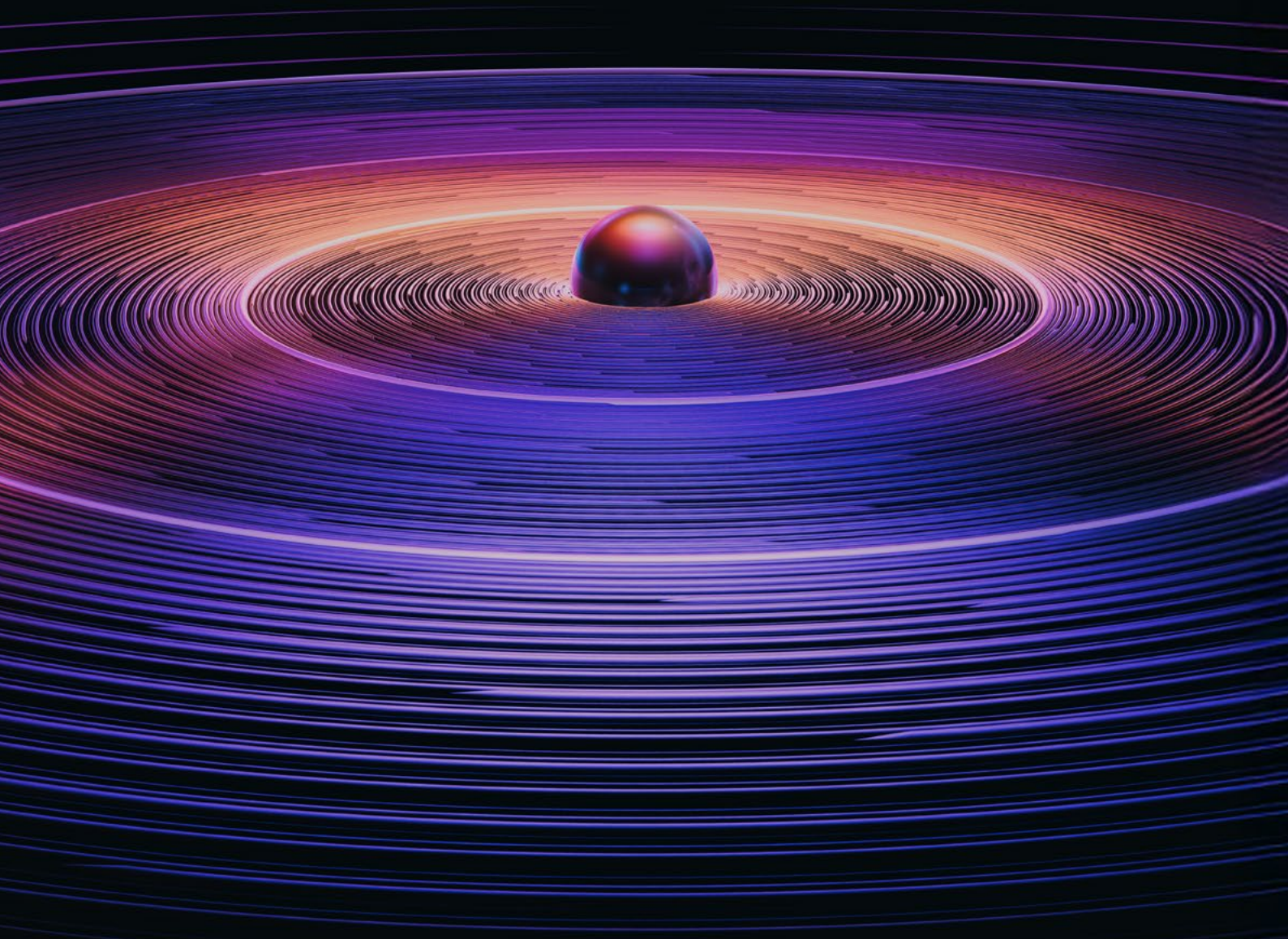
Clarivate

Top 100 Global Innovators 2025



Embracing hyperconnectivity

Contents

Foreword

Dr. Stefan Hartung,
CEO Bosch

It is a great honor for Bosch to be once again recognized as one of the Top 100 Global Innovators in 2025 – for the fourth consecutive year. We are particularly proud to be centrally ranked with the world innovation leaders among more than one million evaluated companies. This recognition reflects the dedication and innovative spirit of our employees worldwide.

Since the foundation of the company in 1886, for 138 years now, Bosch has stood for pioneering technology and groundbreaking innovations. Our guiding principles, 'Invented for life' and sustainability, drive us to develop solutions that improve lives and shape a sustainable, connected future. Innovation lies at the heart of our corporate culture and serves as a cornerstone of our strategy to remain a global leader in our markets.

Innovation is the driving force of our company, and a key enabler for shaping the megatrends of the modern world – electrification, automation, digitalization, connectivity, and sustainability. The underlying technologies are increasingly converging, enabling holistic solutions to address the most pressing challenges of our time, from the mobility transition to climate-neutral industries.

Each year, we invest billions in research and development, striving to make every innovation a sustainable contribution to people, the environment, and the economy. Our more than 90,000 associates at research and development worldwide at more than 130 locations work closely with customers, partners, and academic institutions to develop technologies with maximum impact.

An overarching IP strategy is a crucial element of our innovation approach. With more than 6,000 patent applications annually, we ensure our competitiveness, protect our technological strengths, and lay the foundation for new business opportunities.

Together, we look forward with confidence to a future where innovative technology provides solutions for people in a sustainable and connected world in a technology-open environment.

Introduction

Top 100 Global Innovators 2025

In a period of ongoing global uncertainty and macroeconomic volatility, the innovation landscape is undergoing a profound transformation.

Competition is more global than ever before, where developments in one region can have significant ripple effects worldwide.

As a result, the criteria for defining and ranking excellence in innovation are evolving.

While the core objectives of research and development (R&D) - creating new market value, enhancing efficiencies and fortifying against disruption - remain unchanged, the methodologies and sustainability of R&D have shifted dramatically.

The criteria for what constitutes a critical and valuable technological advancement today vastly differ from those of a decade or two ago.

Bringing a technology to market now demands a higher level of specialized expertise and a broader perspective. The full value of research is increasingly found outside its originating industry.

This is a story of connections, driven by complex and often opaque mechanisms of change.

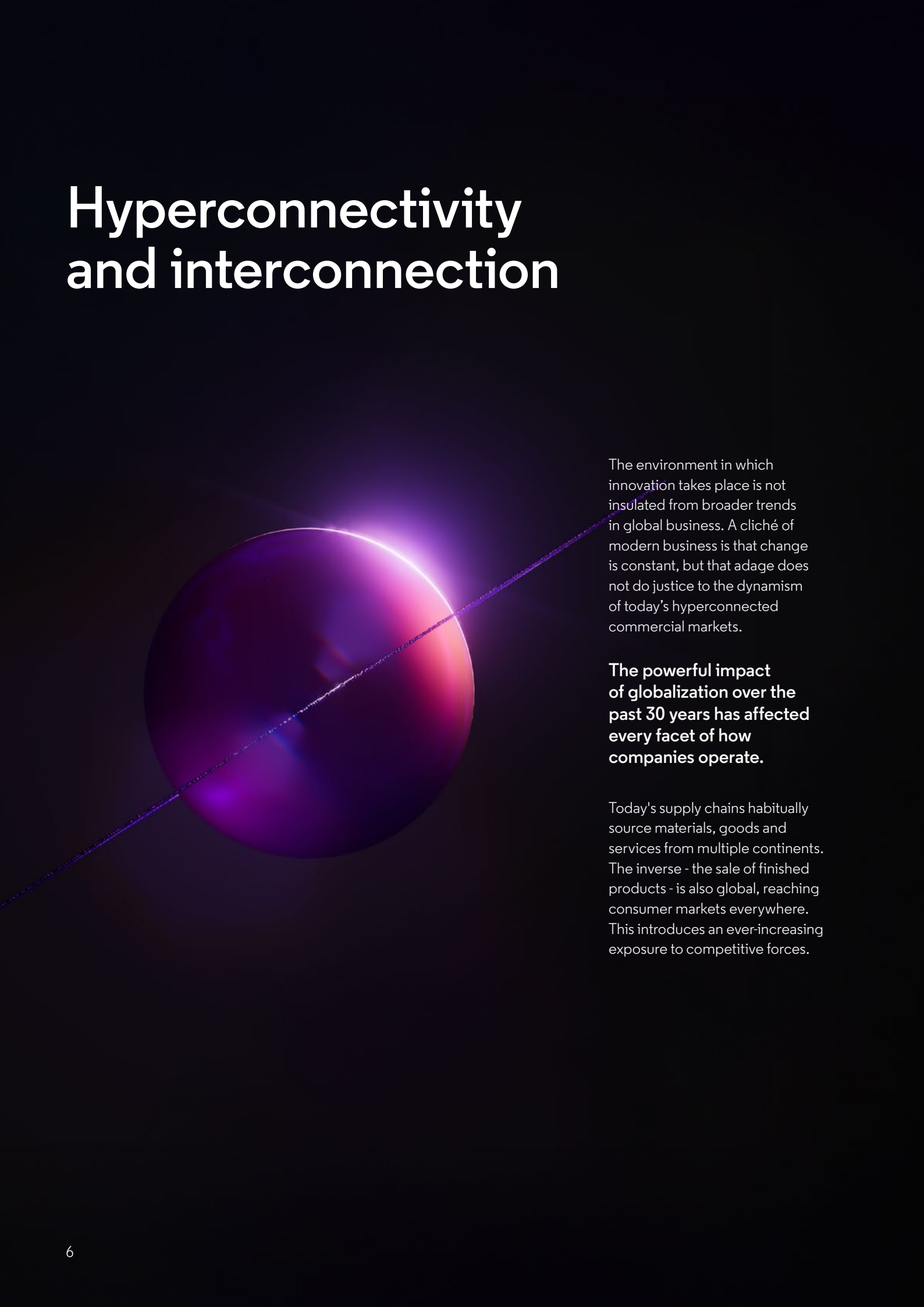
We measure innovation and the organizations whose ideas stand behind it.

Welcome to the forefront of mid-21st-century innovation. Welcome to those driving it: the **Top 100 Global Innovators** of 2025.

This groundbreaking report is the result of rigorous research leveraging the proprietary **Derwent Strength Index** and global patent data. We highlight the pivotal role of hyperconnectivity and technological convergence in driving innovation and provide critical insights into how leading organizations excel through interdisciplinary collaboration and strategic intellectual property (IP) management.

This is a clear roadmap for organizations that want and need to innovate to succeed.

Hyperconnectivity and interconnection



The environment in which innovation takes place is not insulated from broader trends in global business. A cliché of modern business is that change is constant, but that adage does not do justice to the dynamism of today's hyperconnected commercial markets.

The powerful impact of globalization over the past 30 years has affected every facet of how companies operate.

Today's supply chains habitually source materials, goods and services from multiple continents. The inverse - the sale of finished products - is also global, reaching consumer markets everywhere. This introduces an ever-increasing exposure to competitive forces.

Consumers are now linked via the social mediatization of commerce: rankings, reviews and word-of-mouth create a connected customer base that fuels the desire for higher quality and more functionality - all at compared prices.

This massively influences traditional supply and demand market forces, with consumers demanding more for less.

The regulatory landscape has also changed with the evolution of data privacy laws, environmental concerns, geopolitical tensions and the importance of strong corporate governance. With broader geographical footprints, regulatory requirements have substantially increased in scope and scale.

