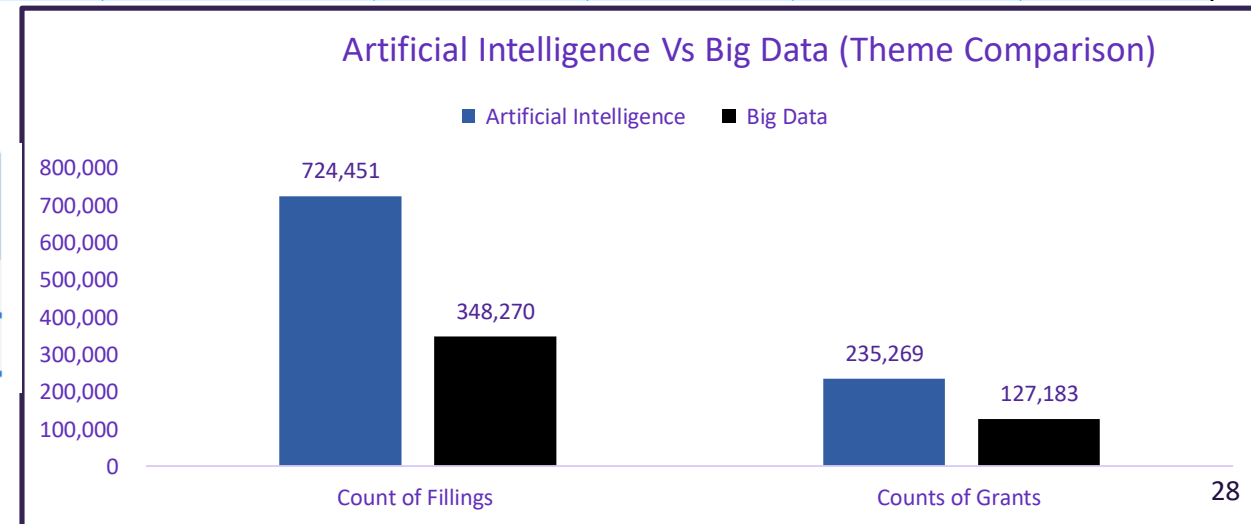
Select a Theme here

Select Time Frame 5 Years

- Theme
- Ambient Commerce
- Artificial Intelligence**
- Augmented Reality
- Automated Home
- Autonomous Vehicles
- Batteries
- Big Data
- Biometrics

Rank	CDMS ID	Company Name	Stock Ticker	Country (HQ)	Sector	Theme	Innovation Intensity (Overall Pillar Score)	Innovation Impact (Overall Pillar Score)	Innovation Ingenuity (Overall Pillar Score)	Consolidated Score
1	1408443	Alphabet Inc	GOOGL	United States	Technology	Artificial Intelligence	767	812	833	794
2	1475316	Alibaba Group Holding Lt	BABA	China	Retailing	Artificial Intelligence	828	682	858	790
3	1684916	Tencent Holdings Ltd	0700	China	Technology	Artificial Intelligence	799	710	864	785
4	1386813	Baidu Inc	BIDU	China	Technology	Artificial Intelligence	832	649	839	779
7	1536668	Meta Platforms, Inc.	MVRS	United States	Technology	Artificial Intelligence	736	784	845	772
6	1210150	Qualcomm Inc	QCOM	United States	Technology	Artificial Intelligence	733	825	792	772
8	1455335	Samsung Electronics Co Lt	005930	South Korea	Technology	Artificial Intelligence	727	830	776	768
9	1439305	Apple Inc	AAPL	United States	Technology	Artificial Intelligence	742	789	787	765
9	1439305	Apple Inc	AAPL	United States	Technology	Electric Vehicles	742	789	787	765
10	1267248	Microsoft Corp	MSFT	United States	Technology	Artificial Intelligence	732	767	836	763
11	1794808	Intel Corp	INTC	United States	Technology	Artificial Intelligence	731	798	766	758
12	1722497	International Business M	IBM	United States	Technology	Artificial Intelligence	705	820	780	755
16	1543486	Dell Technologies Inc	DELL	United States	Technology	Artificial Intelligence	715	737	804	740
17	1475748	Hyundai Motor Co	005380	South Korea	Automotive	Electric Vehicles	729	738	762	738
19	1313230	Toyota Motor Corp	7203	Japan	Automotive	Electric Vehicles	697	738	807	731
20	1698203	Cisco Systems Inc	CSCO	United States	Technology	Artificial Intelligence	652	785	837	729

