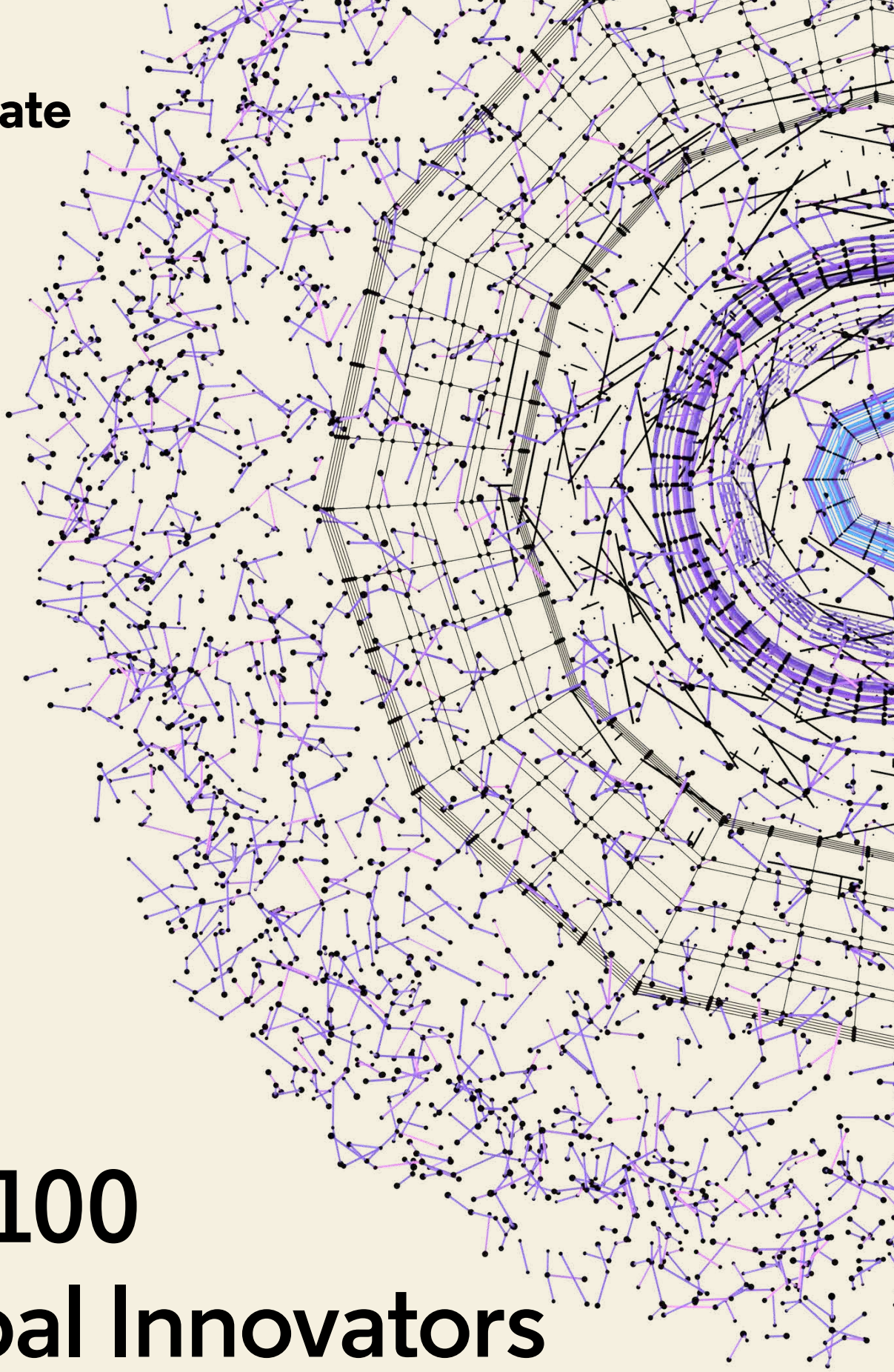
Clarivate



Top 100 Global Innovators 2026

The mathematical revolution

Foreword

Dr. Cao Kanyu
CXMT President

CXMT Corporation (CXMT) is deeply honored to be recognized as one of the Clarivate Top 100 Global Innovators for the first time! This prestigious recognition from an independent and reputable organization arrives at a meaningful time, as 2026 marks the 10th anniversary of CXMT's establishment. This honor, together with CXMT's many other achievements, forms a proud milestone in our decade-long journey of unwavering commitment to innovation.

Since our inception, CXMT has always adhered to the mission of **"Empower the Information Society and Improve Human Wellbeing with Memory Technology."** We focus on memory chips, the cornerstone of the information age. We are building secure, reliable and efficient data storage devices through groundbreaking technological innovation, empowering a better life for humanity.

This innovative gene has been transformed into the core engine driving CXMT forward. Over the past decade, there's been a significant increase in the volume of inventions. Our R&D and technical teams, comprising 80% of our workforce, form a powerful engine not just for our invention advances but also our product development. We have always built upon a foundation of high-intensity research and development, dedicating ourselves to creating an independent and open intellectual property system.

We have steadily built up our patent portfolio, driven by a balanced focus on both the 'quality' and the 'quantity' dimensions, laying a solid basis for CXMT's technological edge. It also propels our rapid business growth and helps us solidify our reputation as a remarkable 'new blood' in the memory chip-making arena.

CXMT is driven by continuous innovation and diversified solutions to provide stable and reliable technical support for our upstream and downstream partners, fostering a collaborative and progressive industrial ecosystem. This strengthens industry competitiveness, enhances supply chain resilience and helping us overcome challenges such as computing power bottleneck and data overload.

We will continuously refine our product architecture, leveraging our deeply integrated memory technology to lead the global DRAM architecture innovation. We will also continue to collaborate closely with our global partners to keep expanding the boundaries in memory technology.

Looking ahead, CXMT will set sail with innovation — committed to providing more advanced, reliable, efficient and secure memory solutions to help the industry cope with the overwhelming data processing and ignite the infinite possibilities of the digital era. As we embark on our second decade, we look forward to partnering with global innovators to jointly shape a technological blueprint for sustainable innovation and high-quality growth.

Contents

From matter to meaning

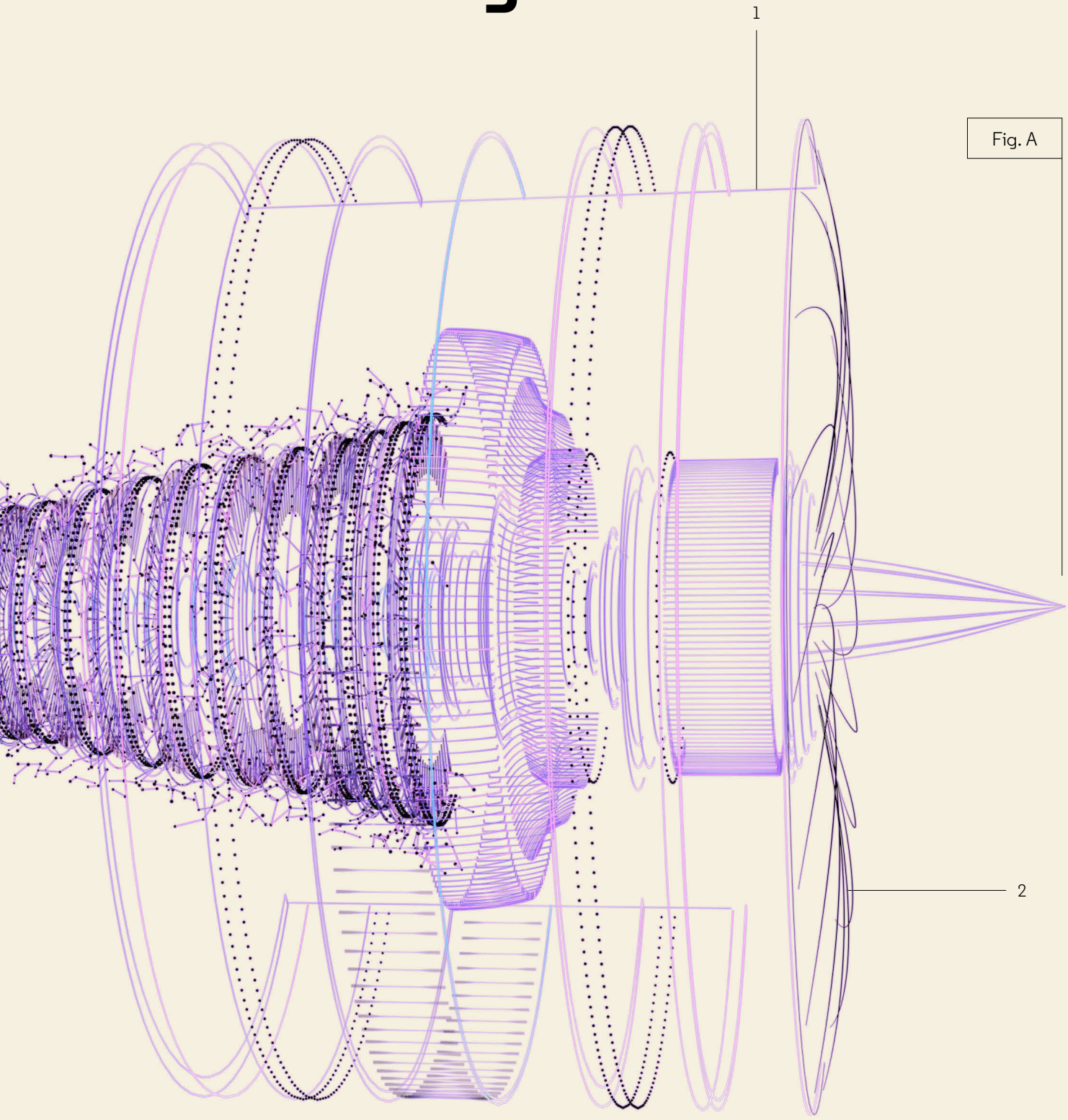


Fig. A

Imagine your most complex innovation challenge as a solvable set of equations. Problem selection, design choices, constraints: innovation in its purest form, freed from the constraints of the chalkboard, and expressed in mathematical formulation, computation, deployment and governance.

Until today, innovation has relied on human ingenuity. Today, it is the domain of industrial mathematics, translating business and engineering problems into solvable models. Logic enables the leap; structure sustains the spark.

The logic of mathematical innovation has found its catalyst: artificial intelligence (AI).

Industrial transformations are rarely orderly. They unfold with misstarts, overlapping opportunities and disruptive shocks. But beneath the churn, patterns emerge: thermodynamics drove steam, Maxwell's equations powered electrification and information theory enabled computing.

This is not the first time that mathematics has reshaped our world, but the venue has changed: from the tangible realm of machinery and materials to the abstract domain of data. Within the innovation ecosystem, AI is driving a revolution, not of matter but of meaning, where insight defines value.

AI doesn't rewrite the rules; it recalibrates them. The center of gravity is shifting from physical production to scalable intelligence. Data behaves less like a raw ingredient and more like a resource whose value multiplies through use.

Advances in hardware and computational power have triggered a surge in productivity, accelerated enterprise and compressed disruption cycles. At the heart of this transformation is a new kind of readiness, where ideas, algorithms and talent align to deliver impact at scale.

The change is profound and structural. AI is a new strategic layer across every industry, redefining the boundaries between research, engineering and commercial execution. This shift is not just technological; it's changing how organizations approach innovation, influencing not only what gets built but how, where and why.

The Top 100 Global Innovators of 2026 operate at this frontier. They are not simply prolific in their inventions; they are precise. Their portfolios reflect deliberate choices: invention quality, originality and global reach. They don't just react to change; they design for it.