Factors have changed inside corporations as well. Corporate environments have shifted to include hybrid working models. Combining this with more multinational teams, today's workforce is frequently distributed and diverse.

The effects of hyperconnectivity and interconnection represent a significant challenge to corporations of any scale. But, with headwinds also come tailwinds, forces that propel rather than hinder.

For organizations that understand the dynamics of globalization, there are significant opportunities to harness these forces for commercial success.

Technological impacts

The relentless pace of technological advancement adds a significant dimension to this macroeconomic environment.

Technology continuously enhances capabilities and creates new avenues for competitive advantage and revenue generation. While this creates opportunities for some, it simultaneously poses threats to others.

Innovation is framed by the vast scale of modern research and the emergence of new hubs of technical knowledge and development.

Globalization's influence is not limited to macroeconomics but also transforms the technological landscape.

Rapid advancements are disrupting industries, with a significant portion of this progress occurring in emerging economies like Mainland China and India.

For example, Mainland China has become a major source of innovation, accounting for nearly 60% of global patents.

Mainland China has amassed a substantial stock of high-impact inventions despite a lower yield of globally critical inventions than traditional technology leaders like the United States, Japan and Europe.

Over the last ten years, the region has established a robust knowledge economy that significantly contributes to technological progress.

The sources of high quality innovation

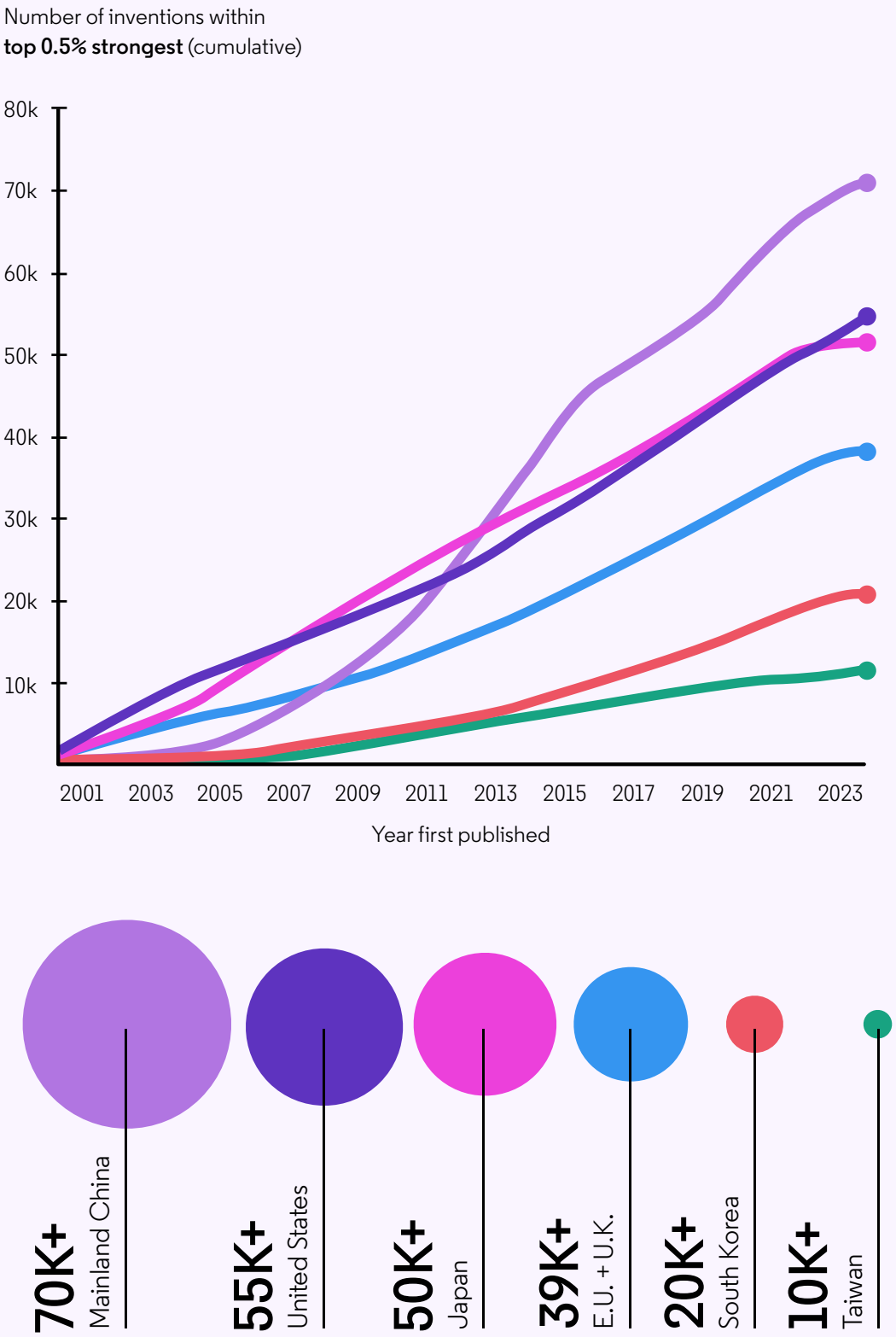


Figure 1 - Sources of global critical invention 2000-2023, defined as inventions within the top half-percent in terms of invention strength and protected as patents in more than one jurisdiction.

These dynamics underscore the fluidity of ideas across economic borders and highlight the critical need for strategic protection of IP rights.

The interconnected nature of innovation - from basic research to applied development and product design through manufacturing - is evident everywhere. Consider the screen you are likely reading this report on, a product of the collective efforts of tens of thousands of scientists and engineers. It embodies the manufacturing expertise required to place millions of diodes with minimal tolerances for error.

Behind a modern organic light-emitting diode (OLED) lies the chemistry and material science of compounds that emit specific colors, the electronic engineering of the LEDs and the fundamental principles of quantum physics governing electron behavior in semiconductors.

The complexity of modern innovation extends beyond just the screen. Smartphones, tablets and modern laptops integrate touch-sensitive screens, cameras, sophisticated software, radio hardware and multiple semiconductor chips with billions of transistors, various sensors and batteries that last for days.

They are the result of countless R&D initiatives from numerous companies and institutions, all combined into devices sold at a relatively low cost.

This innovation journey spans over 150 years of knowledge and research, culminating in the technology before you.

Connected and convergent

Technology convergence refers to the integration of various scientific and engineering fields that promote the spread of innovation into products. As advancements in one field catalyze progress in others, understanding the convergence dynamic is crucial for navigating industry-specific and market-wide changes.

Growth of the five innovation forces in the most critical inventions

Number of inventions published per year in the **top 0.5% strongest inventions** per convergence topic

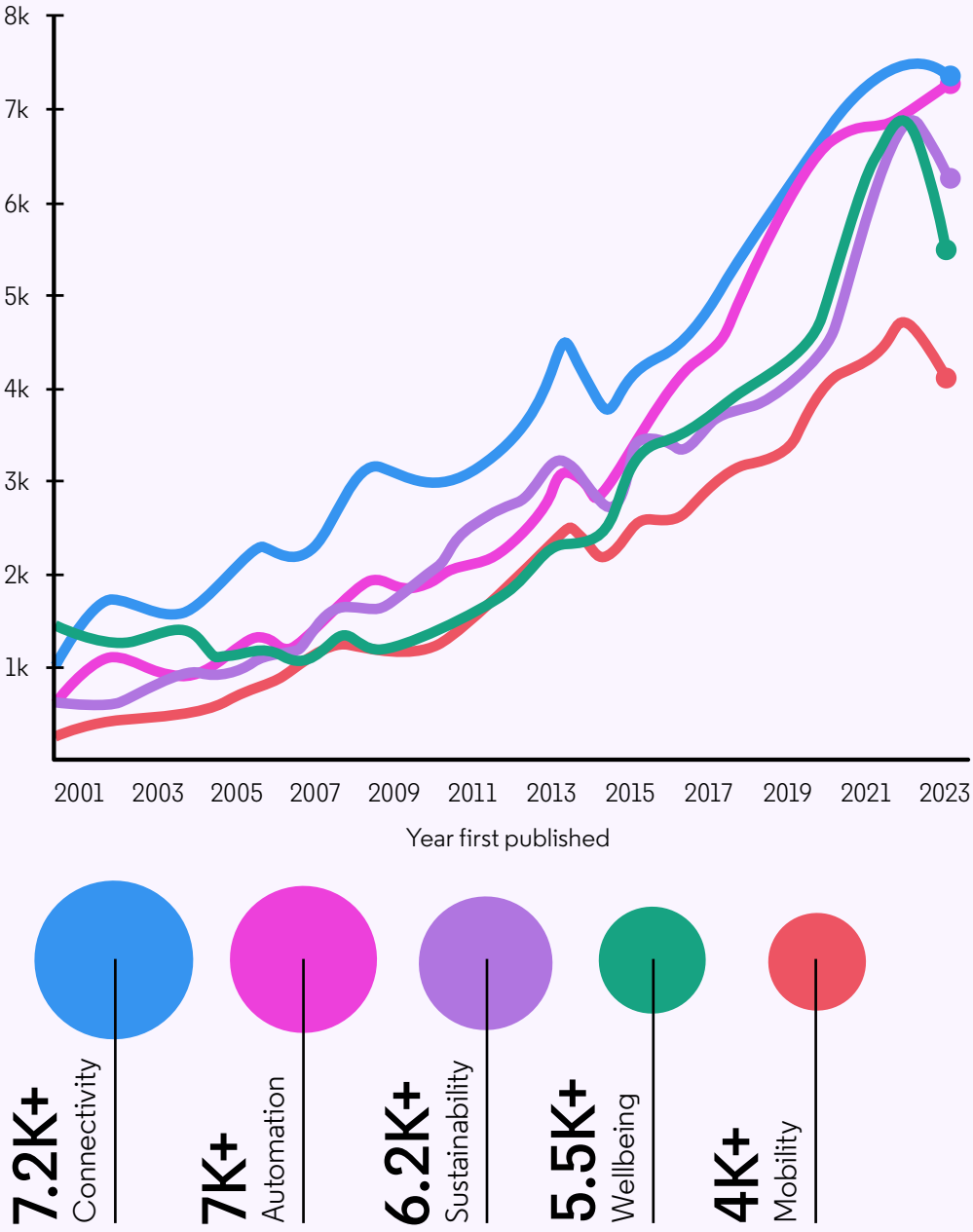


Figure 2 - The number of inventions since 2000 by innovation macro trend; limited to only the top half-percent of inventions globally by invention strength.

At Clarivate, we analyze the convergence phenomenon through **five macro forces that shape innovation**, providing a framework to simplify and measure these effects:

Sustainability: Innovations that transform the production, distribution and utilization of energy and resources.

Wellbeing: Research and development aimed at enhancing human health, basic necessities like food and water, and cultural and educational enrichment.

Mobility: Technological approaches to the movement of goods and people across air, land and sea.

Connectivity: The transmission, reception, conversion and storage of data and information.