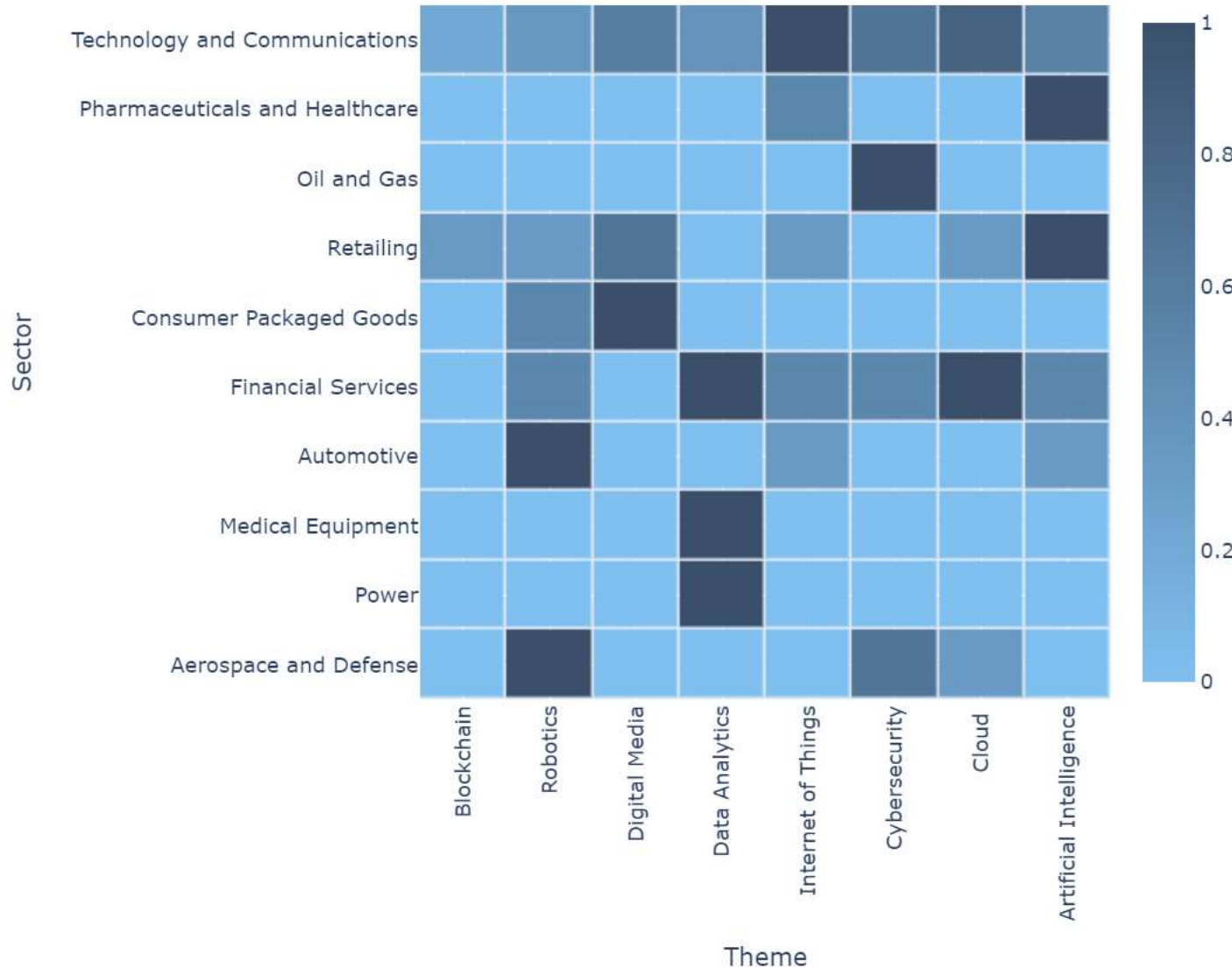
Select Theme	Count of Fillings	Counts of Grants
Artificial Intelligence	724,451	235,269
Big Data	348,270	127,183



Please [access](#) the full report and the Excel Attachment to view the entire innovation scorecard