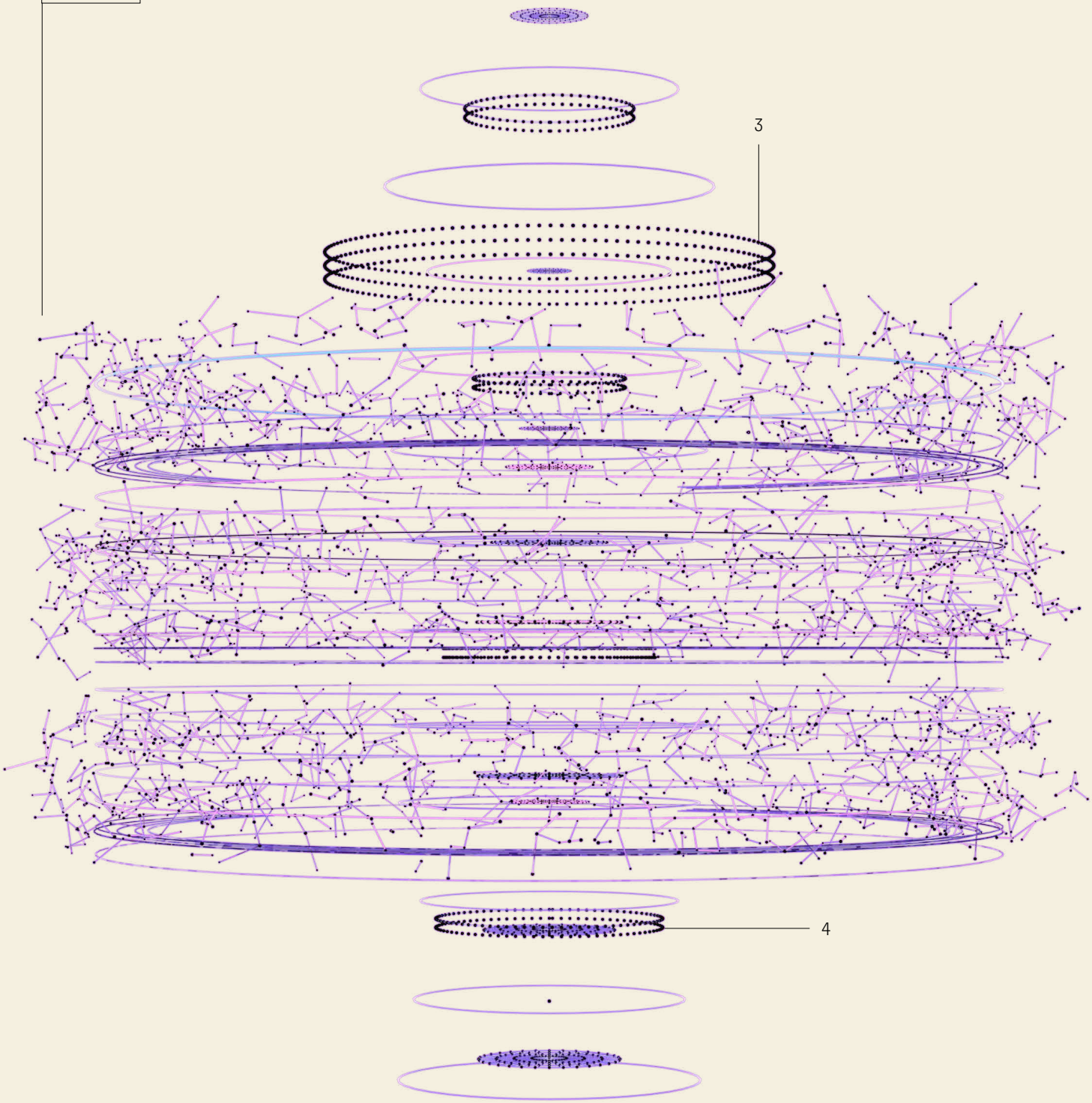
In 2025, we mapped convergence, the intersection of technologies, disciplines and domains, as a critical driver of innovation. In 2026, we build on that foundation by examining how AI is reshaping innovation at scale, blurring the lines between science, application and craftsmanship.

The strategies of the Top 100 Global Innovators signal a new era, one defined by coordination, resilience and reinvention. This report explores how the world's most innovative organizations are navigating this shift, from invention architecture to geopolitical dynamics, charting the contours of a global race. One defined not just by speed alone, but by strategic clarity.

> **"AI is now reshaping the equation of innovation itself. The Top 100 are not just responding to the AI transformation. They are the transformation.**
>
> **Arun Hill**
> Lead Consultant, Clarivate Center for IP and Innovation Research

Measuring innovation performance

Fig. B



The Top 100 Global Innovators ranking is built on a foundation of empirical analysis and decades of expertise in patent intelligence. It goes beyond reputation or revenue to measure innovation at its source: the invention.

At Clarivate, we sit at the intersection of invention data, innovation analysis and the global intellectual property (IP) system. Our methodology is informed by decades of experience in patent intelligence and supported by industry-leading data sources, including the Derwent World Patents Index. This vantage point allows us to track innovation performance with precision. We do not simply rank outcomes, but reveal the patterns, priorities and strategic signals that define innovation leadership.

At the heart of the methodology is the Derwent Strength Index, a proprietary scoring system that evaluates more than 67 million inventions globally. This index assesses each invention across four dimensions:

- **Influence:** How often an invention is cited by others, a signal of its impact on future innovation.
- **Investment:** The breadth of global patent protection sought, reflecting strategic and financial commitment.
- **Success:** The rate at which patent applications are granted, indicating novelty and legal strength.
- **Rarity:** The uniqueness of the invention's technology mix, a proxy for originality and early-stage innovation.

These factors are combined and assessed into a median Derwent Invention Strength at the portfolio level and weighted for:

- **International reach:** the extent to which inventions are protected across multiple jurisdictions, a marker of global ambition.

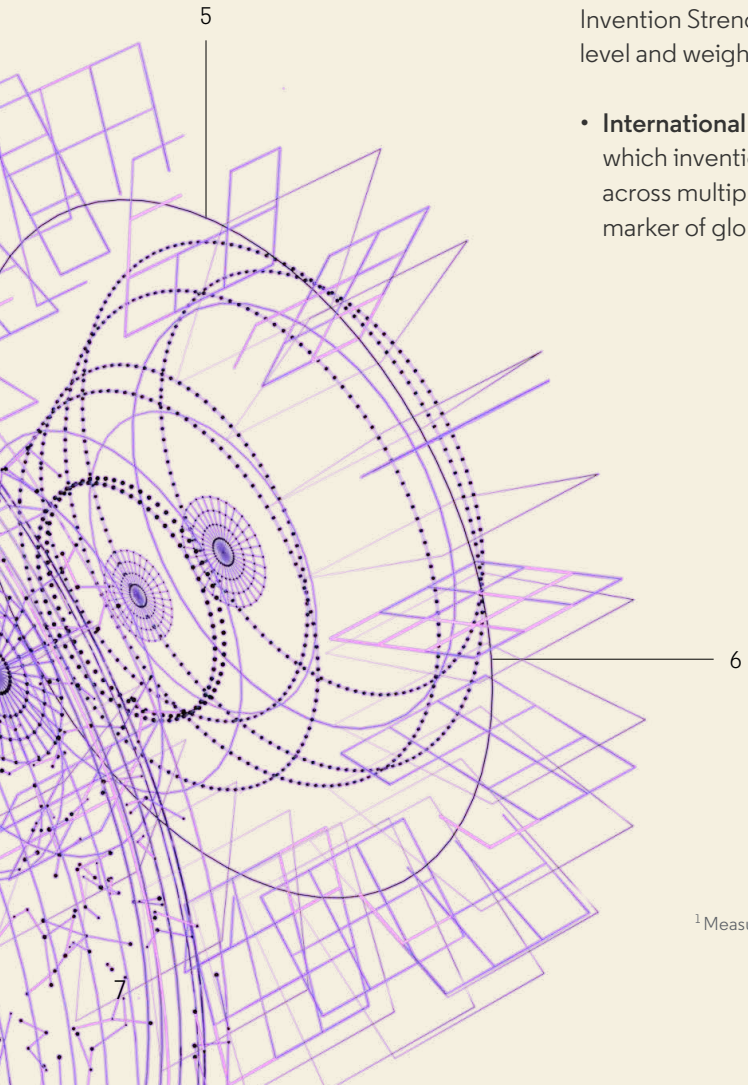
Taken together, this returns a Global Innovator Score for each organization.

To qualify, organizations[1] must have filed at least 500 inventions since 2000 and 100 granted inventions within the five-year evaluation window. For the 2026 edition, this window spans January 1, 2020, to December 31, 2024.

What sets this analysis apart is its objectivity, scale and precision.

The analysis is powered by the Derwent World Patents Index (DWPI), a globally trusted source of curated patent data. DWPI consolidates global filings into unified invention records, enabling like-for-like comparisons across jurisdictions and technologies. The methodology is further enhanced through expert classification, machine learning and continuous human validation, ensuring accuracy and interpretability.

The result is a list that reflects not just who is innovating but who is doing so with purpose, consistency and global impact.

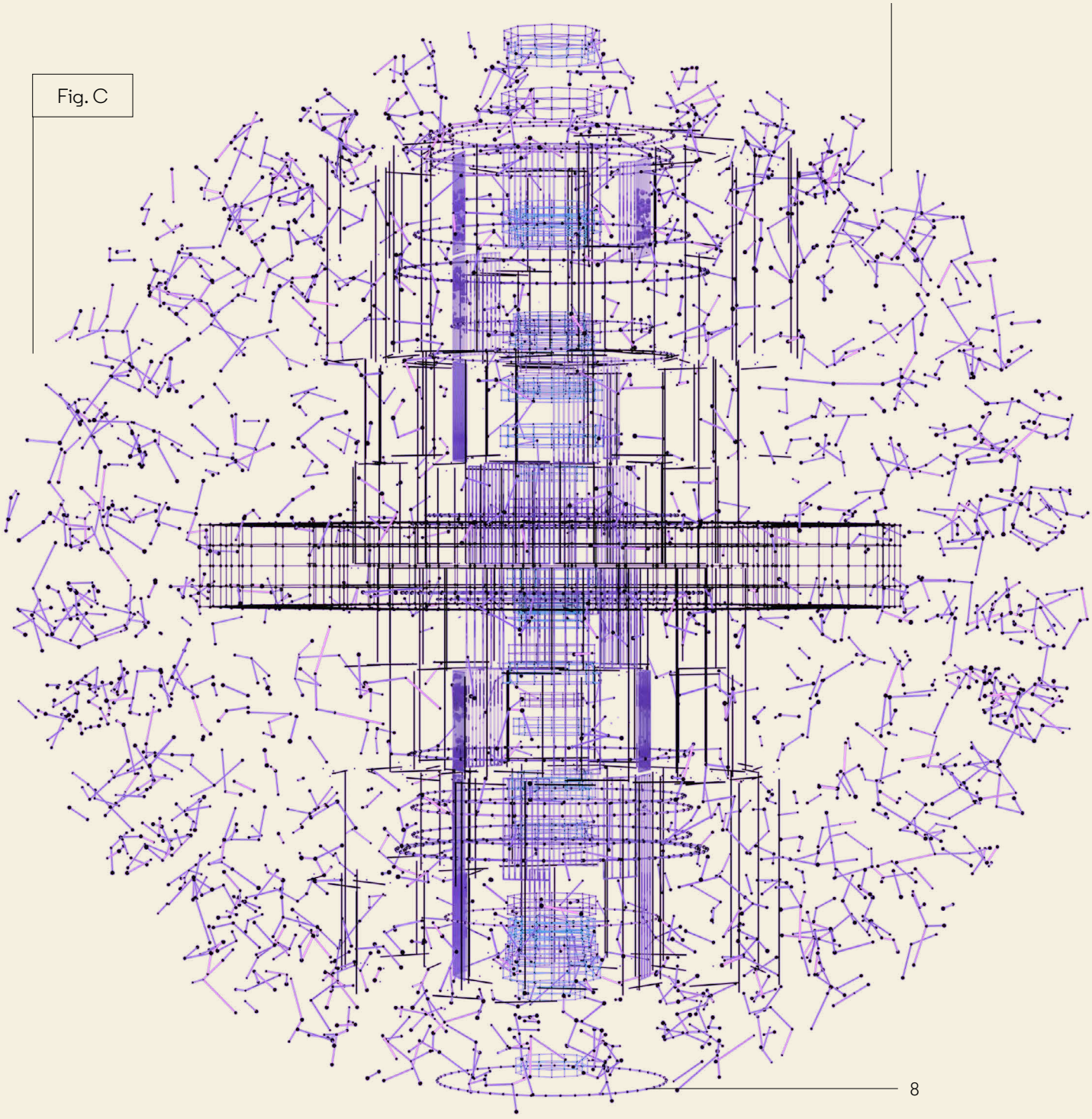


To explore the full methodology in detail, visit:
clarivate.com/top100-methodology

[1] Measured at the parent level and inclusive of entities with majority (>50%) ownership by that parent.

Top 100 Global Innovators 2026

Fig. C



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Innovation leadership is not claimed; it is measured. The Top 100 Global Innovators methodology applies a rigorous, mathematical framework to assess the quality and consistency of inventive performance across all sectors and geographies. Every organization on this year's list has achieved an exceptional Global Innovator Score, a benchmark of sustained excellence in innovation.

This benchmark is industry-agnostic. It recognizes organizations that consistently deliver high-impact, high-strength inventions that shape the future of their fields and redefine the boundaries of what's possible.