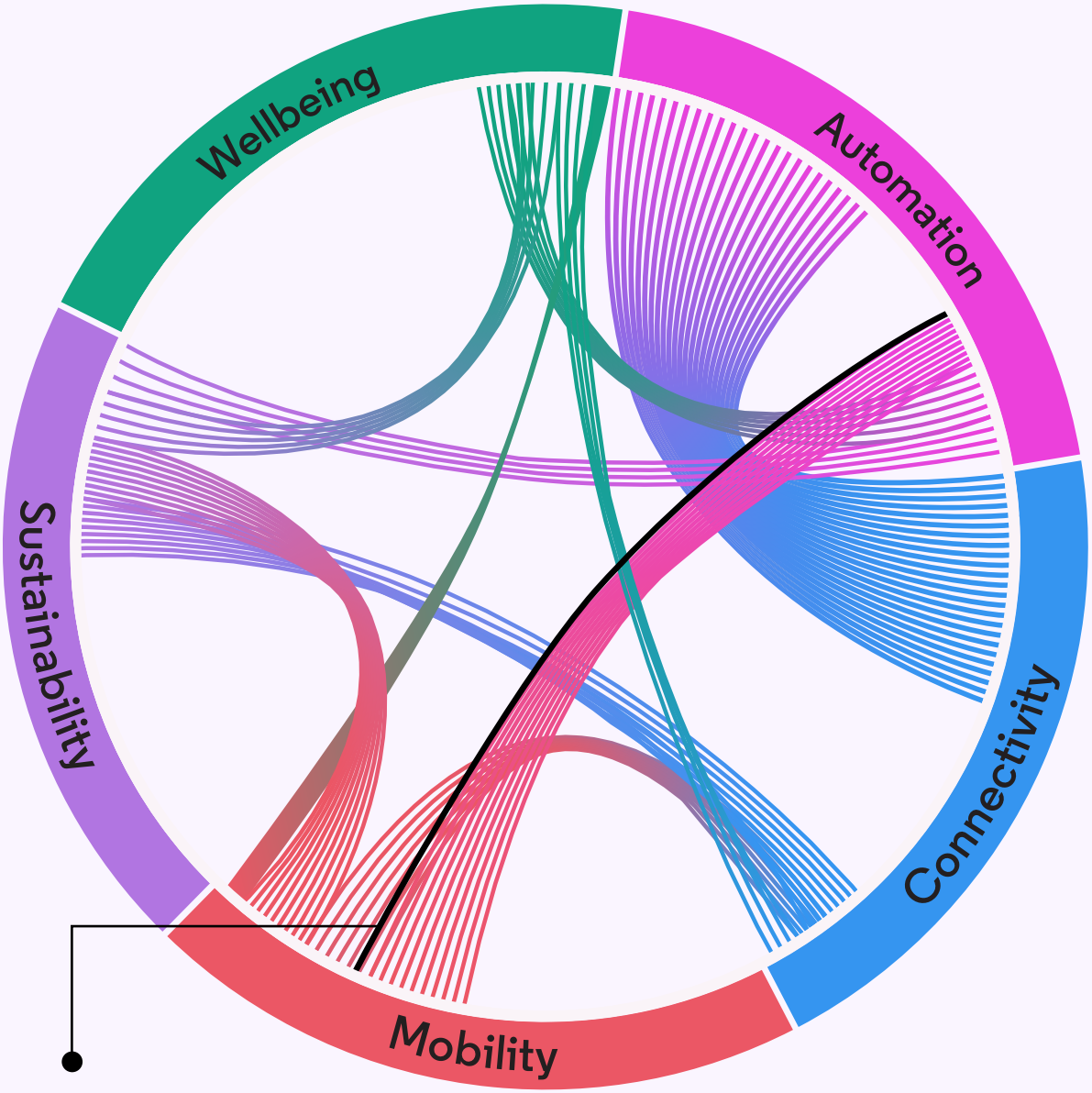
Automation: Technologies that boost productivity through software, control systems, data processing and artificial intelligence (AI).

These macro innovation trends illustrate the market disruptions and future opportunities capable of reshaping whole industries. By focusing on the world's most critical inventions - measured by footprint, investment, influence and rarity - we identify the top-performing technologies, providing a strong signal of innovation direction.

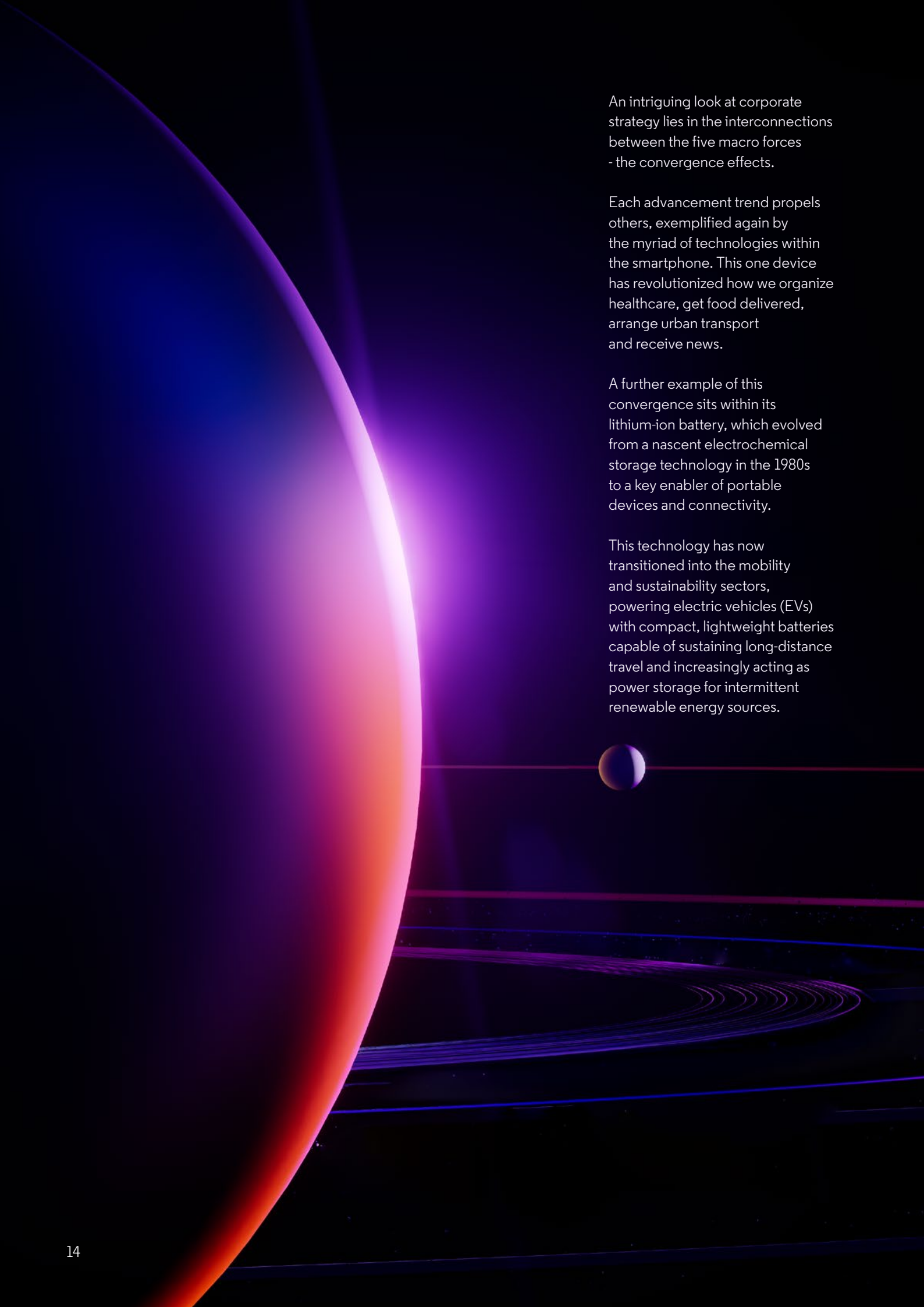
Over the past 25 years, these forces have driven significant growth in approximately 300,000 inventions.

Currently, the automation sector is experiencing notable expansion, particularly with the integration of AI technologies into emerging business and industrial contexts.

Figure 3 - Five forces model of modern innovation; chord diagram showing the proportion of patented innovation that overlaps between technical developments in automation, connectivity, mobility, sustainability and wellbeing technologies. Slices normalized to 100% of activity.



Each chord represents **the level of overlapping invention** between innovation forces. This is **technology convergence.**



An intriguing look at corporate strategy lies in the interconnections between the five macro forces - the convergence effects.

Each advancement trend propels others, exemplified again by the myriad of technologies within the smartphone. This one device has revolutionized how we organize healthcare, get food delivered, arrange urban transport and receive news.

A further example of this convergence sits within its lithium-ion battery, which evolved from a nascent electrochemical storage technology in the 1980s to a key enabler of portable devices and connectivity.

This technology has now transitioned into the mobility and sustainability sectors, powering electric vehicles (EVs) with compact, lightweight batteries capable of sustaining long-distance travel and increasingly acting as power storage for intermittent renewable energy sources.

The convergent layer of technical development harbors the potential to spawn entirely new industries.

The integration of connectivity and automation in the Medical and biotechnology (Medtech) sector has given rise to digital health, where personalized diagnosis and treatment are informed by patient data collected over extended periods through wearable technology and beyond traditional hospital settings.

This trend shows how automation technologies are increasingly applied to life sciences, revolutionizing pharmaceutical and biotechnology discovery methods through computational genomics and biochemistry.

Since 2020, the emergence of advanced AI, language models and machine learning (ML) techniques has marked a significant breakthrough.

These fields represent the fastest-growing research directions in numerous research intelligence programs conducted by the Clarivate Center for IP and Innovation Research.

Trending topics in automation

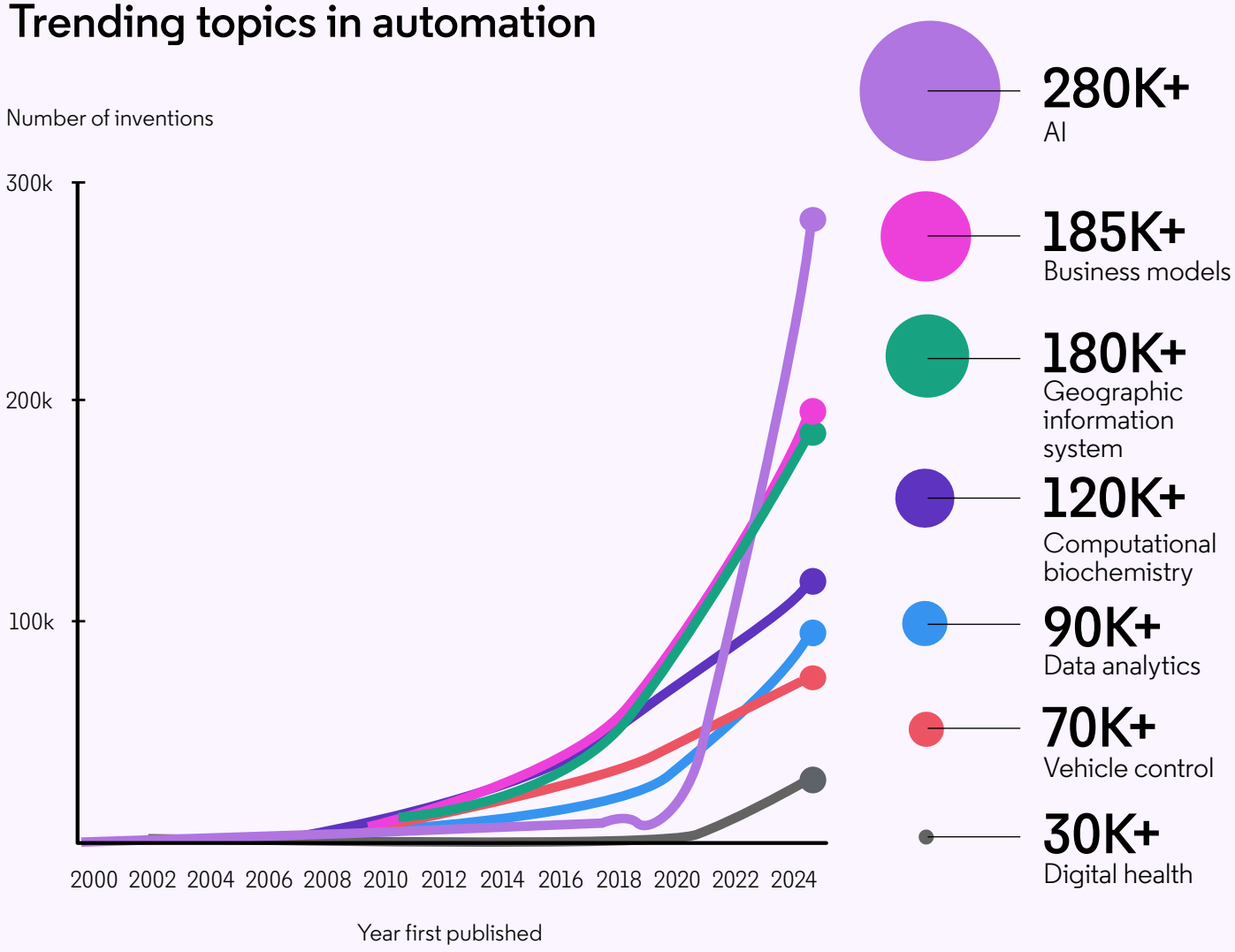


Figure 4 - The cumulative number of inventions in a selection of high-growth topics within the automation macro trend, 2000-2024.