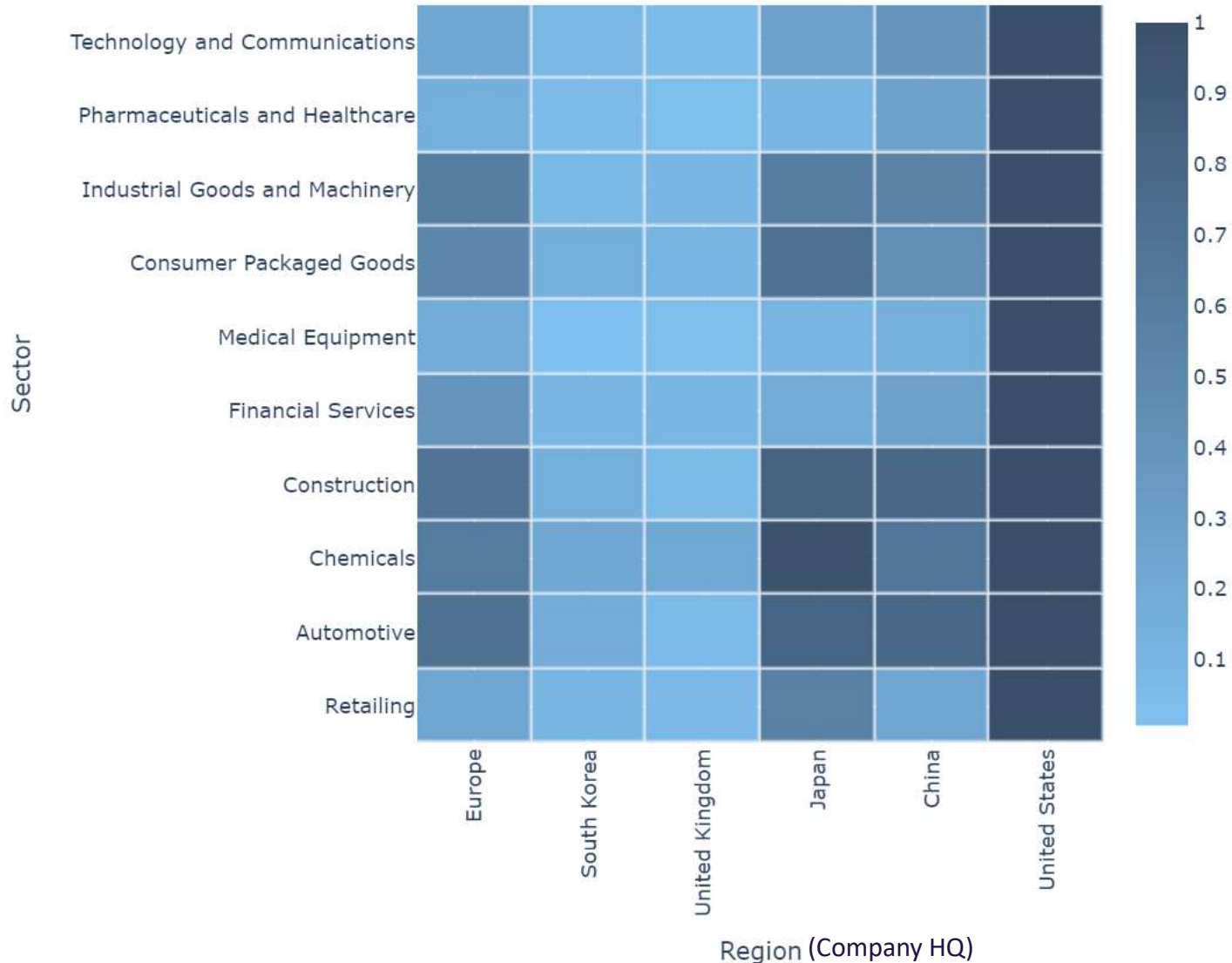


Top Themes By Sector



- Tech & Comm. sector companies are primarily working on IoT, Cloud, Cybersecurity, AI and Digital media themes.
- Pharma & Medical Equipment sector companies are primarily working on AI and IoT themes.
- Oil and Gas Sector remain majorly focused on cybersecurity theme
- Retailing and CPG sector companies are working on AI, Digital media and robotics themes
- Financial Services sector companies are primarily working on Fintech space and remain focused on Data Analytics and Cloud
- Automotive companies are working on a mix of Robotics, IOT, and AI themes.
- Medical Equipment companies are working on a mix of Data Analytics and Cloud themes.