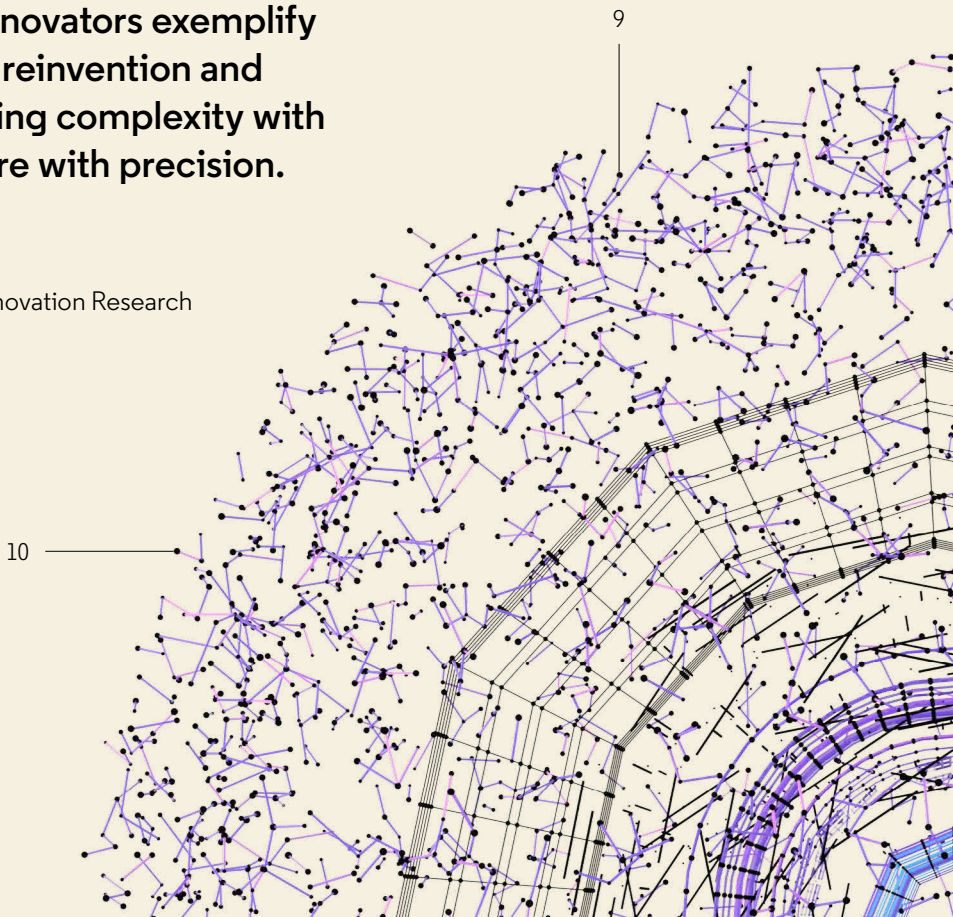
The 2026 awardees reflect the full spectrum of innovation: from agile scale-ups and global conglomerates to deep-tech pioneers and cross-sector integrators. These organizations are not just leading their industries; they are reshaping them. Through organic invention, strategic collaboration and targeted acquisition, they are driving convergence and accelerating transformation.

Their portfolios answer the most pressing questions in innovation today:

- Who will deliver the next frontier of innovation, and how?
- How can innovation scale without sacrificing precision or purpose?
- What does it take to lead in a world of fast cycles and expanding complexity?

> **"The 2026 Top 100 Global Innovators exemplify the blueprint for resilience, reinvention and innovation at scale, navigating complexity with clarity and shaping the future with precision.**

Ed White
Head of the Clarivate Center for IP and Innovation Research



Rank	Top 100 Global Innovator, 2026	HQ Country/Region	Industry	Recognition (2012-26)	
1	**Samsung Electronics**	South Korea	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
2	**Tencent**	Mainland China	Software, media, fintech	2020, 2021, 2024, 2025, 2026	
3	**Canon**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025, 2026	
4	**Honda**	Japan	Automotive	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
5	**Toyota**	Japan	Automotive	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
6	**Epson**	Japan	Industrial conglomerate	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025, 2026	
7	**LG Chem**	South Korea	Chemicals and materials	2022, 2023, 2024, 2025, 2026	
8	**FUJIFILM**	Japan	Industrial conglomerate	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
9	**RTX**	United States	Aerospace and defense	2012, 2013, 2014, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
10	**Huawei**	Mainland China	Telecommunications	2015, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
11	**LG Electronics**	South Korea	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
12	**TSMC**	Taiwan	Semiconductors	2014, 2022, 2023, 2024, 2025, 2026	
13	**Qualcomm**	United States	Telecommunications	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
14	**Hyundai Motor**	South Korea	Automotive	2022, 2023, 2024, 2025, 2026	
15	**SK hynix**	South Korea	Electronics and computing equipment	2022, 2023, 2024, 2025, 2026	
16	**Sony**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
17	**Mitsubishi Electric**	Japan	Industrial conglomerate	2012, 2013, 2014, 2015, 2016, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
18	**Siemens**	Germany	Industrial conglomerate	2012, 2013, 2014, 2015, 2019, 2022, 2023, 2024, 2025, 2026	
19	**Tokyo Electron**	Japan	Semiconductors	2015, 2022, 2023, 2024, 2025, 2026	
20	**Panasonic**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
21	**Toshiba**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
22	**BOE Technology**	Mainland China	Electronics and computing equipment	2022, 2023, 2024, 2025, 2026	
23	**LG Display**	South Korea	Electronics and computing equipment	2022, 2023, 2026	
24	**Murata Manufacturing**	Japan	Electronics and computing equipment	2012, 2022, 2023, 2024, 2025, 2026	
25	**CEA**	France	Government and academic research	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2022, 2023, 2024, 2025, 2026	

15-Year Top 100 Global Innovator

Re-entry

New entrant

Rank	Top 100 Global Innovator, 2026	HQ Country/Region	Industry	Recognition (2012-26)	
26	**Airbus**	France	Aerospace and defense	2012, 2013, 2014, 2019, 2022, 2023, 2024, 2025, 2026	
27	**Applied Materials**	United States	Semiconductors	2012, 2023, 2024, 2025, 2026	
28	**Realtek Semiconductor**	Taiwan	Semiconductors	2022, 2023, 2024, 2025, 2026	
29	**Sumitomo Electric**	Japan	Energy and electrical	2012, 2014, 2015, 2016, 2017, 2022, 2023, 2024, 2025, 2026	
30	**Hitachi**	Japan	Industrial conglomerate	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
31	**MediaTek**	Taiwan	Semiconductors	2015, 2016, 2017, 2022, 2023, 2024, 2025, 2026	
32	**GE Aerospace**	United States	Aerospace and defense	2025, 2026	
33	**DENSO**	Japan	Automotive	2012, 2013, 2015, 2022, 2023, 2024, 2025, 2026	
34	**STMicroelectronics**	Switzerland	Semiconductors	2013, 2014, 2015, 2022, 2023, 2024, 2025, 2026	
35	**Foxconn**	Taiwan	Electronics and computing equipment	2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
36	**AUO**	Taiwan	Electronics and computing equipment	2022, 2023, 2024, 2025, 2026	
37	**Fanuc**	Japan	Industrial systems	2012, 2013, 2022, 2023, 2024, 2025, 2026	
38	**Dow**	United States	Chemicals and materials	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
39	**Saudi Aramco**	Saudi Arabia	Energy and electrical	2022, 2023, 2026	
40	**Samsung Electro-Mechanics**	South Korea	Electronics and computing equipment	2022, 2023, 2025, 2026	
41	**Kioxia**	Japan	Semiconductors	2022, 2023, 2024, 2025, 2026	
42	**General Motors**	United States	Automotive	2022, 2023, 2024, 2025, 2026	
43	**Philips**	Netherlands	Medical and biotechnology	2012, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
44	**Ericsson**	Sweden	Telecommunications	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
45	**Safran**	France	Aerospace and defense	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025, 2026	
46	**Wistron**	Taiwan	Electronics and computing equipment	2022, 2023, 2024, 2025, 2026	
47	**Bosch**	Germany	Industrial conglomerate	2015, 2022, 2023, 2024, 2025, 2026	
48	**NTT**	Japan	Telecommunications	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2025, 2026	
49	**Kyocera**	Japan	Electronics and computing equipment	2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025, 2026	
50	**Nitto Denko**	Japan	Chemicals and materials	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, 2025, 2026	

15-Year Top 100 Global Innovator

Re-entry

New entrant

Rank	Top 100 Global Innovator, 2026	HQ Country/Region	Industry	Recognition (2012-26)	
51	**Brother Industries**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2022, 2023, 2024, 2025, 2026	
52	**ITRI**	Taiwan	Government and academic research	2015, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
53	**Daikin Industries**	Japan	Industrial systems	2012, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2024, 2025, 2026	
54	**Micron Technology**	United States	Semiconductors	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2025, 2026	
55	**Ricoh**	Japan	Electronics and computing equipment	2013, 2015, 2022, 2023, 2024, 2025, 2026	
56	**Siemens Energy**	Germany	Energy and electrical	2025, 2026	
57	**Alphabet**	United States	Software, media, fintech	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2023, 2024, 2025, 2026	
58	**Volkswagen**	Germany	Automotive	2022, 2023, 2024, 2025, 2026	
59	**Philip Morris International**	United States	Consumer goods and food	2022, 2023, 2024, 2025, 2026	
60	**Nidec**	Japan	Energy and electrical	2023, 2024, 2025, 2026	
61	**Swatch Group**	Switzerland	Consumer goods and food	2022, 2023, 2024, 2025, 2026	
62	**BASF**	Germany	Chemicals and materials	2012, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
63	**Nanya Technology**	Taiwan	Semiconductors	2023, 2024, 2025, 2026	
64	**SCREEN**	Japan	Electronics and computing equipment	2022, 2023, 2024, 2025, 2026	
65	**Halliburton**	United States	Energy and electrical	2022, 2023, 2024, 2025, 2026	
66	**Shin-Etsu Chemical**	Japan	Chemicals and materials	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	🏆
67	**Nokia**	Finland	Telecommunications	2017, 2018, 2019, 2020, 2021, 2025, 2026	
68	**Apple**	United States	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2026	↩
69	**Samsung SDI**	South Korea	Electronics and computing equipment	2022, 2023, 2024, 2025, 2026	
70	**Mitsubishi Heavy Industries**	Japan	Industrial systems	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2021, 2022, 2023, 2024, 2025, 2026	
71	**ABB**	Switzerland	Industrial systems	2012, 2014, 2015, 2020, 2021, 2022,2023, 2024, 2025, 2026	
72	**Johnson & Johnson**	United States	Pharmaceuticals	2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
73	**Boeing**	United States	Aerospace and defense	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	🏆
74	**TDK**	Japan	Electronics and computing equipment	2013, 2014, 2015, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
75	**ZEISS**	Germany	Industrial systems	2022, 2024, 2025, 2026	

🏆 15-Year Top 100 Global Innovator

↩ Re-entry

→ New entrant

Rank	Top 100 Global Innovator, 2026	HQ Country/Region	Industry	Recognition (2012-26)	
76	**CATL**	Mainland China	Automotive	2025, 2026	
77	**Fujitsu**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	15-Year
78	**Yazaki**	Japan	Automotive	2016, 2017, 2021, 2022, 2023, 2024, 2025, 2026	
79	**Honeywell**	United States	Industrial systems	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	15-Year
80	**Infineon Technologies**	Germany	Semiconductors	2014, 2022, 2023, 2024, 2025, 2026	
81	**GE Vernova**	United States	Energy and electrical	2026	New entrant
82	**Sumitomo Chemical**	Japan	Chemicals and materials	2022, 2023, 2024, 2025, 2026	
83	**NEC**	Japan	Electronics and computing equipment	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	15-Year
84	**Deere & Company**	United States	Industrial systems	2013, 2022, 2023, 2024, 2025, 2026	
85	**Asus**	Taiwan	Electronics and computing equipment	2021, 2025, 2026	
86	**Caterpillar**	United States	Industrial systems	2025, 2026	
87	**Delta Electronics**	Taiwan	Electronics and computing equipment	2022, 2023, 2024, 2025, 2026	
88	**ZTE**	Mainland China	Telecommunications	2026	New entrant
89	**Signify**	Netherlands	Energy and electrical	2022, 2026	Re-entry
90	**Evonik**	Germany	Chemicals and materials	2022, 2023, 2024, 2025, 2026	
91	**KLA**	United states	Semiconductors	2021, 2026	Re-entry
92	**Subaru**	Japan	Automotive	2026	New entrant
93	**CXMT**	Mainland China	Semiconductors	2026	New entrant
94	**Thales**	France	Aerospace and defense	2013, 2014, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026	
95	**ASML**	Netherlands	Semiconductors	2012, 2022, 2023, 2024, 2025, 2026	
96	**Aptiv**	Ireland	Automotive	2026	New entrant
97	**Coretronic**	Taiwan	Electronics and computing equipment	2024, 2025, 2026	
98	**Silicon Motion**	Taiwan	Semiconductors	2026	New entrant
99	**CNRS**	France	Government and academic research	2012, 2013, 2014, 2015, 2016, 2017, 2022, 2023, 2024, 2025, 2026	
100	**TCL Technology**	Mainland China	Electronics and computing equipment	2022, 2026	Re-entry

15-Year Top 100 Global Innovator | Re-entry | New entrant

Industry insights and regional shifts

In the 2026 edition of the Top 100 Global Innovators, Electronics and computing remains the leading sector, representing 27% of the list. The Semiconductors sector and Energy and electrical sector both saw gains, increasing by two and three organizations respectively, while the Industrial systems sector experienced the largest decline, with three fewer organizations represented.

Regional trends

Japan continues to lead the global innovation landscape, accounting for 32% of this year's Top 100 Global Innovators. It also holds five of the top 10 ranked positions, followed by Mainland China and South Korea, each with two. Ireland and Saudi Arabia return to the list, each with one organization, while France sees a modest decline from seven to five organizations listed.

Notable returns

Apple returns to the list in 2026, after a brief hiatus, to be recognized for the 11th time, a testament to its enduring ability to innovate at scale. Also returning in 2026 are companies such as Aramco and Signify.

Consistent leaders

Samsung Electronics retains its position at the top of the ranking and has the impressive honor of appearing in all 15 editions of the Top 100 Global Innovators, including contributions from major subsidiaries such as Samsung Display.