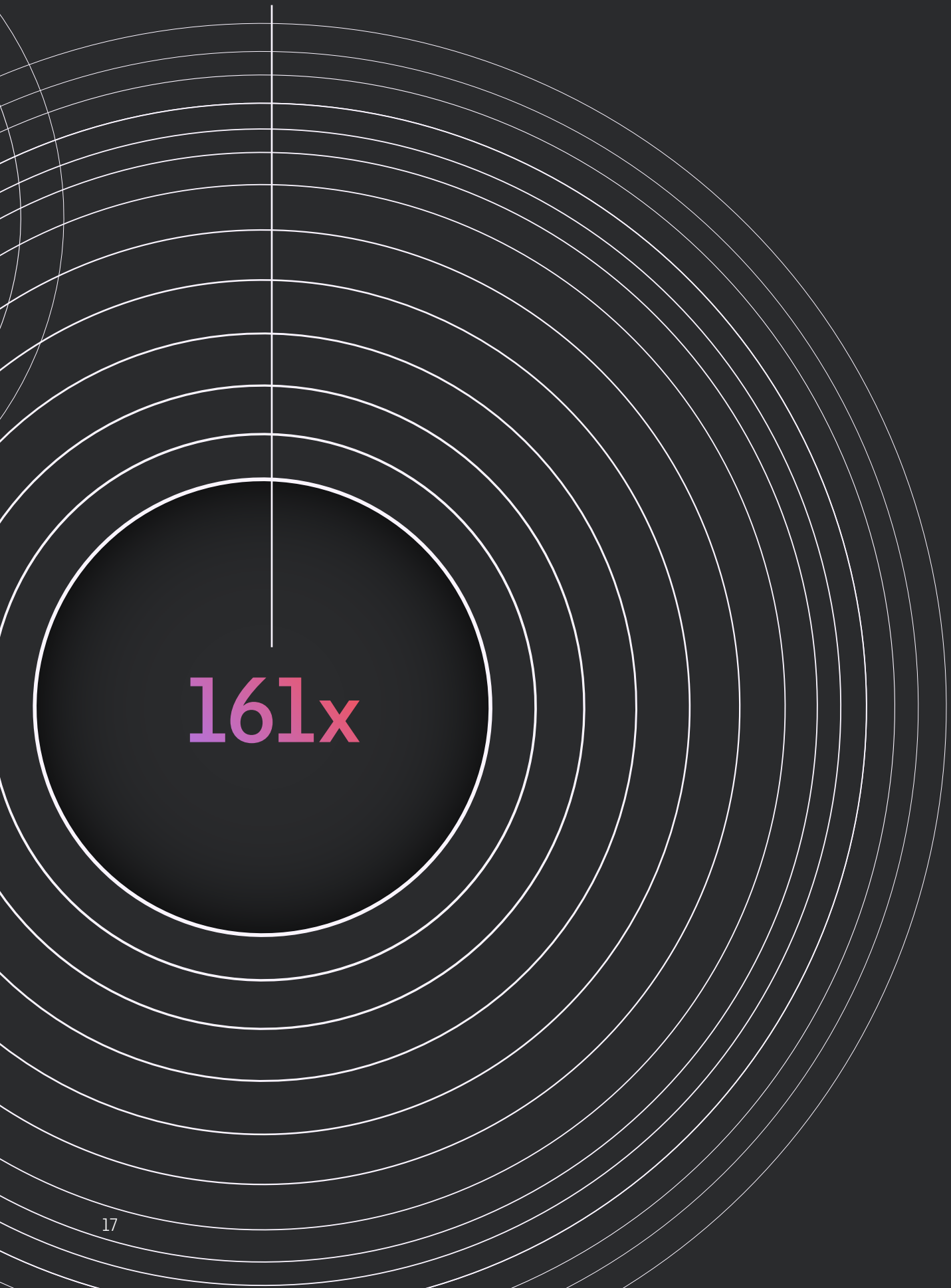
Growth in invention levels since 2000

Beyond the details of any particular industry, technology or research field, one finding underlines the importance of technology convergence as a strategic factor for commercial innovation: its **growth.**

The pace of change has produced an 80-fold increase in the volume of inventions. Within the overlap and intersection of the five macro forces of innovation documented here, that growth is double that of standard growth at 161 times.

This is pace mixed with complexity, and therefore, an environment in which innovation opportunity and its parallel risk are primary factors in setting corporate strategy.

Growth in convergent invention levels since 2000



The Top 100 Global Innovators of 2025

The world's most innovative organizations prioritize quality over quantity in their inventions. While producing only 5% of global patents since 2019, they generate 15% of the most impactful innovations in the top 0.5%.

The importance of convergent technology development cannot be overstated.

On a pure volumetric basis, convergent inventions account for only 15% of total global filings. But, within the top half-percent of the most critical and valuable protected ideas, convergent themes account for almost 40%.

Of those, the Top 100 Global Innovators of 2025 contribute 60% of critical inventions in convergence topics, double the expected rate set by the half-percent baseline.

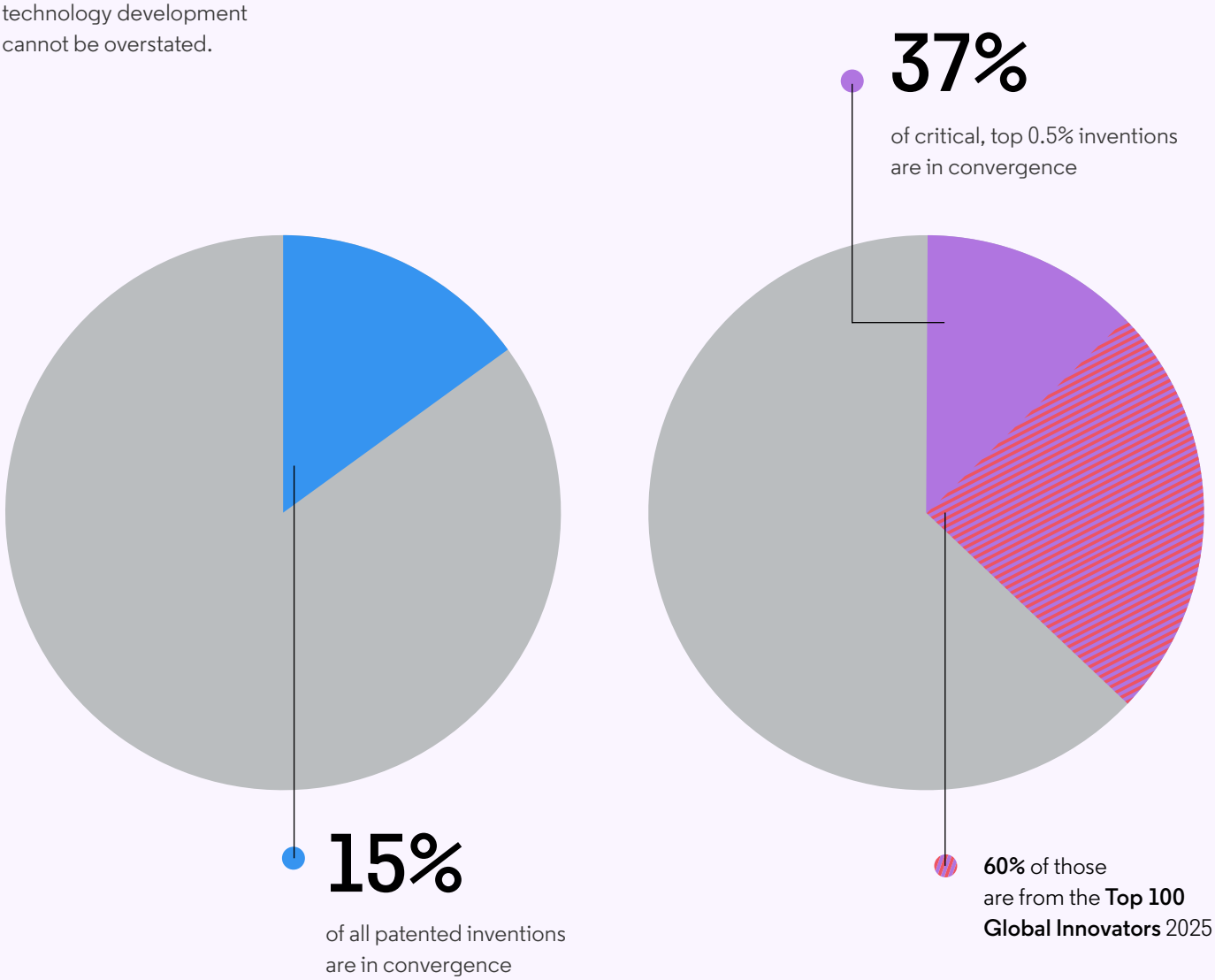


Figure 5 - The link between convergence and high performance; critical inventions defined as the top half-percent highest scoring as measured by invention strength.

The Top 100 Global Innovators organizations prioritize innovation as a central part of their strategy.

They target innovation at the deployment and diffusion of technology and knowledge where it disrupts - even, and often when it disrupts their existing revenue success.

Their contributions to technological advancement are substantial.

The Top 100 Global Innovators support sustainable energy, enhanced healthcare, increased digitization and the productivity gains of automation.

They generate $4.6 trillion USD in annual revenues, representing 4.4% of the global economy.