Top Sector By Region



- Technology & Communications, and Pharma & Medical Equipment sector companies are primarily working in the United States region.
- Industrial Goods and Machinery, and CPG sector companies are primarily working in the US, Europe, and Japan regions.
- Financial Services Sector remains majorly focused in US, and Europe regions.
- Automotive and Construction sector companies are primarily working in the US, Europe, Japan, and China regions.
- Chemicals sector companies are primarily working in US, and Japan regions.
- Retailing sector companies are working on a mix in US, and Japan regions.








Top 30 Ranked Innovative Companies (1/3)



Companies	Overall Rank	Innovation Intensity Pillar Rank	Innovation Impact Pillar Rank	Innovation Ingenuity Pillar Rank	Country (HQ)	Sector	Theme
	1	7	5	101	United States	Technology	Artificial Intelligence, Big Data, Cloud
	2	2	96	28	China	Retailing	Artificial Intelligence, Ecommerce, Mobile Payments
	3	3	61	18	China	Technology	Machine Learning , Artificial Intelligence
	4	1	156	80	China	Technology	Big Data, Artificial Intelligence
	5	11	16	124	United States	Retailing	Ecommerce , Predictive Analytics
	6	20	3	347	United States	Technology	5G, AI Chips, Computer Vision
	7	19	12	63	United States	Technology	Artificial Intelligence, Augmented & Virtual Reality, Digital Media
	8	25	1	451	South Korea	Technology	5G, AI Chips , Computer Vision
	9	18	10	372	United States	Technology	Artificial Intelligence, Cloud , Mobile Payments
	10	21	20	91	United States	Technology	Artificial Intelligence, Big Data, Cloud











Top 30 Ranked Innovative Companies (2/3)



Companies	Overall Rank	Innovation Intensity Pillar Rank	Innovation Impact Pillar Rank	Innovation Ingenuity Pillar Rank	Country (HQ)	Sector	Theme
 Intel	11	22	9	530	United States	Technology	5G,AI Chips, Application Security
 IBM	12	35	4	420	United States	Technology	AI Chips , Distributed Ledger Technology, Artificial Intelligence
 LG Electronics	13	43	2	434	South Korea	Consumer Packaged Goods	5G,AI Chips , Computer Vision
 BOE	14	9	21	949	China	Technology	Biometrics
 KIA	15	16	49	312	South Korea	Automotive	Autonomous Vehicles
 DELL	16	31	38	253	United States	Technology	Automated Home , Data Analytics, Cybersecurity
 HYUNDAI	17	23	37	558	South Korea	Automotive	Electric Vehicles
 Johnson & Johnson	18	34	13	748	United States	Pharmaceuticals and Healthcare	Microbiome , Healthtech
 TOYOTA	19	45	36	236	Japan	Automotive	Autonomous Vehicles, Electric Vehicles
 CISCO	20	79	11	88	United States	Technology	Big Data, Cybersecurity, Cloud

Top 30 Ranked Innovative Companies (3/3)