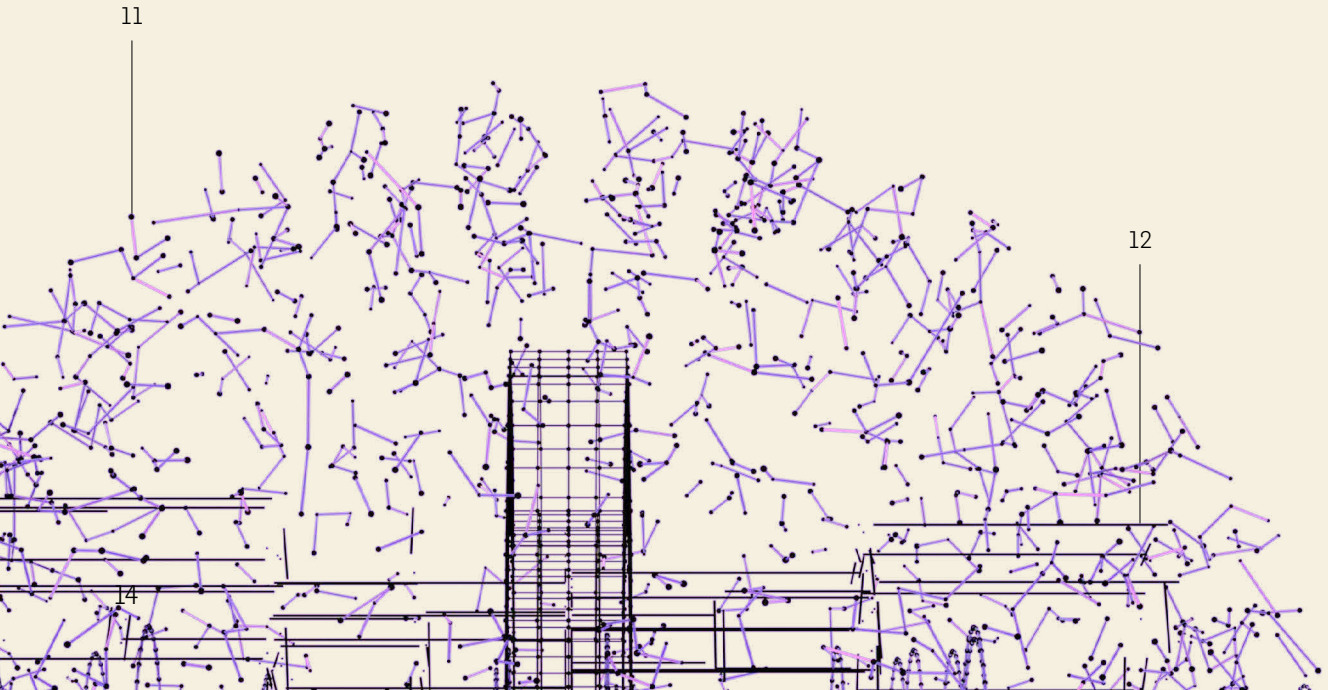
Fifteen other companies also received recognition as Top 100 Global Innovators across all 15 years, displaying remarkable consistency at scale: Honda, Toyota, LG Electronics, Panasonic, Sony, Qualcomm, Toshiba, Hitachi, Ericsson, Dow, Fujitsu, Boeing, Shin-Etsu Chemical, Honeywell and NEC.

New entrants

Six organizations make their debut in the 2026 list, reflecting the evolving nature of global innovation:

- **GE Vernova** (United States): A spin-off from GE, focused on electrification and decarbonization.
- **ZTE** (Mainland China): A leader in 5G, AI and cloud infrastructure.
- **Subaru** (Japan): Recognized for sustainable manufacturing and advanced driver-assistance systems.
- **CXMT** (Mainland China): A DRAM memory innovator supporting global electronics.
- **Aptiv** (Ireland): A key enabler of next-generation vehicle architecture and autonomy.
- **Silicon Motion** (Taiwan): Specializing in NAND flash controllers and embedded storage.

Together, these new entrants reflect the expanding frontiers of innovation, from energy and semiconductors to mobility, AI and smart infrastructure.



The future of innovation leadership

The Top 100 Global Innovators are not just prolific inventors; they are strategic leaders. Their portfolios reflect a deliberate focus on invention quality, originality and global reach. In 2026, one theme stands out across their innovation activity: the accelerating role of AI.

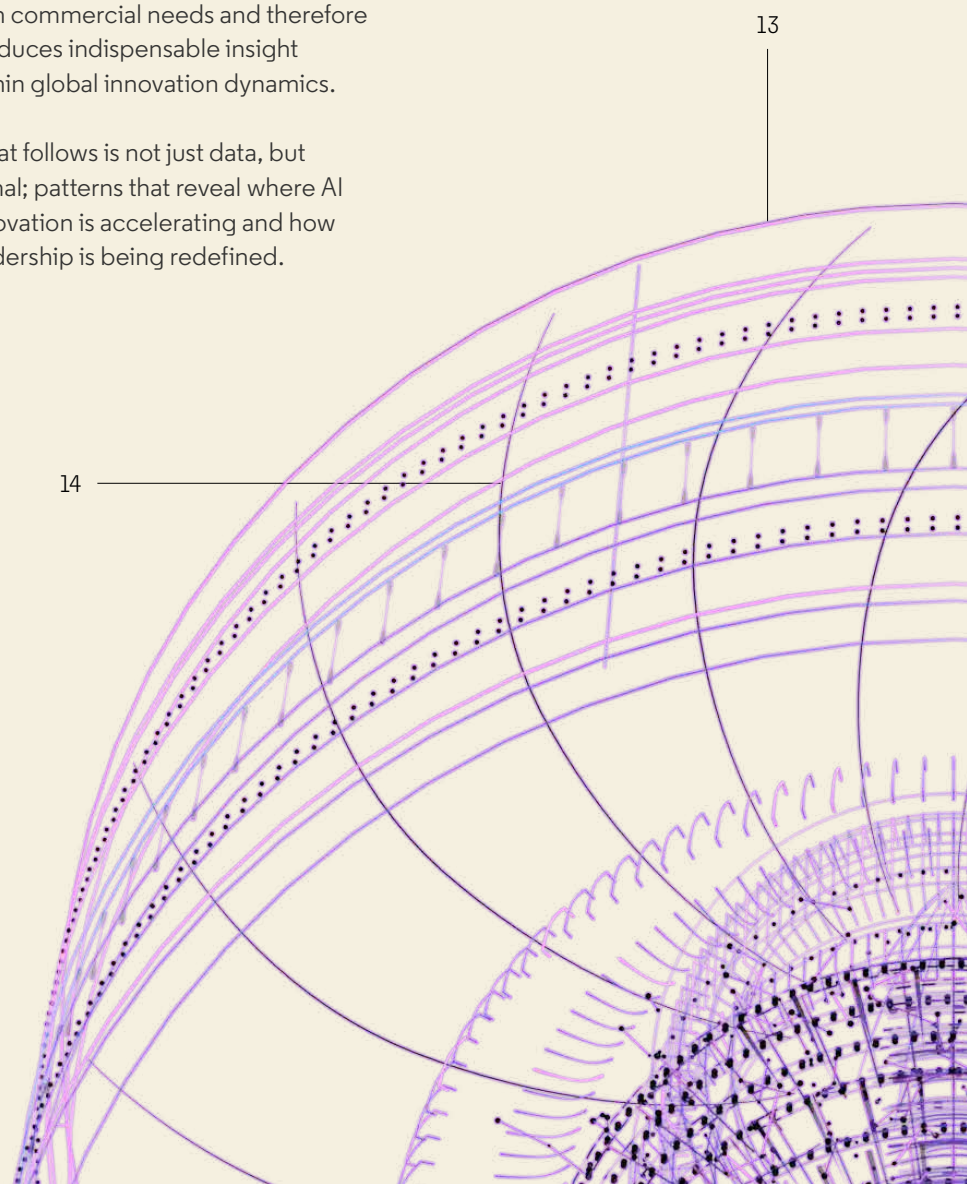
But AI is not the only story shaping innovation. Sustainability, connectivity, mobility and wellbeing remain powerful forces driving R&D agendas worldwide. These priorities coexist with AI, often intersecting in complex ways, from energy-efficient computing to health-tech platforms, underscoring that innovation leadership today demands multidimensional strategies.

Increasingly, innovation also depends on modular and componentised software architectures, API and microservices connectivity and automation technologies that enable scalable deployment across domains.

To explore AI's role within this broader context, we expanded our lens beyond the Top 100 dataset. Using DWPI, we analyzed approximately one million AI-related invention records to map global innovation patterns, benchmark maturity and identify leadership signals from the frontiers of AI innovation.

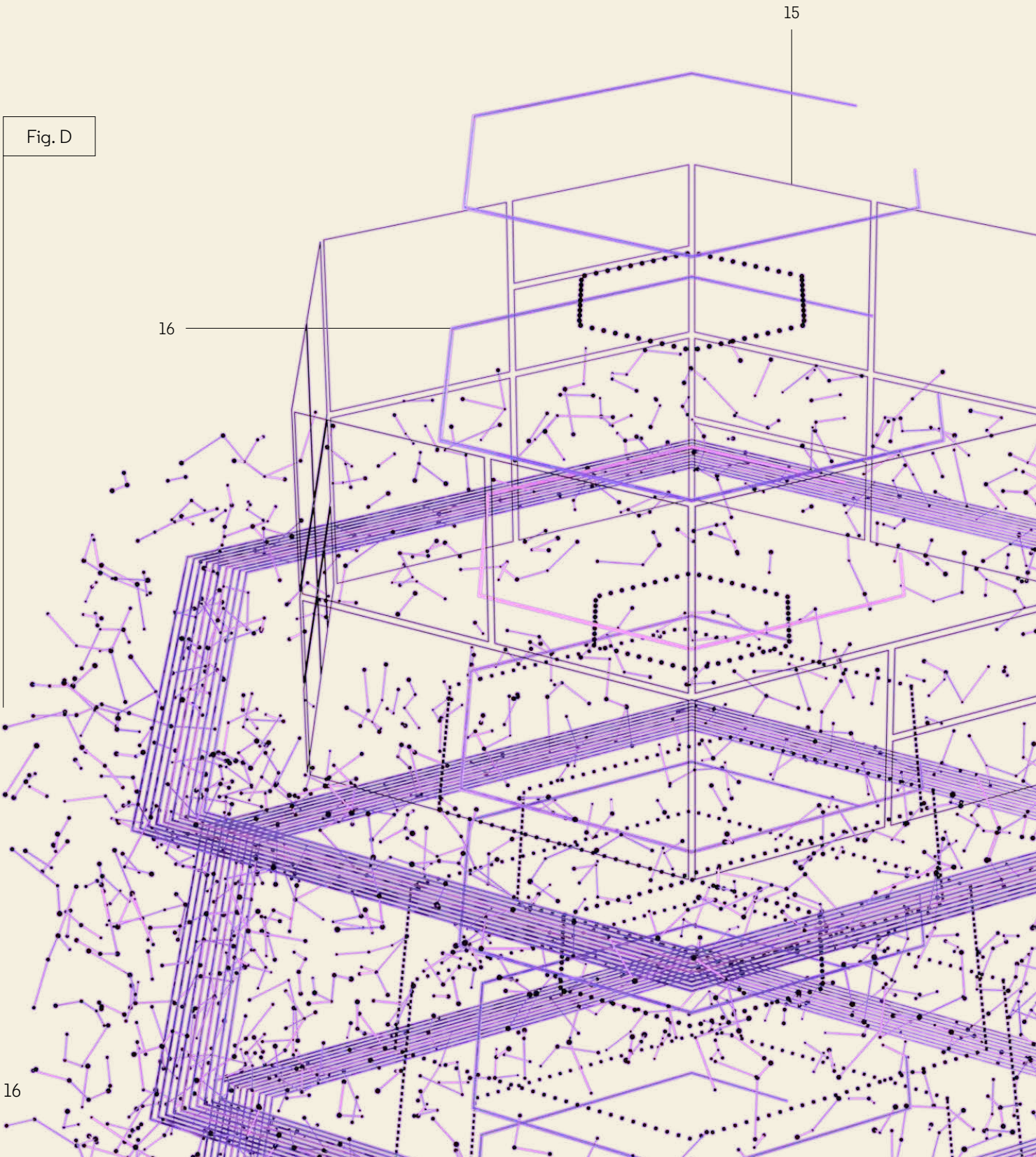
Invention data provides a powerful structured, global view of innovation. It is necessarily a sample, especially in fast-moving domains like AI, as much activity occurs in open-source ecosystems, through the deployment of existing models or as internal trade secrets. Even so, invention data remains one of the most authoritative sources as it connects technical detail with commercial needs and therefore produces indispensable insight within global innovation dynamics.

What follows is not just data, but signal; patterns that reveal where AI innovation is accelerating and how leadership is being redefined.



A revolution rooted in mathematics

Fig. D



~$2x10^{17}$ MB the data storage capacity of humanity,

equivalent to ~36 million billion
copies of the complete works of Shakespeare.

On average, it would take 22,000 times
the current age of the universe to read.