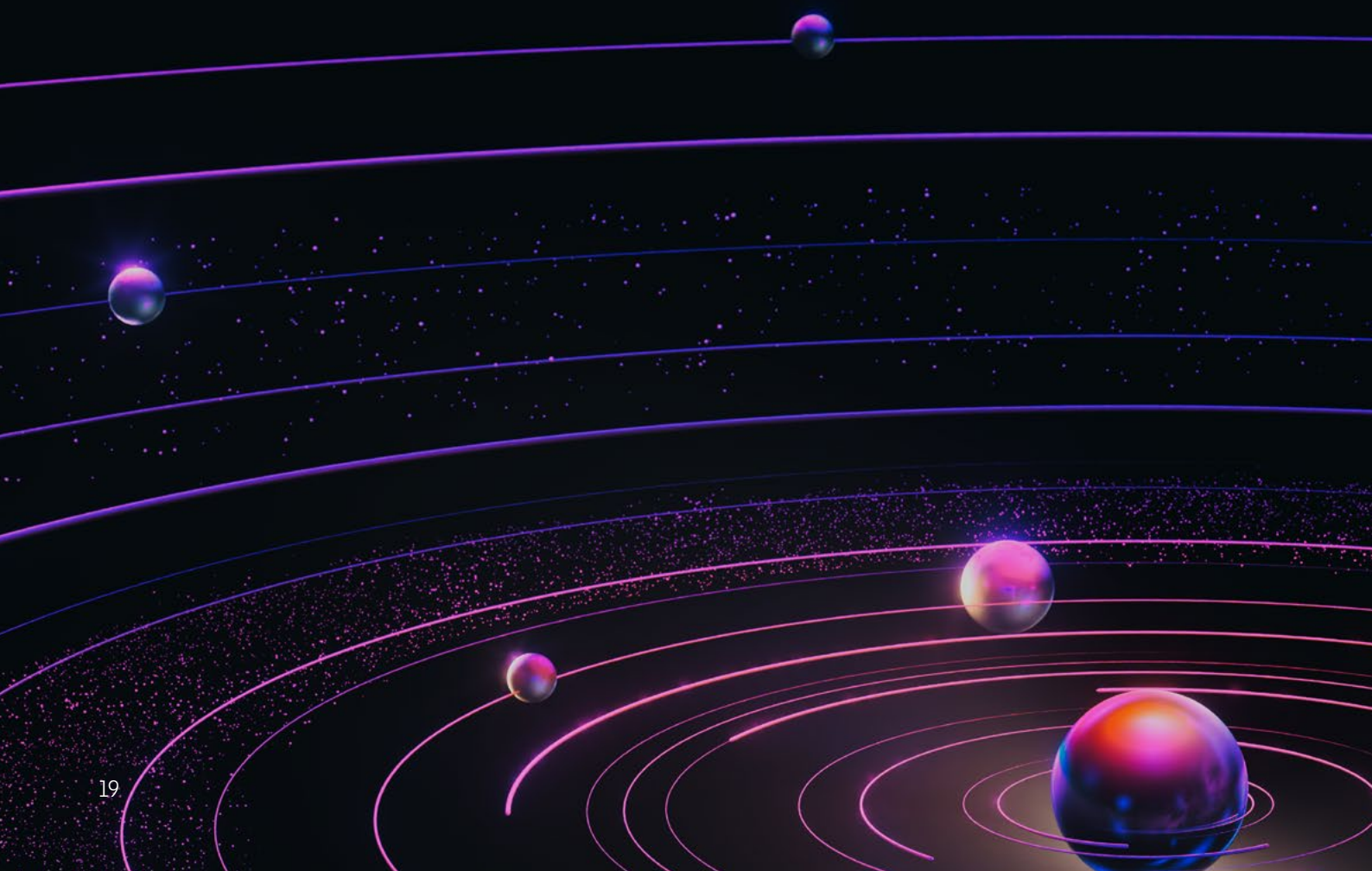
Their commitment to the creation of knowledge is similarly profound, with investment levels in science, engineering, product design and problem-solving, on average, 8.8% of their revenues.

Across the Top 100 Global Innovators, this was almost $290 billion USD (where available, 2023 values). Put into context, this equates to 12% of the estimated $2.5 trillion USD spent globally, publicly and privately, on research[1].

At the quarter distance mark of the 21st century, we can empirically measure the organizations that thrive within the hurricane of disruption, change and complexity that defines the modern business and innovation ecosystem.

These are the Top 100 Global Innovators of 2025 from Clarivate.

[1] World bank, based on UNESCO Institute for Statistics data.



Top 100 Global Innovators 2025
Rankings

Rank	Top 100 Global Innovator, 2025	HQ Country/ Region	Industry	Recognition (2012-25)	
1	**Samsung Electronics**	South Korea	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
2	**Tencent**	Mainland China	Software, media, fintech	2020, 2021, 2024, 2025	
3	**Honda**	Japan	Automotive	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
4	**Canon**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025	
5	**Toyota**	Japan	Automotive	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
6	**Epson**	Japan	Industrial conglomerate	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025	
7	**LG Chem**	South Korea	Chemicals and materials	2022, 2023, 2024, 2025	
8	**FUJIFILM**	Japan	Industrial conglomerate	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
9	**Huawei**	Mainland China	Telecommunications	2015, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
10	**RTX**	United States	Aerospace and defense	2012, 2013, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
11	**LG Electronics**	South Korea	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
12	**BOE Technology**	Mainland China	Electronics and computing equipment	2022, 2023, 2024, 2025	
13	**Mitsubishi Electric**	Japan	Industrial conglomerate	2012, 2013, 2014, 2015, 2016, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
14	**Panasonic**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
15	**Siemens**	Germany	Industrial conglomerate	2012, 2013, 2014, 2015, 2019, 2022, 2023, 2024, 2025	
16	**Hyundai Motor**	South Korea	Automotive	2022, 2023, 2024, 2025	
17	**Sony**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
18	**TSMC**	Taiwan	Semiconductors	2014, 2022, 2023, 2024, 2025	
19	**SK hynix**	South Korea	Electronics and computing equipment	2022, 2023, 2024, 2025	
20	**Kia**	South Korea	Automotive	2022, 2023, 2024, 2025	
21	**Murata Manufacturing**	Japan	Electronics and computing equipment	2012, 2022, 2023, 2024, 2025	
22	**Qualcomm**	United States	Telecommunications	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
23	**Toshiba**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	

14-Year Top 100 Global Innovator

Innovator to Watch 2020-2024

Re-entry

New entrant

Top 100 Global Innovators 2025
Rankings

Rank	Top 100 Global Innovator, 2025	HQ Country/ Region	Industry	Recognition (2012-25)	
24	**Fanuc**	Japan	Industrial systems	2012, 2013, 2022, 2023, 2024, 2025	
25	**Tokyo Electron**	Japan	Semiconductors	2015, 2022, 2023, 2024, 2025	
26	**Sumitomo Electric**	Japan	Energy and electrical	2012, 2014, 2015, 2016, 2017, 2022, 2023, 2024, 2025	
27	**General Motors**	United States	Automotive	2022, 2023, 2024, 2025	
28	**Foxconn**	Taiwan	Electronics and computing equipment	2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
29	**Samsung Electro-Mechanics**	South Korea	Electronics and computing equipment	2025	
30	**CEA**	France	Government and academic research	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2022, 2023, 2024, 2025	
31	**Hitachi**	Japan	Industrial conglomerate	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
32	**Airbus**	France	Aerospace and defense	2012, 2013, 2014, 2019, 2022, 2023, 2024, 2025	
33	**Ericsson**	Sweden	Telecommunications	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
34	**GE Aerospace**	United States	Aerospace and defense	2025	
35	**AUO**	Taiwan	Electronics and computing equipment	2022, 2023, 2024, 2025	
36	**Dow**	United States	Chemicals and materials	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
37	**MediaTek**	Taiwan	Semiconductors	2015, 2016, 2017, 2022, 2023, 2024, 2025	
38	**Philips**	Netherlands	Medical and biotechnology	2012, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
39	**DENSO**	Japan	Automotive	2012, 2013, 2015, 2022, 2023, 2024, 2025	
40	**Bosch**	Germany	Industrial conglomerate	2015, 2022, 2023, 2024, 2025	
41	**Realtek Semiconductor**	Taiwan	Semiconductors	2022, 2023, 2024, 2025	
42	**Safran**	France	Aerospace and defense	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025	
43	**Applied Materials**	United States	Semiconductors	2012, 2023, 2024, 2025	
44	**STMicroelectronics**	Switzerland	Semiconductors	2013, 2014, 2015, 2022, 2023, 2024, 2025	
45	**Wistron**	Taiwan	Electronics and computing equipment	2022, 2023, 2024, 2025	
46	**NTT**	Japan	Telecommunications	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2025	
47	**ITRI**	Taiwan	Government and academic research	2015, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
48	**Kyocera**	Japan	Electronics and computing equipment	2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025	

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Rank	Top 100 Global Innovator, 2025	HQ Country/ Region	Industry	Recognition (2012-25)	
49	**Volkswagen**	Germany	Automotive	2022, 2023, 2024, 2025	
50	**Siemens Energy**	Germany	Energy and electrical	2025	
51	**Kioxia**	Japan	Semiconductors	2022, 2023, 2024, 2025	
52	**Fujitsu**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
53	**Brother Industries**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2022, 2023, 2024, 2025	
54	**Daikin Industries**	Japan	Industrial systems	2012, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2024, 2025	
55	**Omron**	Japan	Electronics and computing equipment	2014, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
56	**Philip Morris International**	United States	Consumer goods and food	2022, 2023, 2024, 2025	
57	**TDK**	Japan	Electronics and computing equipment	2013, 2014, 2015, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
58	**Nidec**	Japan	Energy and electrical	2023, 2024, 2025	
59	**Ricoh**	Japan	Electronics and computing equipment	2013, 2015, 2022, 2023, 2024, 2025	
60	**MHI**	Japan	Industrial systems	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2021, 2022, 2023, 2024, 2025	
61	**Nitto Denko**	Japan	Chemicals and materials	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025	
62	**Infineon Technologies**	Germany	Semiconductors	2014, 2022, 2023, 2024, 2025	
63	**Yazaki**	Japan	Automotive	2016, 2017, 2021, 2022, 2023, 2024, 2025	
64	**Boeing**	United States	Aerospace and defense	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
65	**Shin-Etsu Chemical**	Japan	Chemicals and materials	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
66	**Swatch Group**	Switzerland	Consumer goods and food	2022, 2023, 2024, 2025	
67	**Alphabet**	United States	Software, media, fintech	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2023, 2024, 2025	
68	**BASF**	Germany	Chemicals and materials	2012, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
69	**Johnson & Johnson**	United States	Pharmaceuticals	2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025	
70	**Deere & Co**	United States	Industrial systems	2013, 2022, 2023, 2024, 2025	
71	**Screen**	Japan	Electronics and computing equipment	2022, 2023, 2024, 2025	
72	**Micron Technology**	United States	Semiconductors	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2025	
73	**Sumitomo Chemical**	Japan	Chemicals and materials	2022, 2023, 2024, 2025	
74	**Samsung SDI**	South Korea	Electronics and computing equipment	2022, 2023, 2024, 2025	