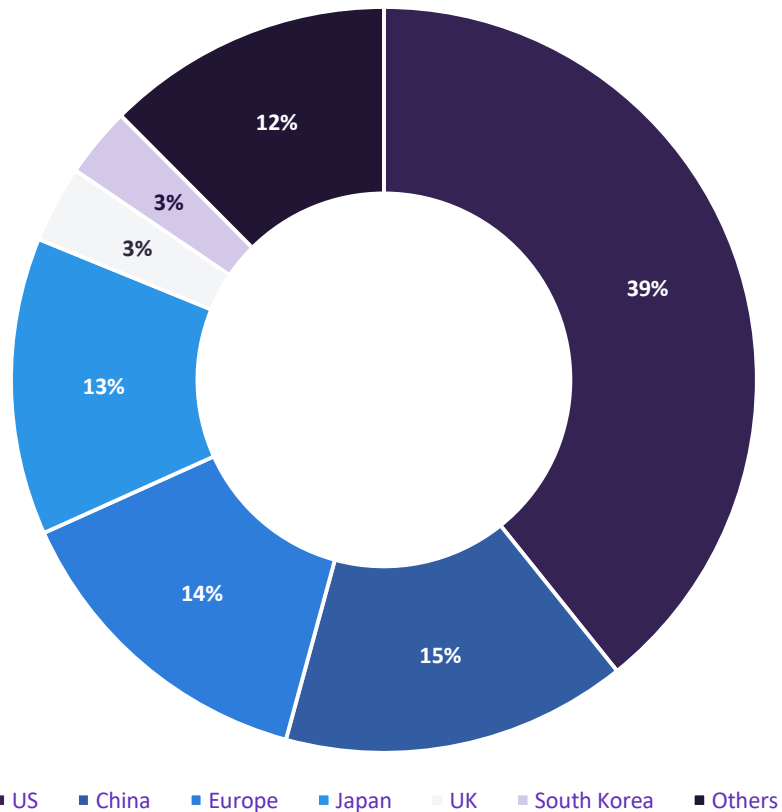


Companies	Overall Rank	Innovation Intensity Pillar Rank	Innovation Impact Pillar Rank	Innovation Ingenuity Pillar Rank	Country (HQ)	Sector	Theme
	21	57	6	751	South Korea	Technology	Lithium-Ion Batteries
 General Motors	22	54	14	533	United States	Automotive	Autonomous Vehicles , Electric Vehicles
	23	24	59	671	Ireland	Medical Equipment	Connected Patient , Healthtech
	24	39	152	20	United States	Financial Services	Fintech
	25	27	80	618	United States	Aerospace and Defense	Electric Aircraft, Space Systems
	26	30	98	431	Sweden	Technology	IOT ,5G, Cybersecurity
	27	62	24	574	Germany	Power	Electric Aircraft, Microgrids
	28	53	48	570	United States	Automotive	Autonomous Vehicles , Electric Vehicles
	29	46	40	818	Germany	Automotive	
	30	52	33	843	Japan	Automotive	Autonomous Vehicles

Innovation Scorecard: Geographical Coverage



US and China remains the top innovation hubs, followed by Europe and Japan



Innovation has become decentralized globally with some countries making great progress while others face infrastructure challenges and macroeconomic issues



U.S. remains the world's leading technology and innovation hub. Cities such as New York, Boston, Chicago, Los Angeles, and Austin in the US are considered as top tech-innovators. The spread of innovation across many US cities is further fueled by corporate and VC investments and several of the top technology companies are spreading their headquarters and operations across many US cities driving economic growth opportunities and a more diverse ecosystem.



China remains among the leading tech-innovators as Chinese technology companies continue to gain momentum in local markets, catering to the tech-savvy, always-on, digital Chinese consumer. Additionally, aggressive government-industry collaborations, corporate-startup incubation and acceleration programmes, and the availability of massive addressable markets driving the innovation boom in the country.



Europe is considered as global powerhouse of innovation. Given its largest public R&D spend, relatively high wage costs and low reliance on natural resources, the importance of innovation to the continent's economic and social system is clear. Despite its long tradition of inventiveness and talent, Europe lags behind the United States in disruptive innovation and increasingly challenged by the next generation of frontier technologies such as in digital technologies such as AI, in ICT including quantum computing, and in genomics and synthetic biology.



Japan is another innovation hub and is majorly driven by a collaboration of corporations and startups. Traditionally, the Japanese business landscape has been defined by large corporations with conservative methodologies and investment strategies, though they are increasingly turning their attention and dollars to nimbler, faster-moving startups in order to innovate more quickly. Tokyo remains the nerve centre of Japan's booming startup scene due to high quality of life supported by smart city innovation and thriving business and technology ecosystems.



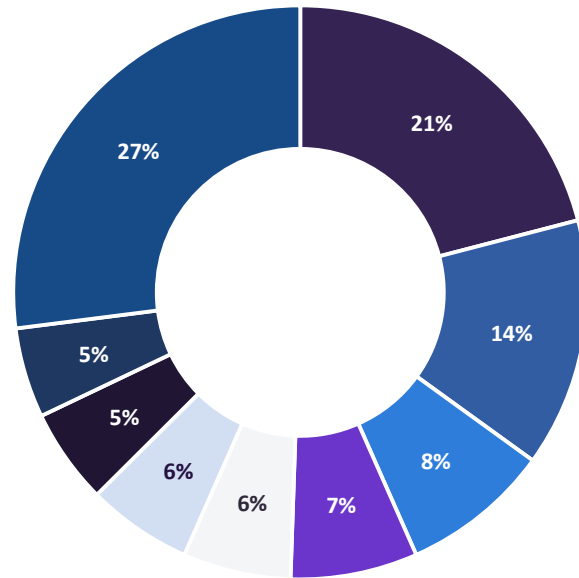
The UK is one of the most innovative countries in the world – ranked in the top 5 countries. UK's innovative spirit, its entrepreneurial workforce, its business-friendly environment, accelerating pace of scientific and technological advancement, supportive initiatives of government to work with industry to drive forward the innovation, and several major metropolises - and some unexpected smaller locations that are moving to the forefront of cutting-edge technology and investment makes the economy as one of the major innovation hubs.