The global data sphere now exceeds 200 zettabytes;[2] a scale so vast that traditional analysis is impossible. Yet within this vast pool lies the raw material for a new era of innovation: one rooted in mathematics and powered by AI.

As data storage technologies plateau (Figure 1), the challenge is no longer storing information but extracting intelligence from it. Algorithms now learn, recognize patterns and make predictions at scales and speeds that feel, to the layperson, almost like magic.

AI has emerged not as a luxury but as a necessity. It is the only tool capable of operating at the scale, speed and complexity required to make sense of the data sphere.

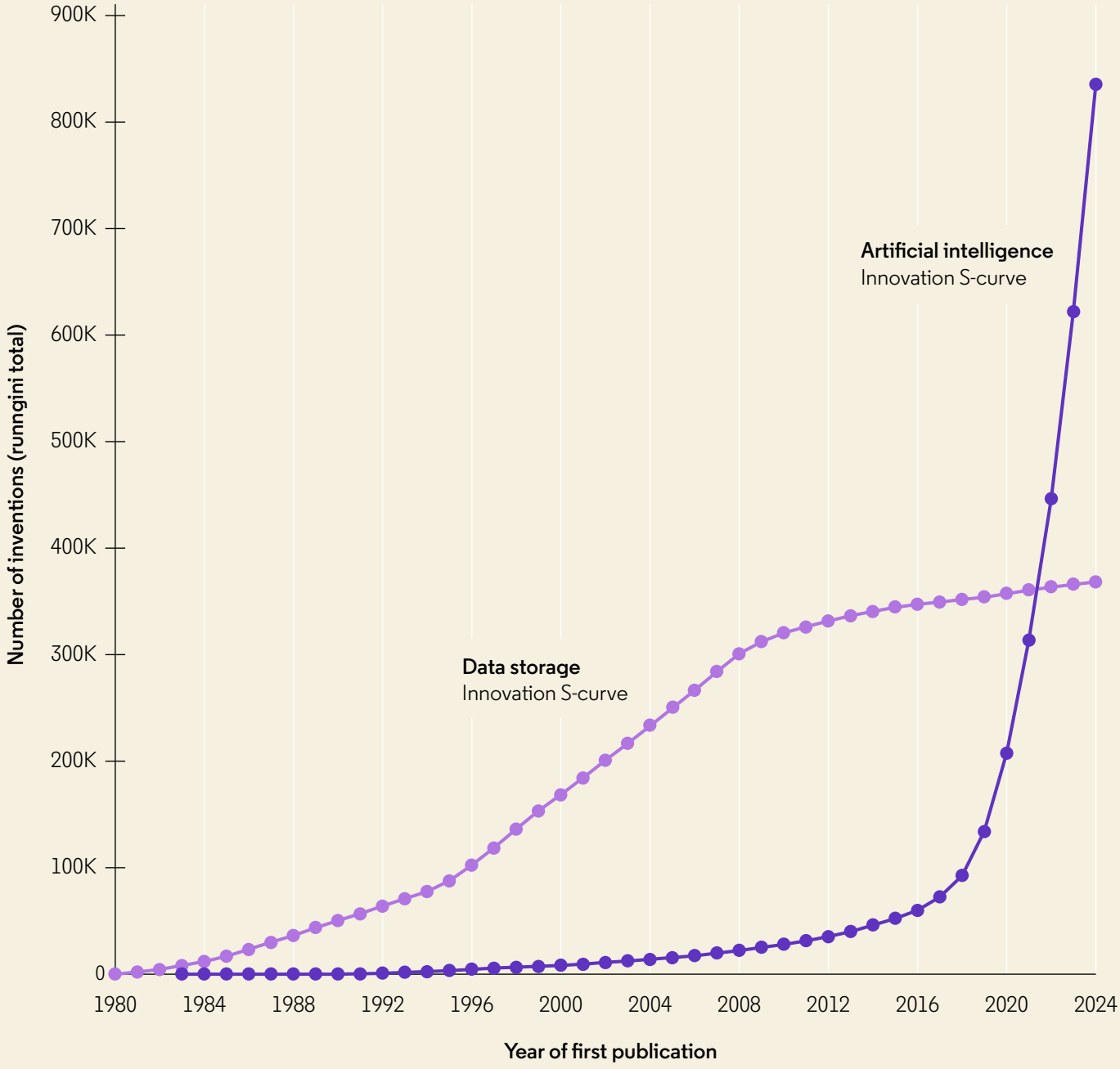
The numbers confirm the shift: AI-related patent filings have doubled repeatedly since 2019. By August 2025, more than one million AI invention specifications had been published worldwide. This surge signals more than hype; it marks a structural reconfiguration of the innovation landscape.

> **“ The Top 100 Global Innovators account for a disproportionate share of the world’s most valuable ideas, demonstrating that innovation leadership is defined by precision, originality and strategic intent.**
>
> **Ed White**
> Head of the Clarivate Center for IP and Innovation Research

[2] An extrapolation of data from the ‘Volume of data/information created, captured, copied and consumed worldwide from 2010 to 2023, with forecasts from 2024 to 2028.’ Statista, 30 Jun 2025.

This is not just a technological shift. It is a transformation in value creation driven by the integration of intelligent mathematical systems into corporate decision-making and production processes.

Figure 1: The innovation S-curves of data storage and AI technologies, 1980 to 2024[3]



Source: DWPI

[3] Based on the running total of DWPI invention records.

An environment of strategic ambiguity

AI offers extraordinary potential but also complexity. Rapid development, uneven regulation and aggressive deployment have created an environment of strategic ambiguity. For innovation leaders, this is not just a challenge; it's a risk.

For innovators, the strategic questions are clear:

- When should we act?
- What should we build?
- How do we harness AI's benefits without locking ourselves into fast-moving, high-cost technologies that may soon be obsolete?

These questions are part of a broader set of leadership considerations:

- **Scalability:** Can AI systems scale sustainably in terms of energy, computation and cost?
- **Ownership:** Who controls the data, the models and the outcomes they generate?
- **IP:** How does AI intersect with IP rights, consent and attribution?
- **Governance:** Can policy and regulation keep pace with AI's velocity?
- **Expertise:** What is the role of human expertise in an AI-augmented economy?

Operationally, the stakes are just as high:

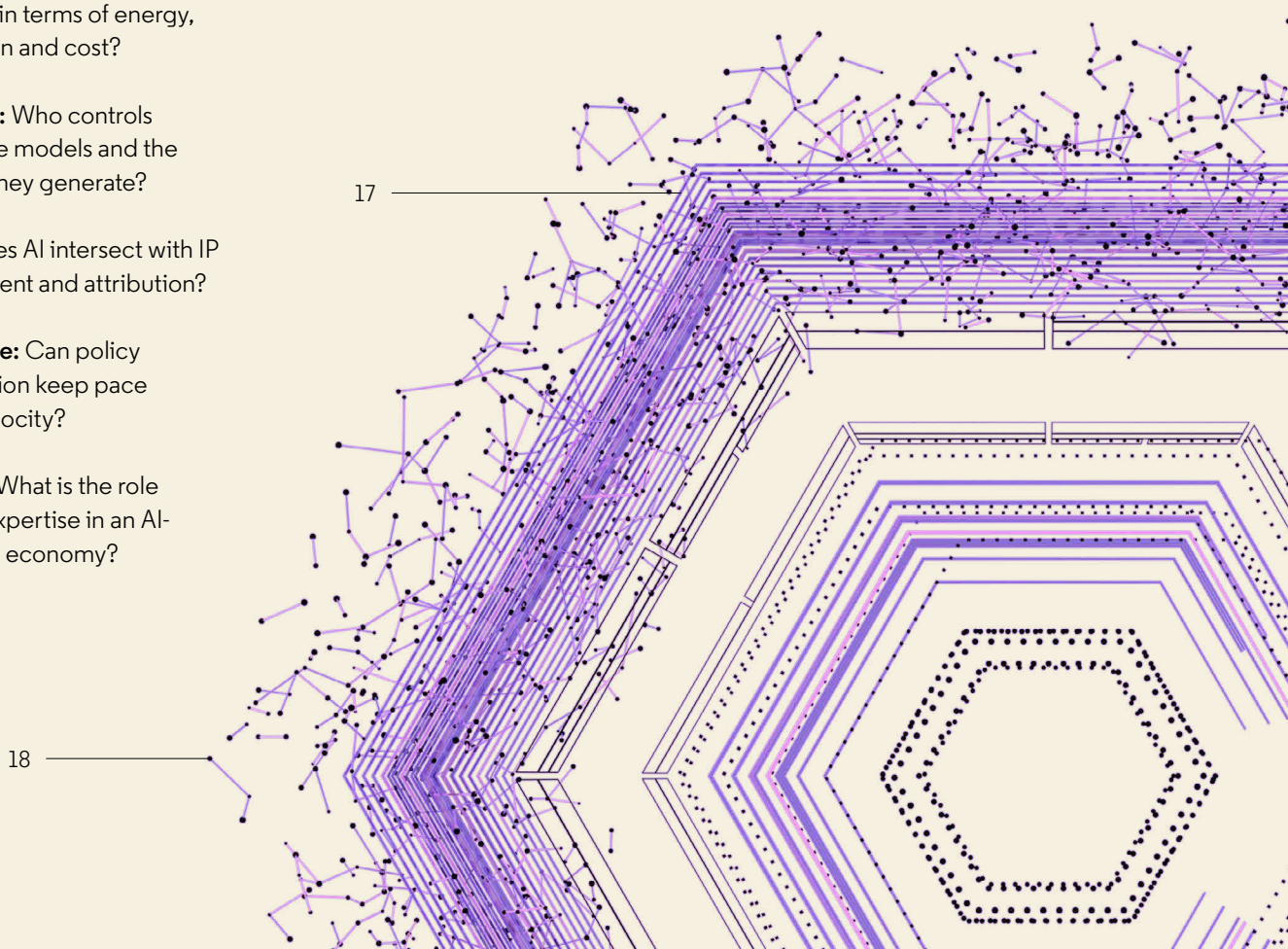
- **Talent:** How does AI reshape recruitment, and what does it mean for early-career development?
- **Productivity:** How do we define productivity when expertise becomes a commodity?
- **Portfolio resilience:** Which offerings are exposed to obsolescence? What must be retired, and what must be reimagined?

These are not theoretical concerns. They shape investment decisions, product roadmaps and IP portfolios, especially in high-stakes environments like finance, healthcare, law and national security.

In this context, safety becomes a strategic filter. It is not only about technical robustness but also ethical use, regulatory compliance, societal impact and IP stewardship. Leading innovators evaluate not just what AI can do, but what it should do and under what conditions.

The world's leading innovators exemplify this mindset. They treat deployment not as a finish line, but as a phase supported by continuous learning, adaptive infrastructure and strategic foresight. Their portfolios reflect precision and deliberation: a structured approach to navigating ambiguity and uncertainty.

For organizations aspiring to join this cohort, clarity in AI strategy, from invention to deployment, is no longer optional; it is a prerequisite.



The risk of the rush

One of the most striking findings from our AI technology maturity analysis (Figure 2) is the reversal of typical adoption patterns: many AI deployment use cases appear more mature than the technologies that support them.

This signals a rush to deploy, driven by competitive pressure and the promise of productivity gains. But speed carries consequences. When deployment outpaces development, organizations risk AI technology debt: investing in systems that are costly to build yet quickly obsolete. This erodes return on investment, complicates integration and exposes IP strategies to uncertainty.

The tension between speed and robustness lies at the heart of the corporate strategy challenge in the context of AI. Organizations must balance short-term gains with long-term viability.

For innovators, this means building adaptive systems, investing in governance and ensuring that deployment decisions are anchored in resilience, not just urgency.