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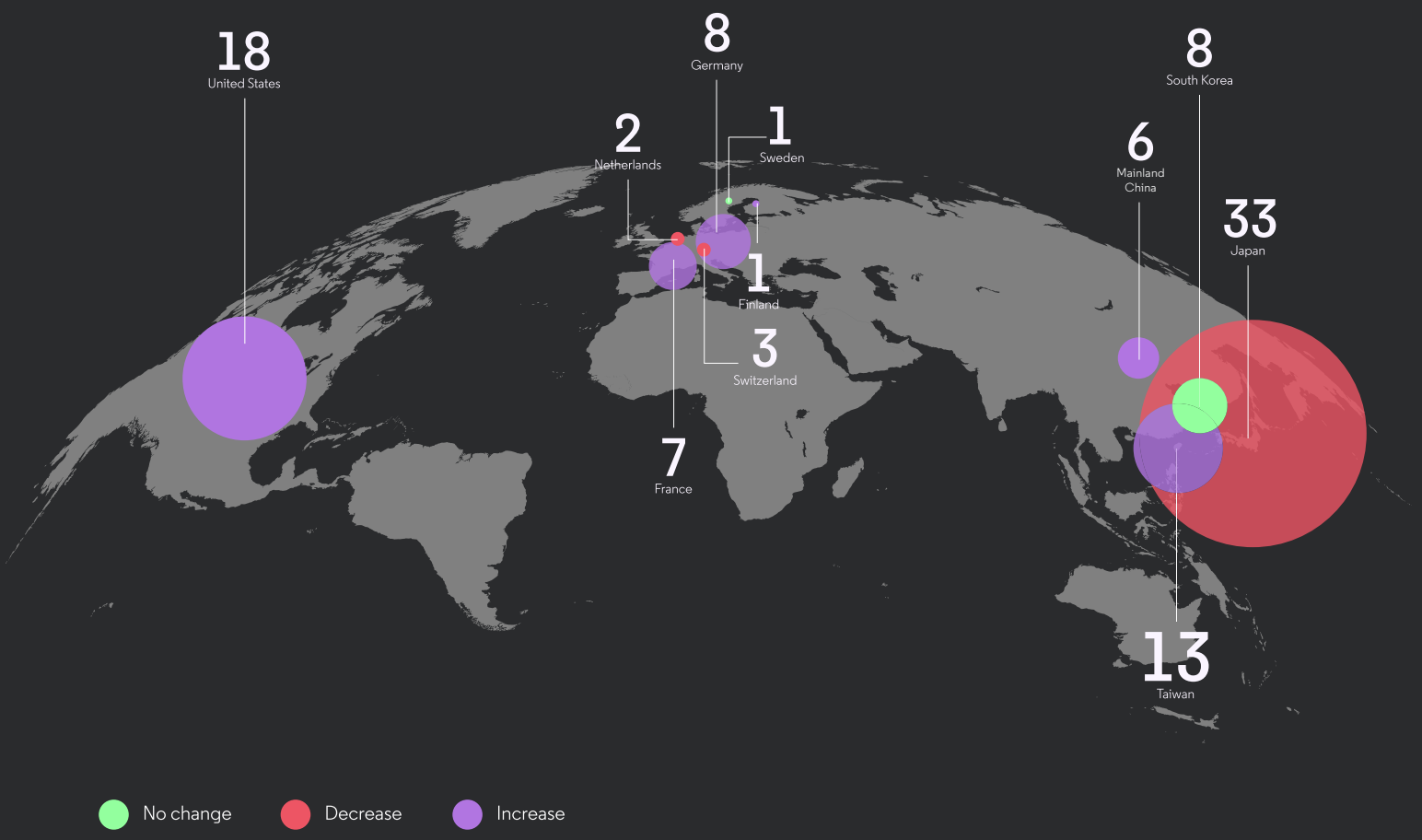
Rank	Top 100 Global Innovator, 2025	HQ Country/ Region	Industry	Recognition (2012-25)
75	**Otis**	United States	Industrial systems	2023, 2024, 2025
76	**ABB**	Switzerland	Industrial systems	2012, 2014, 2015, 2020, 2021, 2022,2023, 2024, 2025
77	**Ant Group**	Mainland China	Software, media, fintech	2022, 2023, 2024, 2025
78	**Coretronic**	Taiwan	Electronics and computing equipment	2024, 2025
79	**ZEISS**	Germany	Industrial systems	2022, 2024, 2025
80	**Nanya Technology**	Taiwan	Semiconductors	2023, 2024, 2025
81	**Evonik**	Germany	Chemicals and materials	2022, 2023, 2024, 2025
82	**Halliburton**	United States	Energy and electrical	2022, 2023, 2024, 2025
83	**Nokia**	Finland	Telecommunications	2017, 2018, 2019, 2020, 2021, 2025
84	**Honeywell**	United States	Industrial systems	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
85	**Quanta Computer**	Taiwan	Electronics and computing equipment	2019, 2020, 2021, 2022, 2023, 2025
86	**Delta Electronics**	Taiwan	Electronics and computing equipment	2022, 2023, 2024, 2025
87	**Komatsu**	Japan	Industrial systems	2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
88	**NEC**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
89	**Thales**	France	Aerospace and defense	2013, 2014, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
90	**AAC Technologies**	Mainland China	Electronics and computing equipment	2023, 2024, 2025
91	**CATL**	Mainland China	Automotive	2025
92	**TE Connectivity**	United States	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2025
93	**Caterpillar**	United States	Industrial systems	2025
94	**CNRS**	France	Government and academic research	2012, 2013, 2014, 2015, 2016, 2017, 2022, 2023, 2024, 2025
95	**ASML**	Netherlands	Semiconductors	2012, 2022, 2023, 2024, 2025
96	**Asus**	Taiwan	Electronics and computing equipment	2021, 2025
97	**Winbond**	Taiwan	Semiconductors	2023, 2024, 2025
98	**Michelin**	France	Automotive	2012, 2013, 2014, 2022, 2023, 2024, 2025
99	**FORVIA**	France	Automotive	2025
100	**Emerson**	United States	Industrial systems	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2023, 2024, 2025

Insights from the Top 100 Global Innovators list

Number of organizations by industry sector, Top 100 Global Innovators 2025.

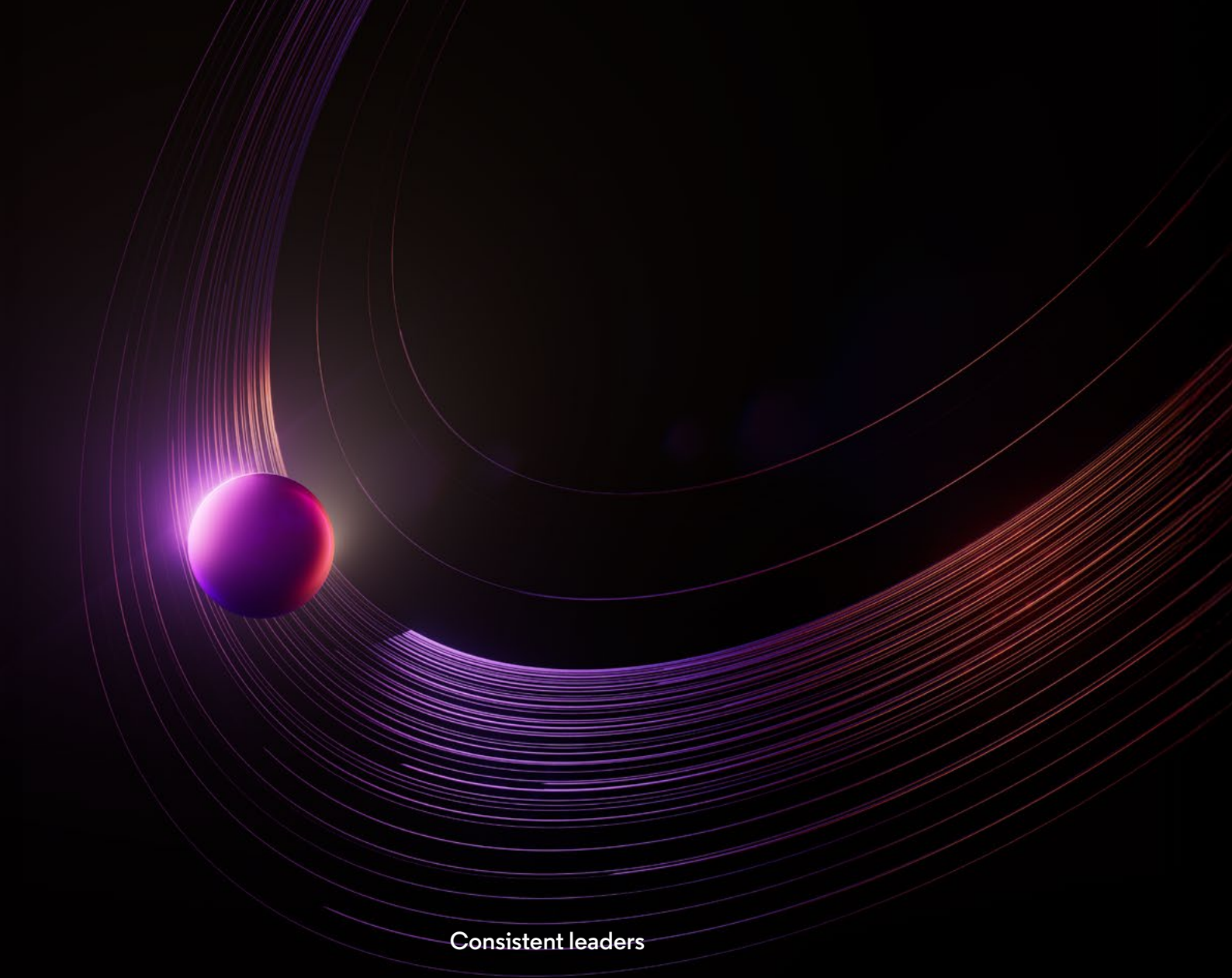
Japan's leadership in global innovation



Japan continues to lead the global innovation landscape, with 33% of all awardees in the Top 100 Global Innovators list.

Although this represents a decrease of five recipients since 2024, Japanese firms still account for half of the top 10 ranked organizations in the list.

This shift marks the most significant change in representation by country or region, with the reduction in Japanese representation being offset by the increased presence of France, Taiwan, the United States, Mainland China and Finland.



Notable returns and rising stars

Nokia, now a six-time Top 100 Global Innovator recipient, brings Finland back to the Top 100 Global Innovators list. Other notable returnees include Japanese telecommunications firm NTT, American semiconductor and tech firms Micron Technology and TE Connectivity, and Taiwanese electronics firms Quanta Computer and Asus. Micron Technology and TE Connectivity's return to the list came with significant rank improvements, contributing to the United States' overall fastest rise in ranking within the Top 100 Global Innovators this year.

Consistent leaders

Samsung Electronics maintains its position as the number one ranked global innovator and has retained Top 100 Global Innovator status in every edition of the analysis, totaling 14 awards. Its consistent performance as a global leader at the top of the global innovation ecosystem is impressive.

Fifteen other companies also hold the accolade of being all-time recipients of a Top 100 Global Innovator award: Honda, Toyota, LG Electronics, Panasonic, Sony, Qualcomm, Toshiba, Hitachi, Ericsson, Dow, Fujitsu, Boeing, Shin-Etsu Chemical, Honeywell and NEC. These organizations, predominantly from Japan, the United States and South Korea, exemplify a long-term commitment to technology development and their heritage as global innovation powerhouses.

Rising influence of Chinese innovators

Alongside Samsung Electronics in the Top 10, Tencent has shown a remarkable increase in ranking. After re-entering the Top 100 Global Innovators in 2024, following a two-year hiatus, Tencent has continued to improve. Now positioned at number two, it joins Huawei as one of two Mainland Chinese firms in the global Top 10. Mainland China is the second fastest-improving territory by ranking performance, with six Top 100 Global Innovators awardees this year. BOE Technology, Ant Group and AAC Technologies maintain their status as Top 100 Global Innovators recipients from 2024 to 2025.

New entrants to the Top 100 Global Innovators list

Samsung Electro-Mechanics: Focused on specialist components and materials for use in the semiconductor and electronics industries. Founded in 1973, it is particularly known for its integrated camera modules and the development of multilayer ceramic capacitors, which are important devices in the delivery of high-voltage power.