Based on Company's Headquarter Country, Not on patents filling Jurisdiction

Innovation Scorecard: Sector Coverage



Technology & Communications and Pharmaceutical and Healthcare sector driving major innovation



- Technology and Communications
- Industrial Goods and Machinery
- Medical Equipment
- Construction
- Others*
- Pharmaceuticals and Healthcare
- Consumer Packaged Goods
- Financial Services
- Chemicals

Top 5 industries/sectors driving innovation around the world



The technology and communication industry has largely thrived over the past two years since the onset of Covid-19 pandemic. Many companies are focused on taking full advantage of advanced technologies such as AI, IoT, Blockchain, Robotics, Cloud Computing, VR, AR, 3D Printing and others to improve transparency, agility, collaboration, sustainability, and digital innovation.



Pharmaceuticals & Healthcare sector has been facing disruption on unprecedented levels and COVID-19 has put the industry into the spotlight with the world urgently working towards a breakthrough in the fight against the pandemic. With chronic diseases on the rise, the demand for innovative healthcare solutions is growing globally. Digitalization, big data and artificial intelligence have accelerated the transformation of the pharmaceutical industry and enable companies to improve drug development and patient care beyond the treatment of diseases, offering new revenue streams.



Industrial goods and machinery sector has been facing disruption on unprecedented levels, right from digital technologies and telecoms advancing Industrial IoT, to autonomous systems and machine learning – new technologies are shaping the future of the sector. Industry 4.0 presupposes integration of manufacturing automation and data exchange to encourage innovations and smart factory. For instance, continuous augmentation of product functionality, coupled with data analytics, is helping suppliers better understand customer needs, tailor offerings and monetize additional services.



At the onset of COVID-19, multiple consumer companies had announced cutbacks in their innovation pipeline. As the COVID-19 pandemic continues and new consumer behaviors play out, manufacturers are reimagining their innovation portfolios to lead in the next normal. Demand patterns have started to normalize, supply chains are largely stable, and many consumer-packaged-goods (CPG) leaders have come to terms with the crisis



Medical equipment sector undergoes innovation and technological improvements that spans a wide spectrum from conceptualization of the device to the end-user using the device. Over the years, progress in the in medical devices sector has enhanced the quality of the healthcare delivery, support systems thereby resulting in better clinical outcomes. Innovation in the medical device industry is quite different from that in the pharmaceutical industry. In terms of in who does the research and development (R&D), the nature of that R&D, and the public policies affecting it.

Syndicated and custom research

Company Innovation Scorecard - Ranking 3,500 Innovative Companies on Activity, Impact and Disruptive Potential of their Intellectual Property (IP) Portfolio available on [report store](#).
Custom Research as part of GD/PS

Intelligence Centres &

Disruptor Databook available on "Innovation" for further filtering and analysis on Disruptor
Ranking and Relative placement on growth trajectory Quadrants on various ICs

Patents API and Custom Data Extracts

Access pre-calculated innovation indicators for 3500+ companies via Patents-API or custom extract delivered via sFTP.

Webinars and Conferences

Sector Data Packs and Insights available to be included in conference materials.