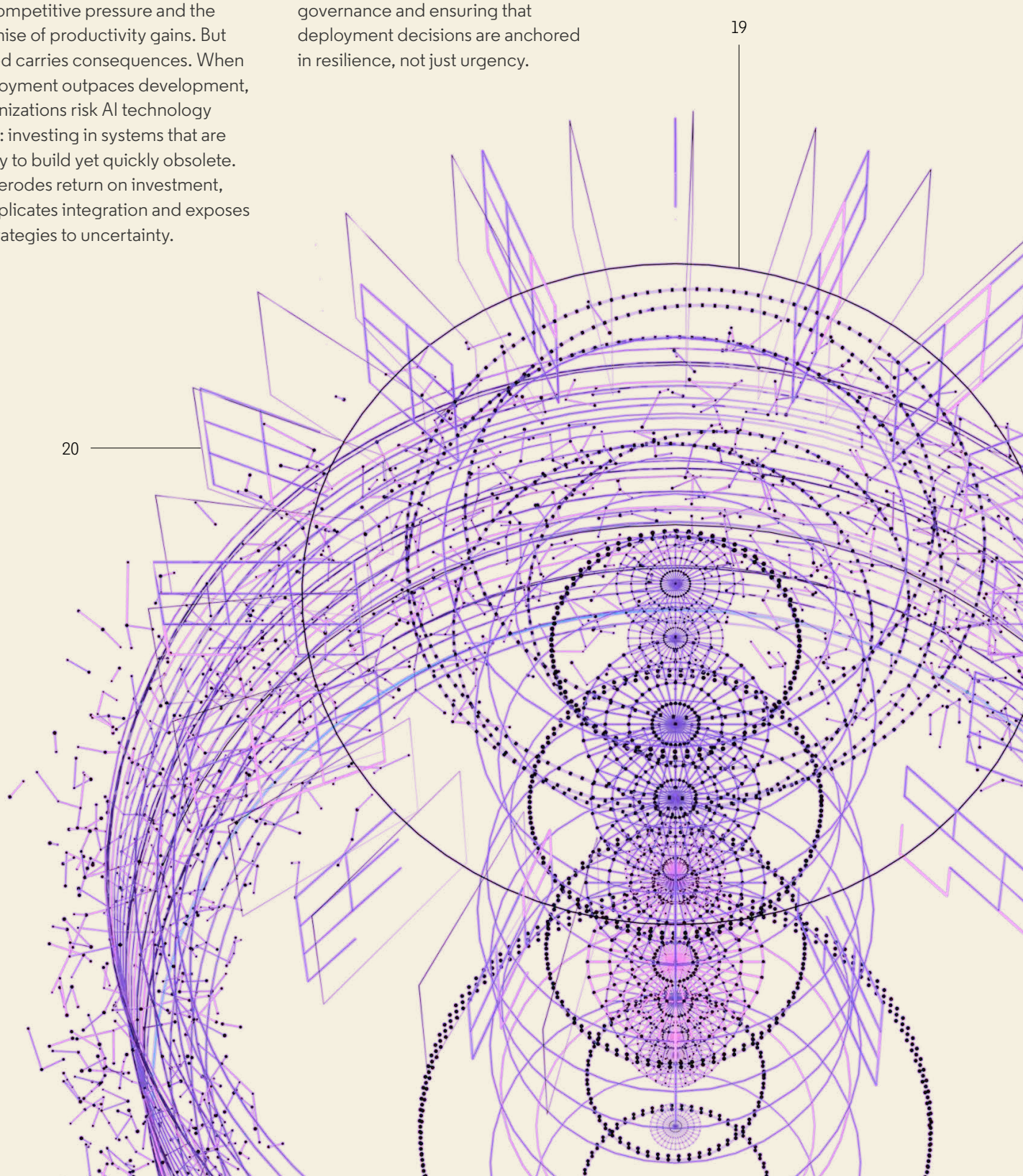
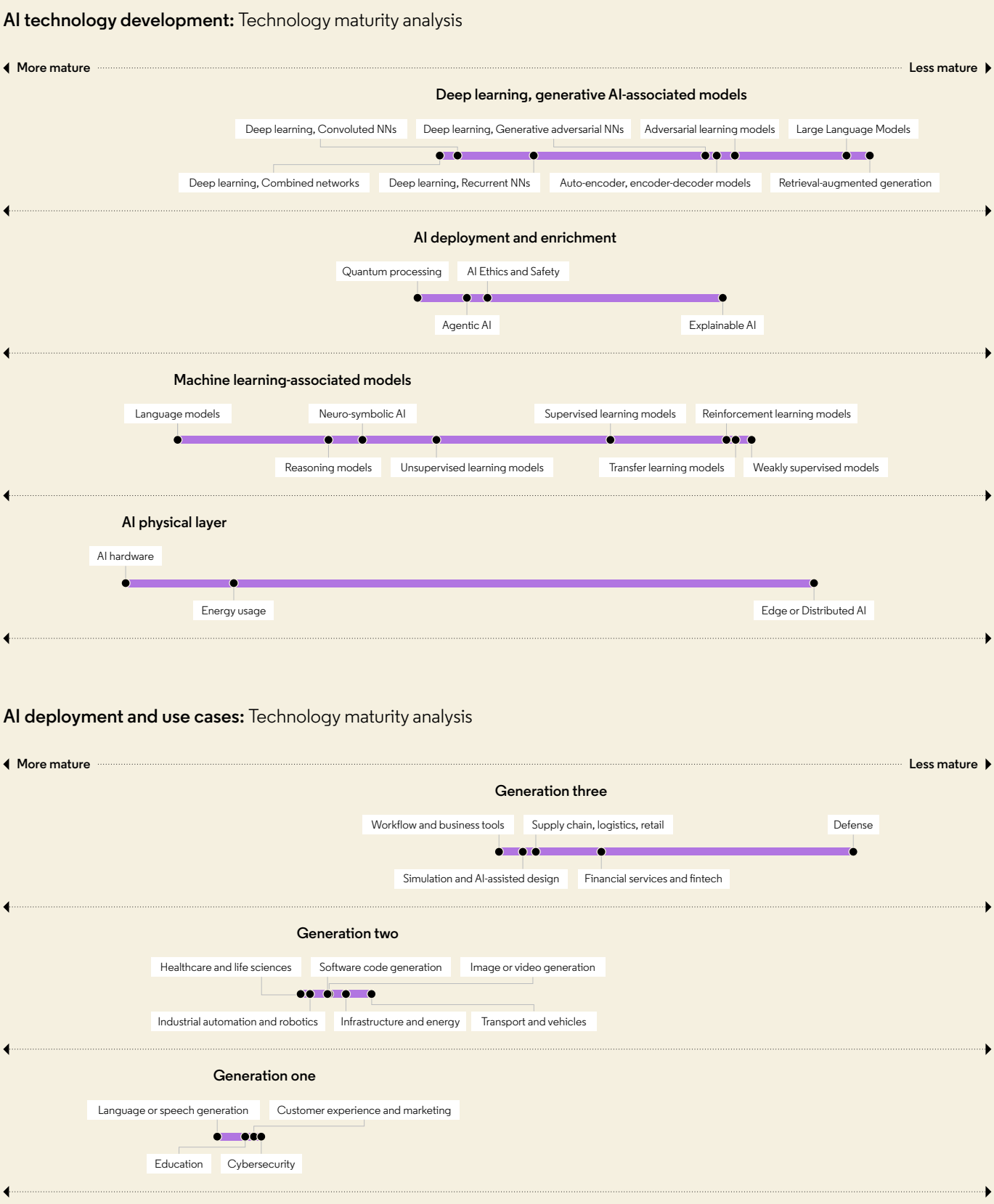


Figure 2: The development phasing of AI technologies, from most mature to least mature[4]



Sources: DWPI and Darts-ip

[4] Based on the Technology Maturity Index from Clarivate, incorporating scale, strength, development curve completion, level of dominant patent ownership, level of academic technology transfer and applicant patent filing expenditure.

The AI frontier and the safety imperative

AI is not a single technology but a layered system of capabilities, built on mathematical models, powered by hardware and deployed through increasingly autonomous systems. Understanding its architecture is essential to appreciating its impact.

Using DWPI data and expert classification, we map AI's evolution through the Clarivate technology maturity model, which evaluates six factors:

- Scale and velocity of invention activity
- Shape of development curves
- Dominance of key innovators
- Presence of academic institutions
- Investment intensity
- Strength and originality of inventions.

This analysis reveals four overlapping waves of development:

- **Hardware foundations:** The earliest and most mature layer is the physical infrastructure that enables AI computation. Semiconductor design and fabrication, particularly GPUs originally developed for gaming, have provided the computational power for advanced mathematics. Companies like NVIDIA were innovating in this space long before the AI invention explosion began.
- **Core machine learning:** The second wave includes foundational techniques such as natural language processing and supervised learning. These models, rooted in the 1990s, matured during the data science boom and now underpin many current AI applications.
- **Deployment technologies:** The third wave includes technologies that enable AI to be safely and effectively deployed. This includes agentic models, explainability and AI safety frameworks. It also includes long-standing work on quantum computing, preparing for future deployment environments.
- **Generative and deep learning models:** Since 2022, a third of all AI invention activity has focused on generative AI (GenAI) and deep learning. Large Language Models (LLMs), inspired by earlier work in transformers and neural networks, have grown 63-fold since 2020, making this the fastest-growing segment.

None of these waves or the technologies within them is slowing. Even mature technologies like AI hardware have more than doubled in invention activity since 2020.

At the technological frontier, three technologies address the core challenges of deployment:

- **LLMs and Retrieval-Augmented Generation (RAG):** LLMs power tools like ChatGPT, Claude and Gemini, enabling fluent, context-aware text generation. RAG enhances these models by dynamically retrieving relevant external data, improving accuracy, grounding and real-time relevance.
- **Explainable AI (XAI):** Critical for trust and accountability, and a core component of responsible AI, XAI enables users to understand and validate AI-driven decisions. This is especially important in regulated sectors like healthcare, finance and law, where transparency is a prerequisite for adoption.
- **Edge AI:** Designed for decentralized environments, Edge AI brings computation closer to the source, whether in vehicles, factories or wearable devices. It addresses challenges of latency, energy efficiency and data privacy, making AI viable beyond the data center.

These are not just technical milestones. They are strategic enablers that move AI from experimentation to integration, embedding it into products, platforms and decision-making systems

As these capabilities mature, we observe three distinct generations of deployment:

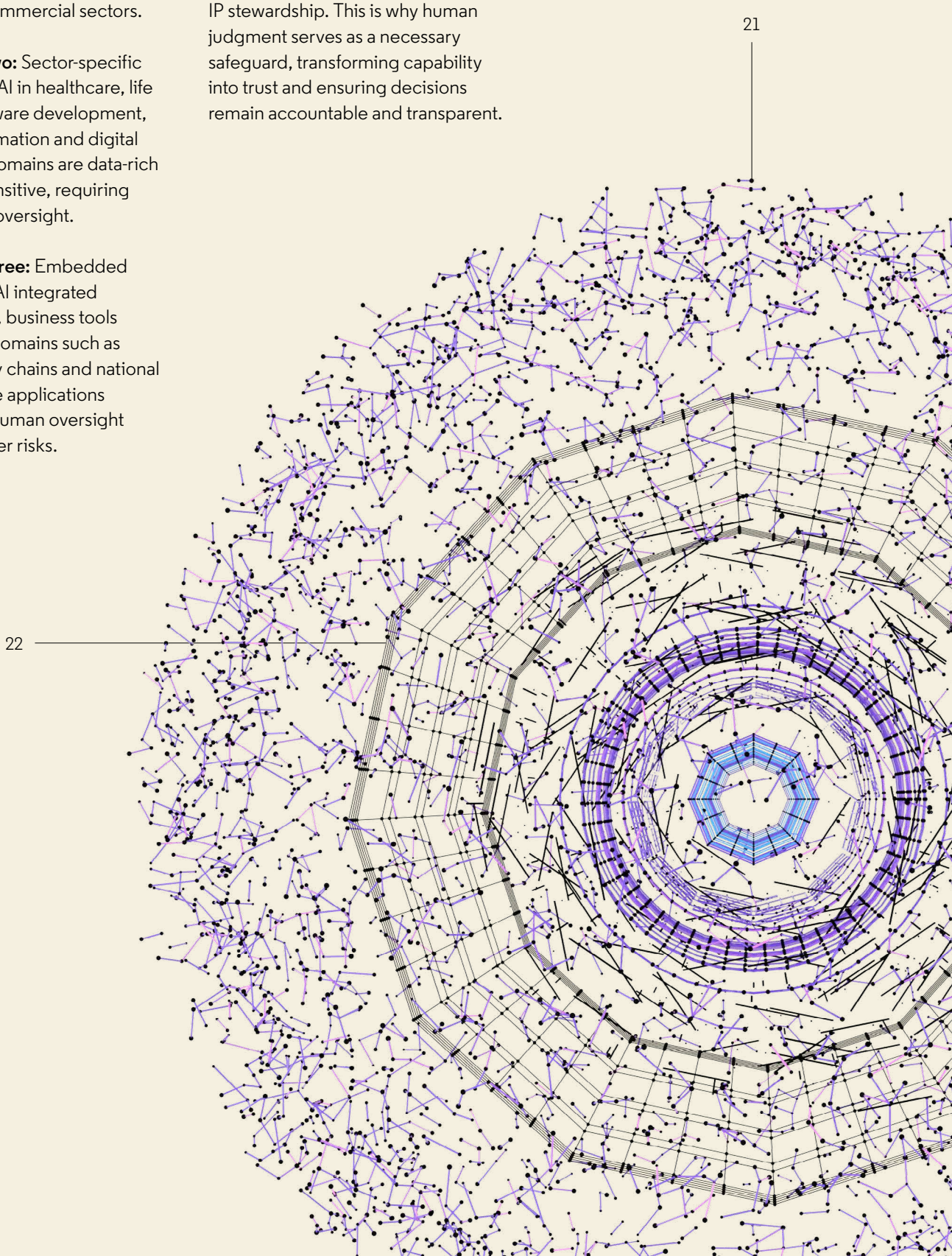
- **Generation one:** Language and content – Dominated by LLMs and generative tools, this generation enables use cases in education, marketing and general productivity. These applications are foundational; they serve as platforms for subsequent commercial sectors.

- **Generation two:** Sector-specific applications – AI in healthcare, life sciences, software development, industrial automation and digital twins. These domains are data-rich and impact-sensitive, requiring precision and oversight.

- **Generation three:** Embedded intelligence – AI integrated into workflows, business tools and sensitive domains such as finance, supply chains and national defense. These applications often require human oversight and carry higher risks.