GE Aerospace: A designer and manufacturer of jet engines and components for commercial and military aircraft. GE Aerospace succeeds General Electric and continues to achieve Top 100 Global Innovator status, following the divestiture of GE HealthCare and GE Vernova in 2024.

Siemens Energy: Specializing in power generation, transmission and energy management, Siemens Energy became independent from its parent company in 2020 and entered the Top 100 Global Innovator list this year alongside Siemens, reflecting its innovation pedigree and success as a contributor of major energy innovation in its own right.

CATL: A designer and manufacturer of lithium-ion batteries, Mainland Chinese company CATL has been on the Top 100 Global Innovator 'watch list' as a potential entrant for some time due to its technical specialism supporting a quickly growing segment: EVs. Of the organizations in the Top 100 Global Innovator list this year, automotive firms have seen a significant increase in performance ranking as the enabling technologies behind EVs continue to develop, deploy and disrupt the 150-year-old automobile industry. Founded only 14 years ago, CATL sits in this disruptive cycle with its significant advancements in battery technology.

Caterpillar: A leading manufacturer of construction and mining equipment and wider industrial engines and turbines, Caterpillar celebrates its centennial anniversary this year. Countering the stereotype of innovation being a startup phenomenon, Caterpillar's technology continues to improve the productivity and capability of heavy machinery - a crucial component of major infrastructure projects.

FORVIA: Created in 2021 from the merger of automotive technology companies Faurecia and Hella, French firm FORVIA shows the strength of the combination by their inclusion in the Top 100 Global Innovators list.

Innovation is core to business strategy

Maintaining a competitive edge and ensuring future success is an increasingly complex challenge in today's rapidly evolving business landscape. Significant changes in both macroeconomic conditions and macro-level innovation characterize this environment.

The dynamic nature of the market means that a business's competitive advantage is a constantly moving target. In this hyperconnected and uncertain environment, an organization's capability to consistently innovate is a powerful source of strength and resilience.

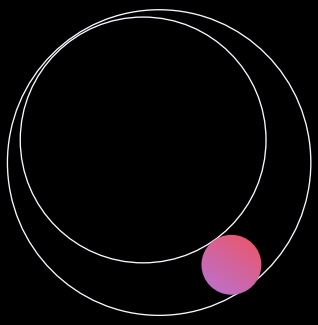
Identifying gaps for growth

Research and development is pivotal in identifying and exploiting growth opportunities.

By developing new products and services, businesses can diversify into new markets or even create entirely new segments.

Enhancing existing offerings with improved functionality and performance allows companies to capture market share more effectively.

This proactive approach to innovation ensures that businesses meet current market demands and anticipate future trends and needs.



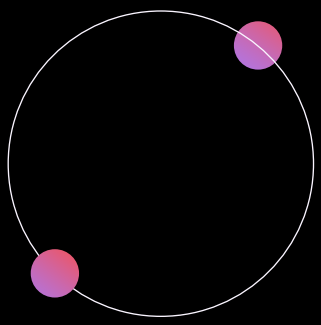
Creating space for savings

Innovation also enables businesses to seek cost reductions. Twenty years ago, a flat-screen television cost thousands of dollars; today, it is a few hundred.

Companies can optimize their technology, allowing existing products to be manufactured at lower costs or with higher productivity rates and yields.

Switching to higher-margin approaches while maintaining market expectations provides capital savings that can be reinvested or returned to investors.

This efficiency boosts profitability and enhances a company's financial stability. Continuously improving processes and products through innovation leads to long-term cost savings and increased operational efficiency.

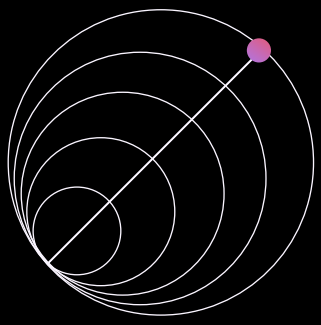


Enhancing adaptability

Beyond traditional value creation, the ability to adapt is paramount in a constantly changing macroenvironment. The dynamic nature of external trends requires businesses to shift gears swiftly to avoid disruption.

An innovative mindset and the ability to generate new value serve as a robust defense against otherwise disruptive forces. While innovators are often perceived as risk-takers, this risk is mitigated by inherent adaptability, reducing the likelihood of being blindsided by market changes. Early detection of potential obsolescence and scenario planning allows companies to stay ahead of market shifts.

This helps organizations pivot quickly in response, enabling them to thrive in volatility where others may struggle.



Driving engagement and perception

An organization's reputation is greatly boosted by its ability to innovate on a global scale. Attracting top talent is essential for driving innovation. It becomes easier when a company is known for its innovative approach, which entices technologists who want to contribute to cutting-edge developments.

A strong reputation for innovation and excellence also draws customers and partners who want to be associated with the company's technology and methodologies.

This creates a self-sustaining cycle where being innovative fosters innovation. Engaged employees are more likely to contribute to the company's success, and satisfied customers are more likely to remain loyal advocates for the brand.

Updated strategy for 2025

The connective forces in the world economy, combined with the fast pace and changing nature of technology development, create lessons for organizations aiming to succeed.

Innovation is a double-edged sword: having it is a prerequisite for success, though not a guarantee of business performance. It is expensive and requires an internal structure, focus and commitment that can often be difficult to justify.

In a commercial environment where performance is often measured in immediate outcomes, lessons can be gleaned from the successful innovation strategies of the Top 100 Global Innovators, particularly their awareness of innovation risk and opportunity.

Collaboration as a catalyst

There has been a significant change in inventorship in the last twenty years. The research teams listed as inventors on the world's patents are 52% larger today than they were twenty years ago. There used to be three people listed; now, there are closer to five.

The number of inventors per invention globally 2024 vs. 2003

+1.7

Up by

+52%

Alongside this, the fastest growth in invention is occurring in mega-trend convergence. These types of inventions are much more common within the strongest global patents. The Top 100 Global Innovators are behind 60% of those convergent, critical improvements.

These statistics reveal the fundamental importance of overlapping technologies and a key finding that modern innovation is convergent in nature. It requires contributions to individual research programs from a broader spectrum of scientific and engineering disciplines.

This changes how companies work on R&D. Siloing teams by discipline may no longer be desirable.

For corporate research, individual research project groups should contain specialists of multiple, diverse academic backgrounds.

The profound importance of data science

The growing reliance of technical developments on advanced data mathematics, ML and generative AI means that the specialisms with this knowledge have a significant role in R&D.

Most major corporations have a Data Science (DS) group. However, it is less common for those groups to fully integrate into an organization's strategy for product and service development or engineering. A long-standing debate within the DS community revolves around 'domain knowledge' - the combination of computational statistics knowledge of data and the broader knowledge of its application and treatment when deployed into a commercial environment.

This is a difficult ask of individual researchers as it requires a combination of knowledge and experience that is either expensive or rare. A better compromise is ensuring that DS teams operate as integral contributors to technology solutions rather than in a vacuum, separated from the required intimacy of R&D teams.

The impact of cross-collaboration and partnership

The latent research and knowledge that sits outside of individual corporations reflects much of the technological value required in a more convergent innovation landscape.

The idea of 'open innovation' (sourcing research ideas and needs from customers, academia, suppliers and vendors) is relatively common. Today, it is a must-have. The frequency of critical invention-creation increases by 67% when corporations directly partner with academic institutions in the patent filing.

The powerful combination of specialist research and academics with the commercial acumen and market knowledge of corporate researchers can create significant ideation value and confer a major competitive advantage. Seeking them out and ensuring they produce collaborative working relationships is a step beyond open innovation, but direct and interconnected innovation.

It also provides a pathway to bringing in the cross-disciplinary knowledge that convergent innovation demands.

With the working patterns of corporate R&D departments likely to have changed over the past few years – a major shift overall in the business ecosystem - the need for collaborative partnerships that add rarer but necessary specialist technical knowledge into R&D programs also means targeting their creation in the first place. Ensuring that researchers at all levels have access to conferences and events where these relationships can be formed organically is key.

The vital role of intellectual property

From the Top 100 Global Innovators list, measured from the patent filing patterns of global organizations, patent protection of technical know-how is an important facet of their innovation programs. Patents not only safeguard against copying but also enable more open collaboration beyond corporate boundaries.

Existing knowledge in both partners needs to be clearly defined upfront in both the deep technical detail of the patent documents and in ownership. Through contractual agreement, the fruits that emanate from the collaboration can be apportioned in ways that are mutually agreed in advance.

This speaks to the wider importance of patent rights as an enabler of deeper research partnership and their role as vehicles of technology diffusion and adoption. Across the research ecosystem and later into the manufacturing supply chain, IP enables relationships and knowledge sharing that would otherwise be a difficult risk to manage.

Hyperconnection is here

Modern innovation thrives in the convergence of diverse scientific and engineering disciplines, which means companies should prioritize interdisciplinary research. This includes integrating data science into research efforts to benefit from a better foundational grounding in modern inventiveness, enhancing the effectiveness of innovation efforts.

Navigating this environment also means embracing strategic partnerships with academic and government institutions to secure knowledge and boost high-strength innovation creation.

The complexity of the connected innovation landscape necessitates structured and contextualized insights for leadership teams.

The 2025 Top 100 Global Innovators exemplify the pinnacle of strategic foresight and innovation excellence. They set a benchmark for success in an era defined by rapid technological change. These innovation leaders drive significant advancements and inspire a future where innovation transcends boundaries, fostering a more interconnected and dynamic global economy.

Embracing hyperconnectivity unlocks new possibilities and paves the way for transformative advancement.

It can tackle complex global challenges with agility, propelling economic progress and generating significant societal impact. It can also improve quality of life and address critical issues such as healthcare, energy and environmental sustainability.

At **Clarivate**, we aim to provide the guidance and the clarity to understand and take advantage of the complex. This is our **Think forward** promise - connecting you to intelligence you can trust to ensure an IP-empowered tomorrow.

To understand more about performance benchmarks from the **Top 100 Global Innovators 2025** and the data behind it, contact our patent experts today: clarivate.com/top-100-innovators/contact-us

Methodology and data

The Top 100 Global Innovators list is derived from a systematic and empirical analysis of global invention data. This approach leans on the unique combination of deep technical detail and commercial imperative that is provided by measuring patent filing activity.

Traditionally, innovativeness is assessed by financial growth and profitability. However, this view of the later outcomes of innovation overlooks the crucial early indicators of future performance.

By utilizing the proprietary Derwent World Patents Index (DWPI) - a commercial directory of patented ideas and inventions - we apply a series of measures and metrics to global patented knowledge to identify the Top 100 Global Innovators.

The Derwent Strength Index - a scoring algorithm developed by Clarivate - applies to our DWPI data to extract transformative intelligence. This index quantitatively measures the strength of an invention and its IP rights. When aggregated across technologies, companies and countries, it provides a robust framework for comparing research and innovation dynamics, modeling performance, and benchmarking research strategy strengths and gaps.

Our methodology identifies organizations that have consistently contributed to innovation over the past five years.

The Derwent Strength Index metrics encompass the level of investment by the applicant, the invention's leadership and impact on third parties, the commitment to and validity of the patent, and the rarity of the invention, indicating its early development stage.

By deploying these models, we uncover the most influential innovators, providing a comprehensive view of the global innovation landscape.

We use the following measures to assess the strength of inventions:

Influence

Assessed through the frequency of citations by downstream patent applications, we evaluate the impact of an invention within its technical field, normalized for differences in citation patterns across various technology disciplines (e.g., Digital computing, Polymers, Semiconductor fabrication) and geographic regions, as examiners more often cite documents in their own language.

