

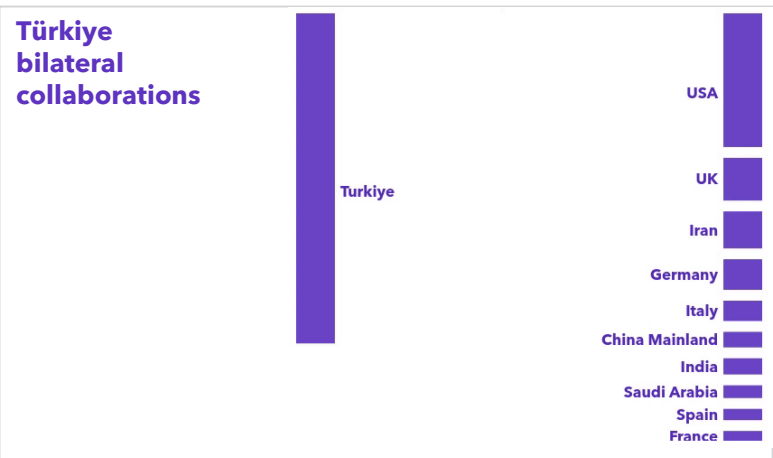
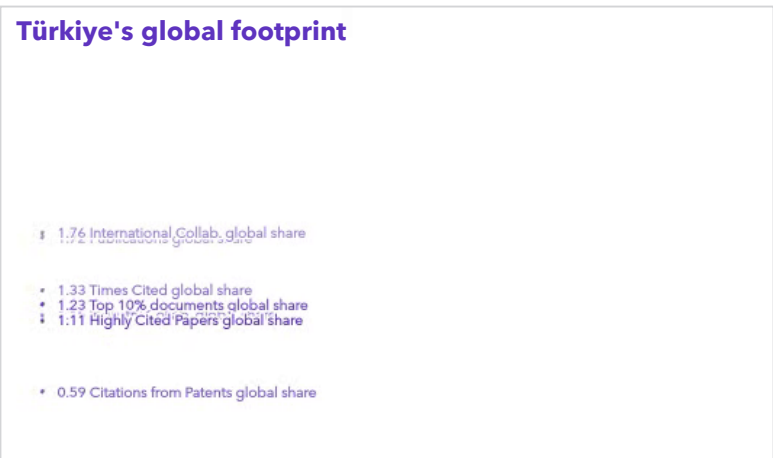
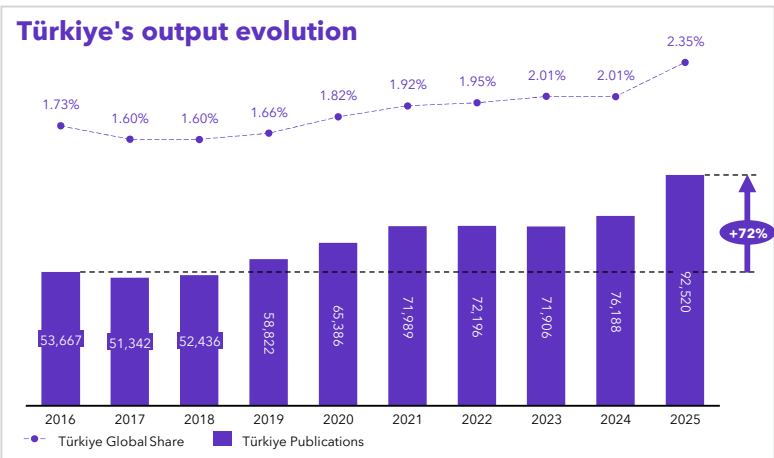
Türkiye Research Landscape and International Benchmarking Report

July 2026

Iulian Herciu, Academia & Government Consultant, Clarivate

Executive summary

Output, partnerships & impact: Türkiye's research momentum



Substantial output growth

Türkiye's contribution to global research output followed a recovery trajectory over the period. After declining from 1.73% in 2016 to 1.60% in 2017-2018, its share increased steadily in subsequent years, reaching 2.35% in 2025. This upward trend suggests a strengthening presence in the global research ecosystem and an improving ability to compete internationally.

Improvement in research quality indicators

The growth in Highly Cited Papers (HCPs) kept pace with the broader increase in research output, reflecting improvements in both research scale and excellence. Beyond generating more publications, the research system appears to be producing a greater proportion of work that attracts significant international recognition and scholarly influence.