Innovation Performance Indicators Database Profile

28M+ Published Patent Records

105 Countries

30+ Industry Sectors & Sub-sectors

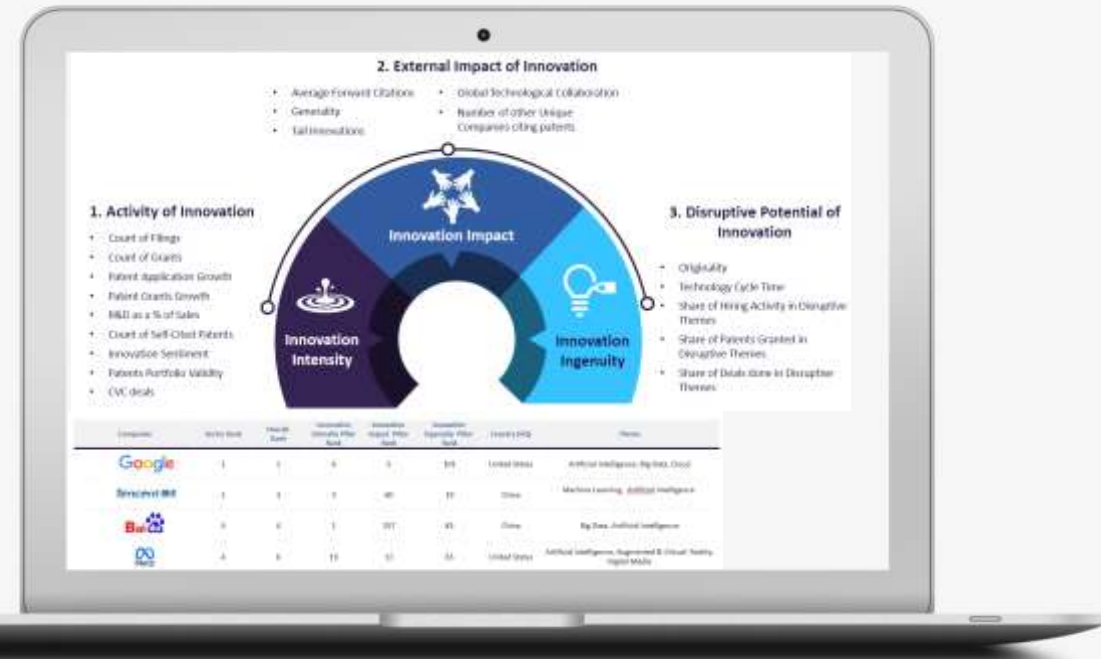
50+ Patents Tagged Themes

3.5K+ Company Portfolios

19 KPIs

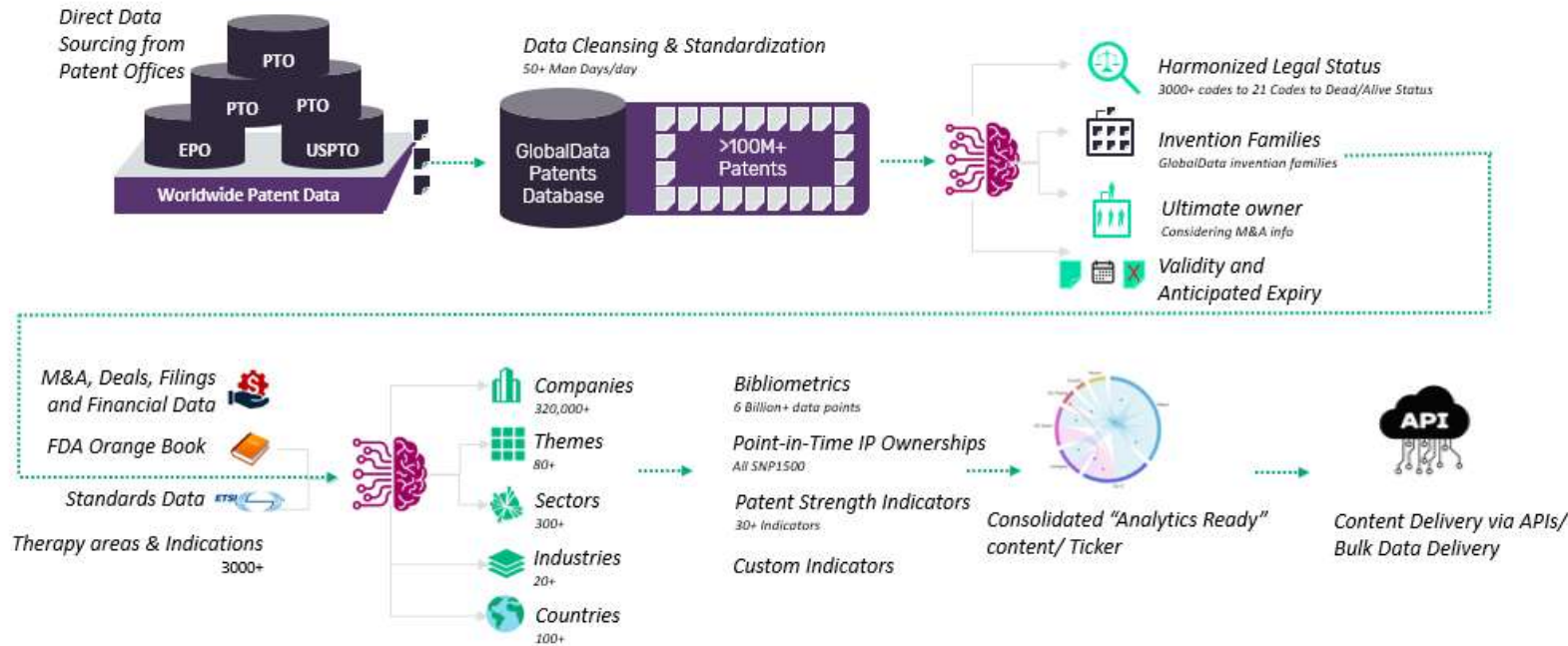
3/5/10

Time-Span Data-cut
YRS



World-class Data-pipeline consolidating “Analytics-Ready” data, battle-tested by own financial services & innovation intelligence and Thematic teams.

GlobalData’s approach for patent data processing



- Patent data is directly sourced from Global patent offices like USPTO and EPO. The update frequency depends on the data that we are sourcing. For e.g., US grants and applications are sourced directly from USPTO every Tuesday and Thursday in a week while the Assignment data is updated daily in GD patent backend database.
- The data is fed into our state-of-the-art data consolidation work where we cleanse, standardise, and further enrich the data by tagging it to our industry leading propriety GD taxonomies (Sectors, Themes, Companies, ICs & Countries).
- The data is available through GlobalData ICs, through sFTP or from Patents API

Contextualizing Patent activity data in Alternate Data Universe



Profile Parameter	Details
Historical Start Date for Patent Publications	1726
Data Coverage	~131+ M patents as on 19 May 2022
Regional Coverage	Asia-Pacific; Europe, Middle East & Africa; North America; Latin America
Country Coverage	105 Authorities
Company Coverage	370+ K Assignees
Sector Coverage	6144 Sectors Available
Taxonomies Used	26.95 M patents tagged to 187 Themes Cooperative Patent Classification (CPC) International Patent Classification (IPC)
Identifiers	Publication Number, Application Number
Bibliographic Fields	42 Bibliographic Fields
Collection / Delivery Time	Weekly
Lag Time	2 weeks
Delivery Methods	API or Custom Data Extracts Delivery via sFTP
Delivery Formats	JSON, CSV, XML

Worldwide Content

Global patent database covering Patent bibliographic information from 105+ countries, including Full Specifications, Legal Event notifications from US and EP.

Industry leading