Also accounting for time, we normalize for older documents that tend to accumulate more citations. The impact measure incorporates thousands of technology-geography time distribution curves to determine the expected citation level for inventions with similar technical and geographic profiles. The algorithm calculates whether an invention's citation count is above or below this expected level.

Investment

Investment in an invention is measured by the breadth of geographic patent jurisdiction filings sought by the applicant. This metric assesses the number of different geographic locations or legal jurisdictions where the patent has been applied, reflecting the strategic importance or speculative nature of the patented subject matter to the applicant. When deciding where to file for patent protection, applicants consider several factors: their market footprint, the importance of the invention and their confidence in the legal systems of different jurisdictions for enforcing patent rights. These considerations are balanced against the significant costs associated with filing in multiple jurisdictions. This metric provides valuable insights into corporate decision-making, particularly as it varies across time, technical fields and use cases. It highlights the strategic considerations and financial commitments involved in protecting IP on a global scale.

Success

The success metric evaluates how patent applications for specific inventions progress to granted patent rights. This measure indicates whether the invention is genuinely new and novel, as determined by the Patent Office in a given jurisdiction.

This metric also normalizes based on the economic size of the jurisdiction where the patent is granted. For example, a patent right in the United States is generally more economically significant than equivalent rights in South Korea, Brazil and Australia combined due to the higher level of economic activity in the United States. This increased exclusionary power means more potential licensees or higher royalty potential and a greater likelihood of multiple infringers if the idea is copied.

Additionally, the success metric considers the applicant's commitment to their invention. Globally, only 40-60% of patent applications achieve granted status. A patent application failing to grant is often because only portions of it are valid. The examination process often involves negotiations and adjustments until a core, valid idea remains. This metric reflects the applicant's dedication to securing some form of IP right, even if it is a reduced version of their original application.

Rarity

Rarity measures the distinctiveness of an invention by evaluating the number of other inventions that share the same technology category mix. This metric indicates where an invention lies on the technology development curve, which typically progresses from early speculative interest to rapid growth and problem-solving and finally to a mature phase with iterative improvements.

To assess rarity, we count the number of similar inventions already present in DWPI. This provides a value indicating the invention's distinctiveness or rarity at the time it entered the DWPI database. This measure helps identify how unique an invention is within its technical field and its position in the broader landscape of technological development.

Who qualifies?

500

published inventions

100

granted inventions, 2019 - 2023

Qualify

to global innovators longlist

For each organization, we calculate:

International factor

scale and ratio of two-authority grants, 2019-2023

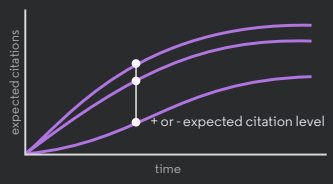
Benchmarking performance

65M

benchmarked inventions, via:

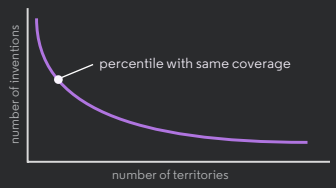
Influence

The level of technical leadership of the invention, via its effect on the ideas of others



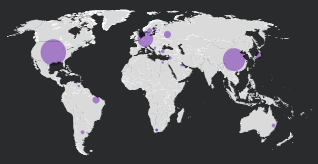
Investment

The level of monetary and geographic investment in the invention



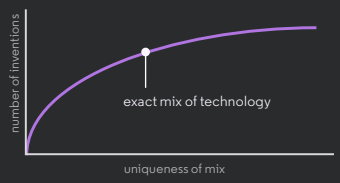
Success

The level of economic asset the invention produced as a valid, novel idea



Rarity

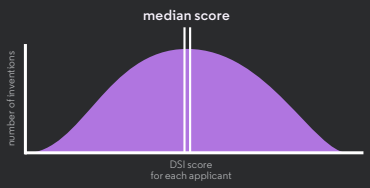
Where the invention sits on the development curve



For each organization, we calculate:

Invention strength

combined score across factors for each invention, extracting the median for qualifying organizations



International factor x median Invention strength

Global Innovator Score

From invention strength to Top 100 Global Innovator

To evaluate the strength of individual inventions each scoring factor is calculated across the database of global inventions. This approach provides a holistic, universal benchmark for patented technology, allowing individual ideas to be compared against the entire database, which evolves daily.

Each metric is assessed individually, with scores assigned based on deviations from the database-wide distribution. The scores are then combined into a single aggregated score for each invention, ready for identification of performance for qualifying candidates for Top 100 Global Innovator recognition.

Evaluation window

Annually, the program refreshes a rolling five-year window of innovation performance from global invention data.

For 2025, this window includes inventions first published between **January 1, 2019 and December 31, 2023.**

Top 100 Global Innovator qualification

To shortlist candidates for Top 100 Global Innovator status, we review every patent applicant for a threshold performance of 500 published inventions since 2000 and 100 granted inventions within the **five-year evaluation window.**

This process identifies approximately 3,000 organizations that have significantly contributed to the global innovation ecosystem and are currently active.

The international factor

Qualifiers for potential Top 100 Global Innovator status are assessed based on their **patent protection strategies**. For inventions within the evaluation window, we create a multiplier factor that combines the scale of two-authority granted patents and the ratio of their activity as two-authority granted patents.

This ensures that candidate organizations are rewarded for a more global footprint of activity.

Ranking qualifiers

To produce the final ranking, we combine the international factor with the median-scoring invention strength of each organization's inventions within the evaluation window.

This generates the final **Global Innovator Score**, which is ranked and sorted to determine the Top 100 Global Innovators of 2025.

The foundation of the **Top 100 Global Innovators** measurement is DWPI, a meticulously curated database of global patent activity.

The core processes of DWPI include:

Coherent structuring of inventions

DWPI consolidates multiple patent filings into a unified structure of inventions or patented ideas. This approach shifts analysis to a science and engineering insight level, leveraging decades of algorithms and human intervention. The invention-level record ensures that innovation is quantified based on technical merit rather than varying patent regulations across countries.

Human and algorithmic data correction

DWPI enhances accuracy through continuous human and algorithmic corrections. This process addresses typographical errors, indexing and classification issues and inconsistencies in names and organizational identifiers. Approximately one-third of the records are corrected, significantly improving the accuracy of metrics and comparisons.

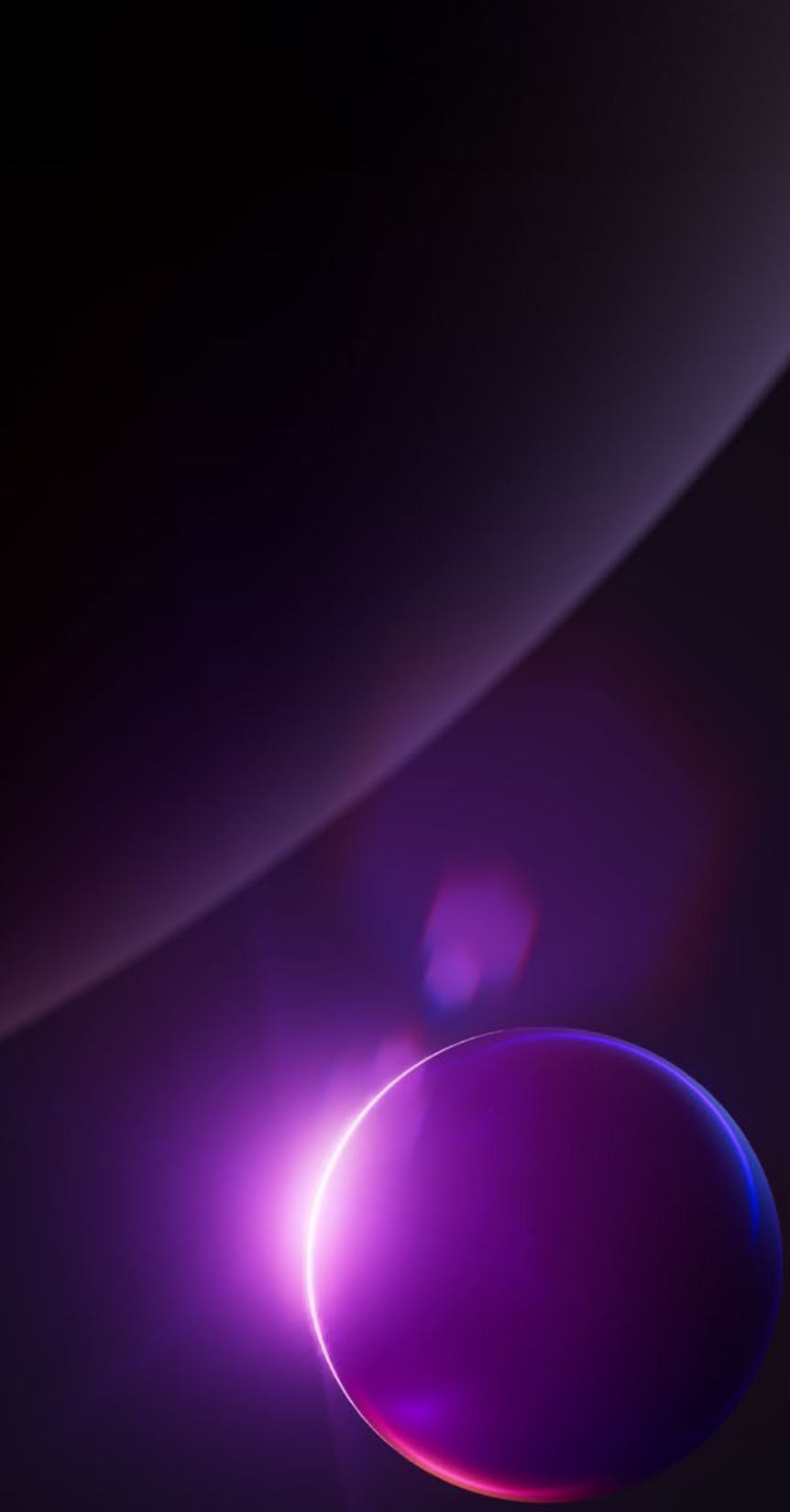
Technical summaries

Raw patent documents, often containing thousands of words, are summarized by technical experts into concise summaries. These summaries, always in English, highlight the features, use and benefits of each invention, making the data more accessible and actionable.

Expert classification and categorization

Patent analysts apply their technical expertise to classify and categorize inventions by feature, scope and industrial application. This detailed assessment ensures that the scientific and engineering approaches described in patents are accurately represented.

These facets of the **Clarivate** global invention-level data provide unparalleled accuracy and resolution, enhancing the analysis and measurement of research aand innovation.



About the Clarivate Center for IP and Innovation Research

Combining more than 60 years of IP experience, the **Clarivate Center for IP and Innovation Research** empowers organizations worldwide to excel by providing expert guidance grounded in pioneering benchmarks and data-driven insights. Bringing together senior practitioners, consultants and data analysts, the Center performs research to establish and disseminate benchmarks that guide management and strategy. It works with legal, IP and innovation leaders to optimize IP operations and technology and improve IP decision-making, supported by industry-leading data, analytics and proven practices.

For more information, please visit https://clarivate.com/intellectual-property/consulting-services/

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About Clarivate

Clarivate is a leading global provider of transformative intelligence. We offer enriched data, insights & analytics, workflow solutions and expert services in the areas of Academia & Government, Intellectual Property and Life Sciences & Healthcare.

For more information, please visit http://www.clarivate.com