A key distinction across these generations is the spectrum of reversibility. Errors in content generation are correctable. Errors in banking, the courtroom or on the battlefield are far less forgiving. This is why safety is a strategic imperative. It is no longer a technical afterthought, but a filter for investment, deployment and governance, encompassing ethics, regulation, societal impact and IP stewardship. This is why human judgment serves as a necessary safeguard, transforming capability into trust and ensuring decisions remain accountable and transparent.

Leading innovators design for safety. Their portfolios reflect resilience and readiness, setting a benchmark for others. Safety, explainability and governance are now central to innovation performance.



The global race for AI leadership

Fig. E

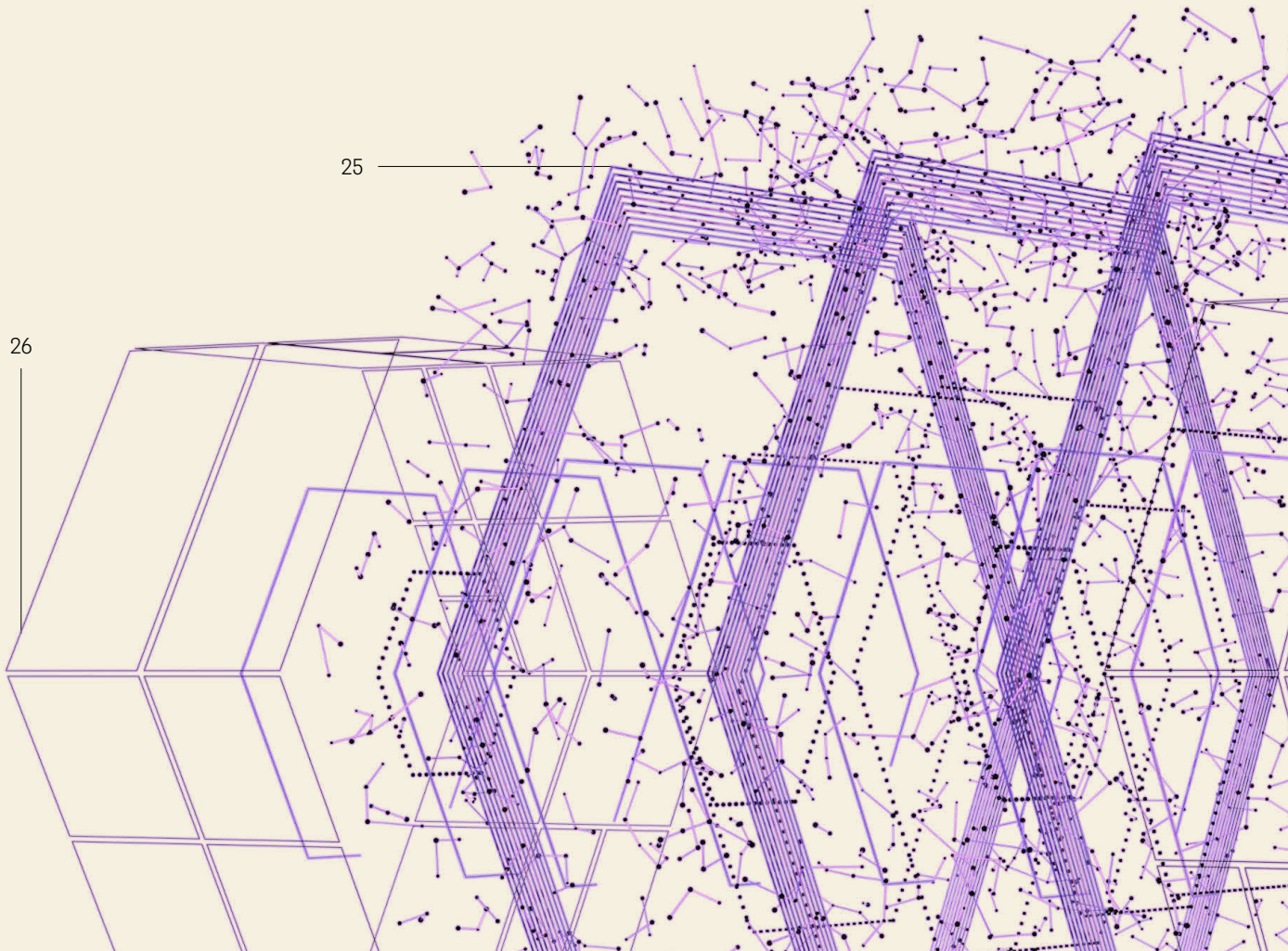
Beyond the technological frontier lies a broader contest, geopolitical in nature and global in consequence. AI is now a foundational layer of national capability, influencing healthcare, scientific discovery, economic competitiveness and national defense.

The ability to develop AI at scale, to manufacture the hardware that powers it and to embed it into critical infrastructure has become a strategic asset shaping trade policy, security doctrine and international alliances. This shift brings complex international dynamics: geopolitical rivalry, ethical considerations and regulatory tension. National strategies now address not only innovation and competitiveness but also data sovereignty, algorithmic accountability and cross-border collaboration.

While governments set the macro environment, organizations, particularly those in the Top 100 Global Innovators, translate capability into leadership. Their portfolios reflect not just where innovation happens, but how it is orchestrated.

> **A global race has begun. One that we can track.**

Ed White
Head of the Clarivate Center for IP and Innovation Research



Volume vs. Strength

Mainland China leads in AI patent filings. However, when we isolate the top 0.5% of high-strength inventions,[6] those with the greatest technical impact and global reach, the balance shifts. The United States-European bloc emerges as the source of the most significant AI inventions (Figures 3–5).

This lead is not absolute. When normalized for economic scale (high-strength AI invention per trillion dollars of GDP), the advantage tilts back toward Mainland China. The picture is dynamic; leadership depends on the lens: volume, strength or efficiency.

Figure 3: AI invention volume: United States, the European Union, the United Kingdom vs. Mainland China[7]

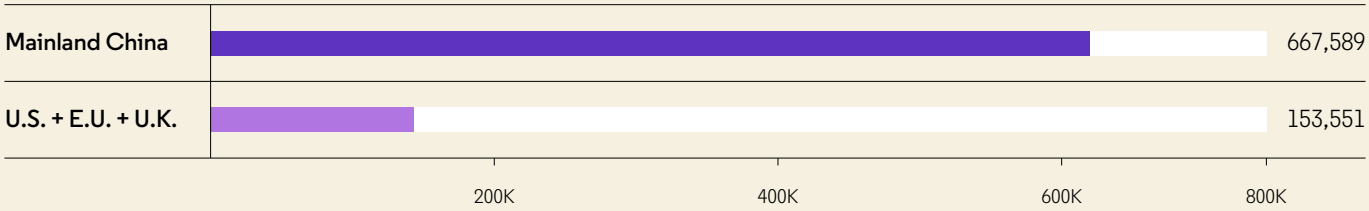


Figure 4: High-strength AI inventions (Top 0.5%) filed in two jurisdictions[8]

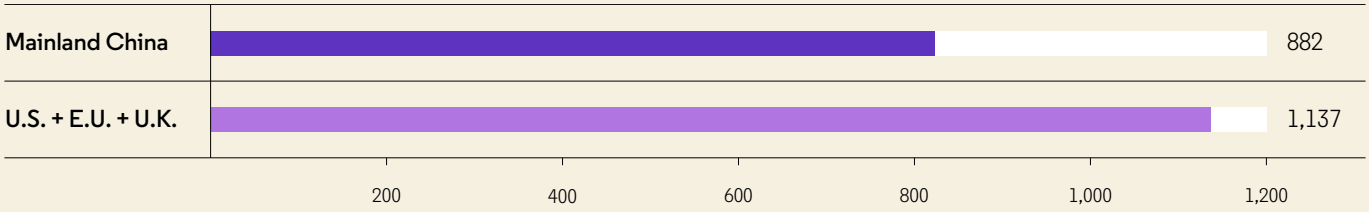
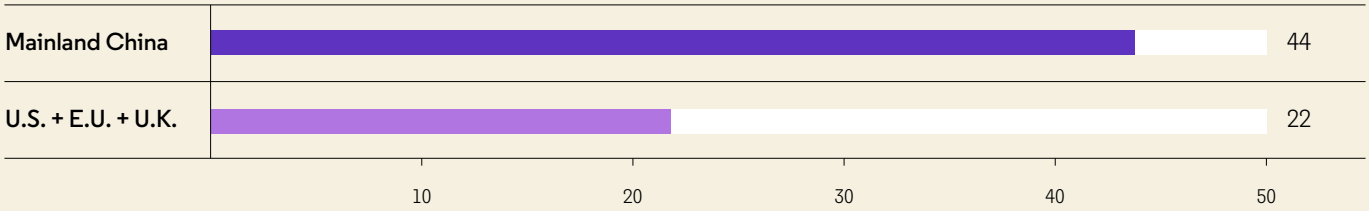


Figure 5: High-strength AI inventions per trillion USD GDP[9]



Source: DWPI

[6] Defined as invention in the top 0.5% of AI-inventions, as measured via the Derwent Strength Index as well as being filed in multiple patent jurisdictions.

[7,8,9] No date restriction.

Heritage vs. Ambition

Regions that invested early, the United States, Europe, Japan and South Korea, retain an edge in foundational technologies. Their long-standing ecosystems of research, regulation and talent provide resilience and adaptability (Figure 6).

Figure 6: Heritage vs. contribution to high-strength AI innovation[10]

Scaled to number of inventions within high strength AI cohort. Note, absolute version of ranked y-axis.

Source: DWPI

[10] Location based on inventor residence or organization location, heritage calculated as when the country/region first exceeded the publication of 10 high-strength AI inventions.

Timing matters. Over half of Mainland China's AI inventions were filed after the release of ChatGPT in late 2022, a moment that crystallized AI in the public imagination. This surge created large pools of AI inventions across all major themes.

While some drivers, such as state incentives and lower filing costs, invite skepticism, the data shows nuance:

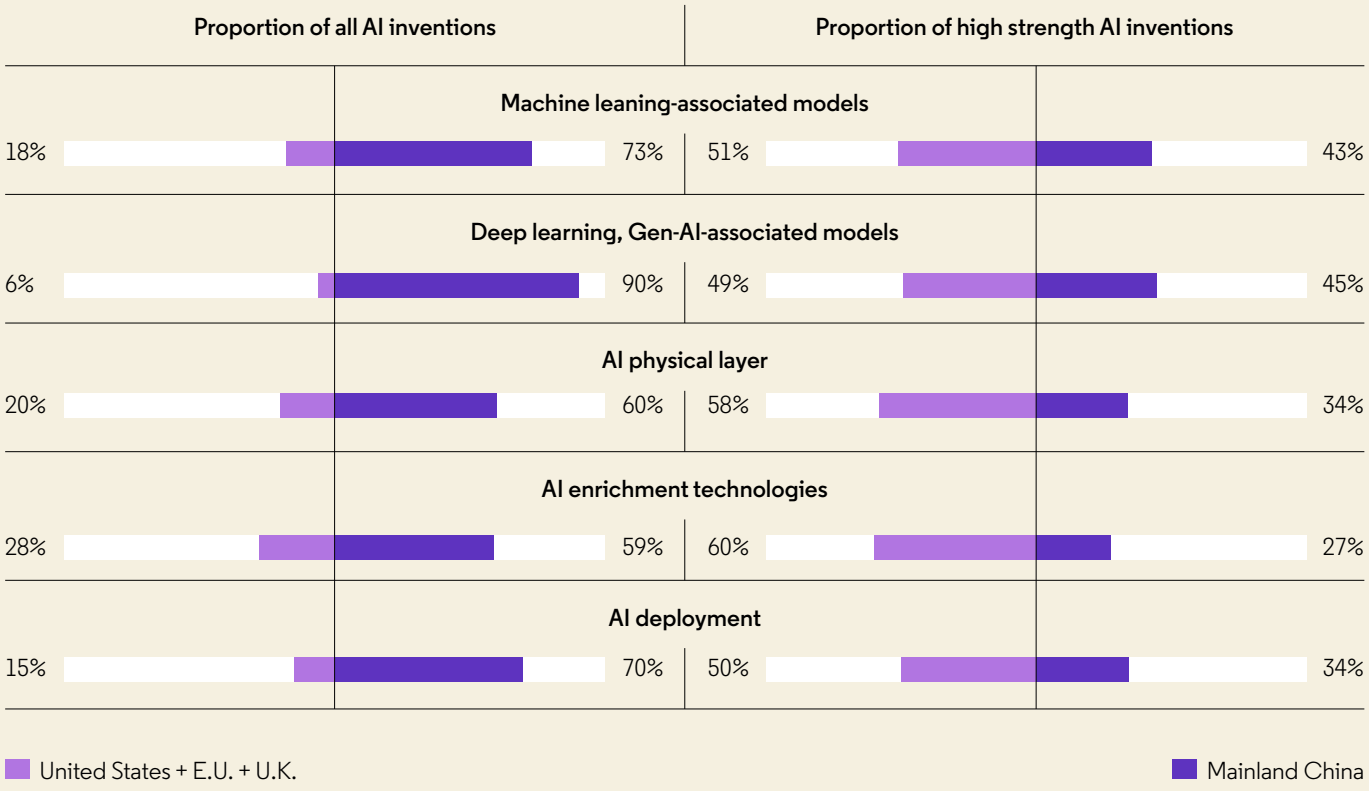
- The United States-European bloc leads in high-strength inventions across hardware, early machine learning, deployment technologies and AI safety.
- Mainland China dominates in generative GenAI, holding 45% of high-strength inventions in this category (Figure 7).