Unique proposition made possible by expert analysis, thematic and sectoral tagging and generation of patent derived indicators based on advanced pat- informatics.

Analysis Ready Data

Fit for use towards - Identifying Investible opportunities, P-I-T Portfolio Evolution, Thematic Investment, Innovation Benchmarking, League-tables, CI, Portfolio Pruning, Valuation.

Battle Tested

- 3%-8% Annualized Alpha
- 2.2x higher earnings potential
- Outperformance 85% of the time
- Beats 3rd party innovation indexes
- Multiple thematic innovation indices

Patents Publications and Performance Indicators Database Profile

131M+ Published Patent Records

370K+ Company Portfolios

105 Countries

40+ Patents Derived Performance Indicators

6000+ Industry Sectors & Sub-sectors

20+ Historical Time Series Data

180+ Patents Tagged Themes

200+ yrs Experts contributing to deliver quality data product



GD Patents impacting on positive outcomes across functions

R&D Innovation

- Performance of research investment in terms of Patent Grants.
- Patentability Valuation
- Scouting for Research product commercialization, adoption
- Measuring Innovation Strength
- Trends in Innovation Landscape relevant to you.
- Identify popular innovators in your technology space
- Benchmarking towards Innovation performance indicators.

Risk Mitigation

- Key research outcomes (applications) are protected via IP.
- Minimizing litigation threats or minimizing its impact
- Patent Prosecution & Litigation
- Investment risk evaluation

Financial & Investment Opp.

- Enhanced accuracy in financial valuation models by including intangible assets (IP).
- Locate new entrants/disruptors with their core-IP Protected.
- Early information on large IP transactions.
- Leads towards Patent licensing.

Strategy

- Assess technology lifecycles for next big ideas
- New Product Development Strategy
- Analyse competitor patent activity for focus areas and most valuable patents
- Market segmentation for targeted reach.
- Identify new markets for growth areas

IP Portfolio Management

- Portfolio pruning
- IP Portfolio Valuation
- Track new patents, expiries, litigations, entrants

Contact us



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