So, while the United States and Europe lead in deploying AI safely and embedding it into industry, Mainland China is catching up fast, particularly in building models, including open-source and high-efficiency architectures such as DeepSeek.

Other regions bring distinct strengths:

- **The European Union-United Kingdom**: Regulatory foresight and AI governance.
- **South Korea and Taiwan:** Semiconductor expertise powering AI hardware.
- **Japan:** Leadership in industrial automation and precision engineering.

Figure 7: Patent activity by region: all AI inventions vs. high-strength inventions



Source: DWPI

Collaboration vs. Isolation

The geopolitical stakes are high, yet innovation often defies borders. Nearly 10% of AI inventions from United States–based organizations include inventors in Mainland China.

The reverse is rarer; only 1% of Chinese inventions include United States–based inventors.

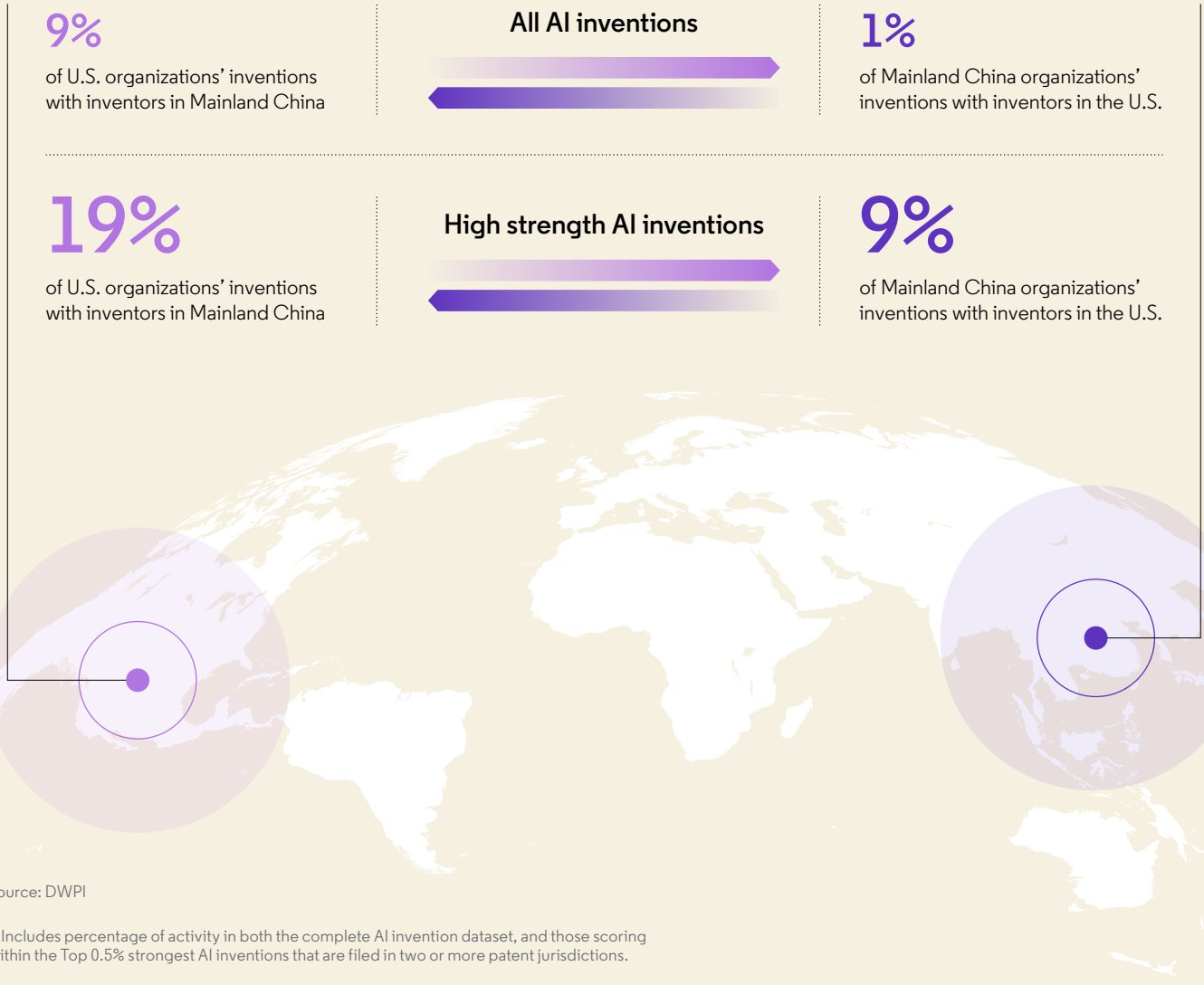
But, when we isolate high-strength inventions, the impact of collaboration becomes clear:

- United States–Mainland China inventor teams double in frequency.
- For Chinese-led inventions, United States–based co-inventors increase ninefold (Figure 8).

The most impactful ideas are therefore often the most collaborative. While the AI race is a national rivalry, the data reveals a more nuanced reality: ideas do not see borders.

As geopolitical tensions rise, the ability to connect talent, share knowledge and co-develop technologies becomes not just a competitive advantage, but a strategic necessity.

Figure 8: Cross-border inventor collaboration: United States and Mainland China[11]



Source: DWPI

[11] Includes percentage of activity in both the complete AI invention dataset, and those scoring within the Top 0.5% strongest AI inventions that are filed in two or more patent jurisdictions.

Defining AI leadership

Leadership in AI requires more than scale or volume; it demands decisiveness and strategic clarity. As nations race to define their AI futures, organizations face a parallel challenge: how to lead in a landscape shaped by technological complexity and uncertainty.

Leadership is not just about invention; it's about alignment, connecting development and deployment. Some organizations focus on development: designing models, engineering hardware and advancing mathematical foundations. Others focus on deployment: integrating AI into workflows, products and decision systems, often in high-stakes environments where safety, explainability and reliability are paramount.

This distinction matters. It reveals how innovation is planned, not improvised, and highlights the signals that differentiate AI leaders: not just what they build, but how and where they focus their efforts.

What this means for innovators:

- **AI safety is a strategic filter,** shaping deployment decisions, not just a technical concern.
- **Deployment is outpacing development,** creating a risk bubble that demands certainty, agility and governance.
- **Leadership in AI takes many forms,** from building foundational models to embedding intelligence into operations.
- **The most impactful ideas are collaborative,** crossing borders, disciplines and domains.

> **“ The Top 100 Global Innovators account for 16% of the world's highest-strength AI inventions; proof that leadership is built on quality, not just quantity.**
>
> **Phil Arvanitis**
> Director, Clarivate Center for IP and Innovation Research

Clarity from complexity

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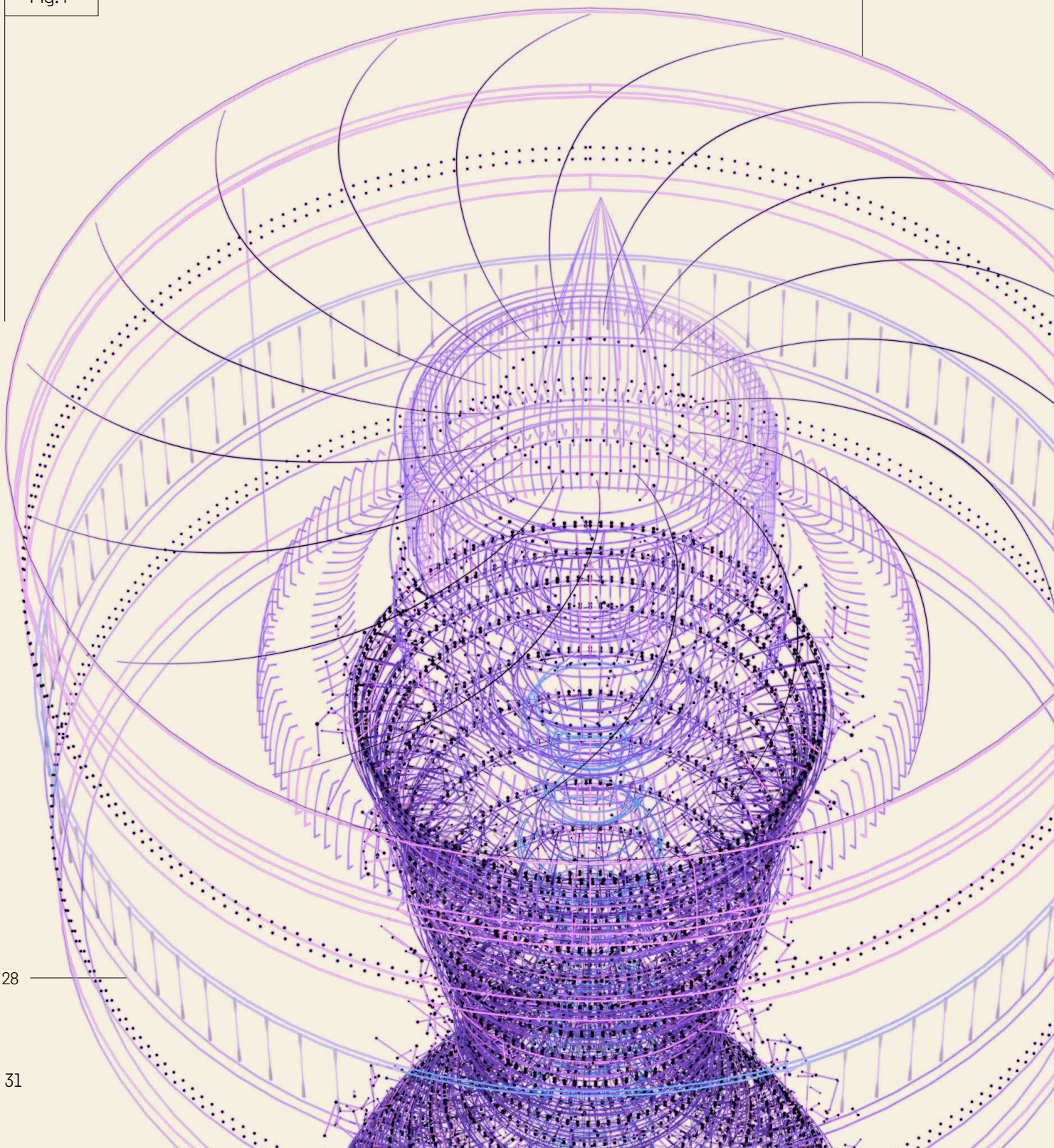
Fig. F



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In the age of AI, innovation is no longer linear. It's a living system: adaptive, convergent and increasingly intelligent.

Innovation is no longer a volume sport. The leaders of tomorrow will be those who know where they stand, where the frontier is moving and how to act with precision.

The Top 100 Global Innovators of 2026 operate at this frontier. These leaders don't just invent, they architect. Their portfolios reveal a shift from scale to precision, from output to purpose. They build resilient pipelines that anticipate disruption and enable convergence. Their strategies turn complexity into clarity.

AI is reshaping the equation of innovation, not by replacing human ingenuity, but by amplifying their intellect and productivity. The most impactful organizations are designing ahead, targeting disruption before it arrives.

As AI augments human inventorship, the threshold for innovation achievement is rising, demanding a more exacting standard. Future R&D will integrate AI across the innovation lifecycle, from ideation and design to development and deployment. Execution will be continuous. Innovation will be augmented. And focus will be the defining advantage.

AI is already a strategic layer in national capability and corporate transformation, and it will continue to shape the trajectory of global innovation for the foreseeable future.

The innovators recognized in this report exemplify the strategic signals of a new era:

- **Coordination:** aligning invention with business strategy and global impact.
- **Resilience:** building innovation systems that adapt to disruption.
- **Reinvention:** evolving portfolios to meet emerging needs and technologies.

Clarivate sits at the intersection of invention data, innovation analysis and the global IP system. We track these signals not just to rank performance, but to illuminate patterns, priorities and possibilities; helping organizations act with confidence.

AI runs through every discipline, including our own. Clarivate is part of the transformation, and our role is clear: we turn AI from a promising capability into dependable decision support by grounding it in highly curated data, industry expertise and rigorous governance.

AI adds significant value to the IP ecosystem when targeting how professionals work, and governed for provenance and quality. Our goal is not to replace judgment, but to amplify it, without compromising integrity or usefulness. In short, Clarivate champions AI that enriches rather than replaces human expertise. As we look ahead, this commitment to responsible AI is part of a broader mission: helping innovators act with confidence today, and lead with clarity tomorrow.

> **"The Top 100 Global Innovators report is more than a ranking. It recognizes those who lead with intention, intelligence and integrity. It's a map of what's next, and a signal of who's ready.**

Ed White
Head of the Clarivate Center for IP and Innovation Research

About the Clarivate Center for IP and Innovation Research

Combining more than 60 years of intellectual property 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:
clarivate.com/intellectual-property/consulting-services

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