International collaboration network in full growth

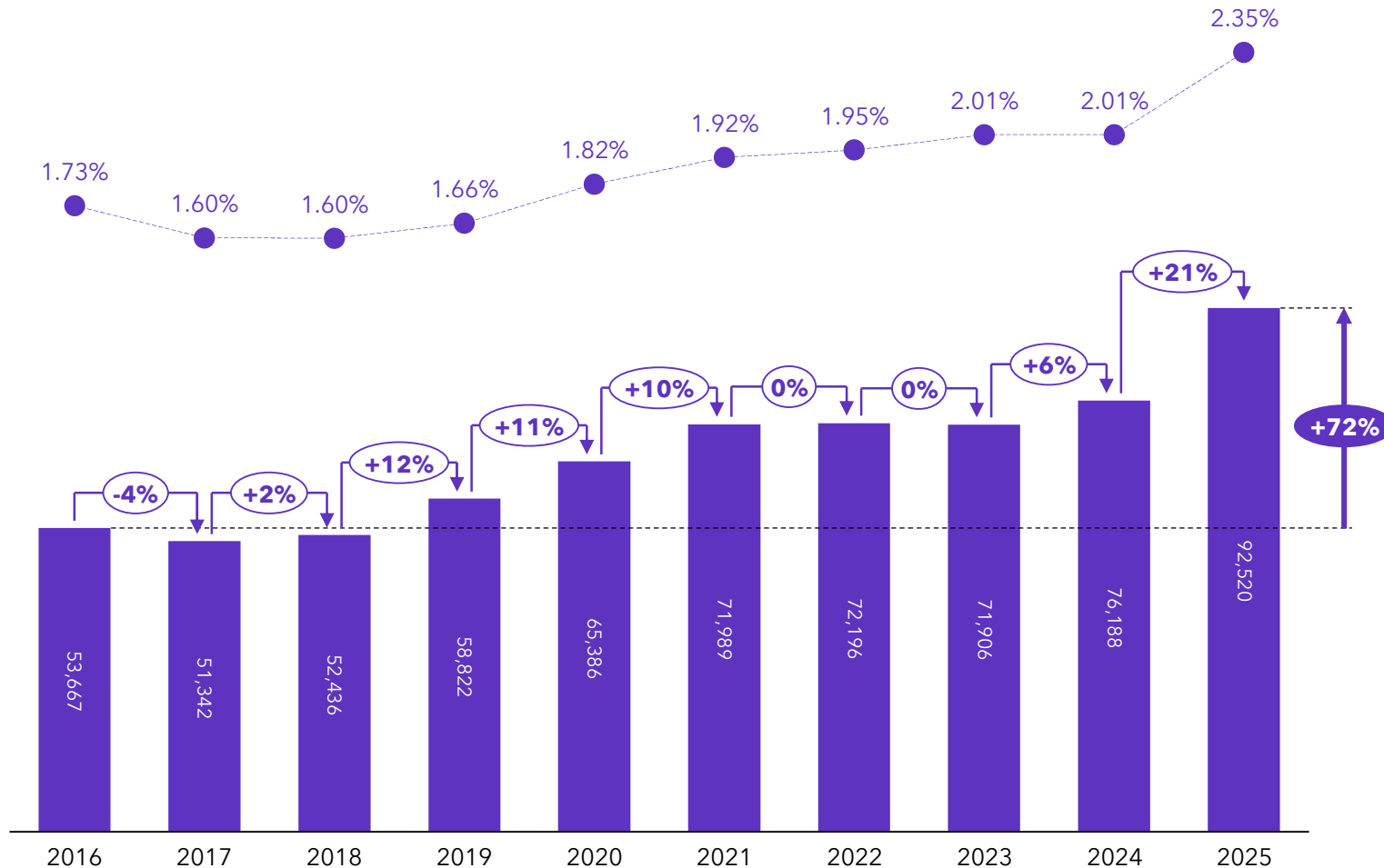
Türkiye's research collaboration landscape reflects a balanced engagement with both traditional scientific powerhouses and emerging knowledge economies. Led by partnerships with the USA and the UK and complemented by growing ties with countries such as India and Saudi Arabia, this network enhances Türkiye's ability to access diverse expertise, strengthen knowledge exchange and engage with multiple centers of global research growth.

Research Overview

Publications and Impact

Türkiye Growth

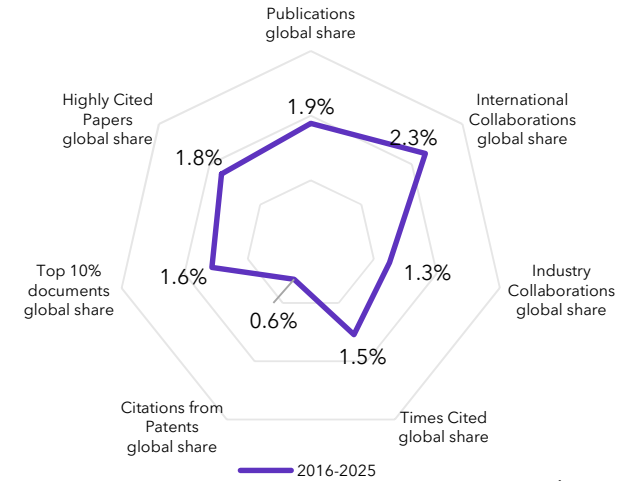
Publications and global share



- Türkiye's research output demonstrated substantial growth over the 2016-2025 period, increasing from 53,667 to 92,520 publications, representing a cumulative increase of 72% with the most pronounced annual expansion of +21% recorded between 2024 and 2025.
- A plateau in publication volume was observed between 2021 and 2023, during which year-on-year growth remained at near zero, followed by vigorous growth in 2024-2025 that may reflect the impact of emerging national research investment strategies or institutional capacity development.
- Türkiye's share of global research output showed a recovery trajectory, declining from 1.73% in 2016 to 1.60% in 2017-2018 before rising progressively to 2.35% in 2025, surpassing its earlier baseline and signaling an increasingly competitive position within the international research landscape.

Türkiye Global Footprint

Macro-overview



- 1.76 International Collab. global share
- 1.72 Publications global share
- 1.33 Times Cited global share
- 1.23 Top 10% documents global share
- 1.11 Highly Cited Papers global share
- 0.59 Citations from Patents global share

Publications global share

International Collaborations global share

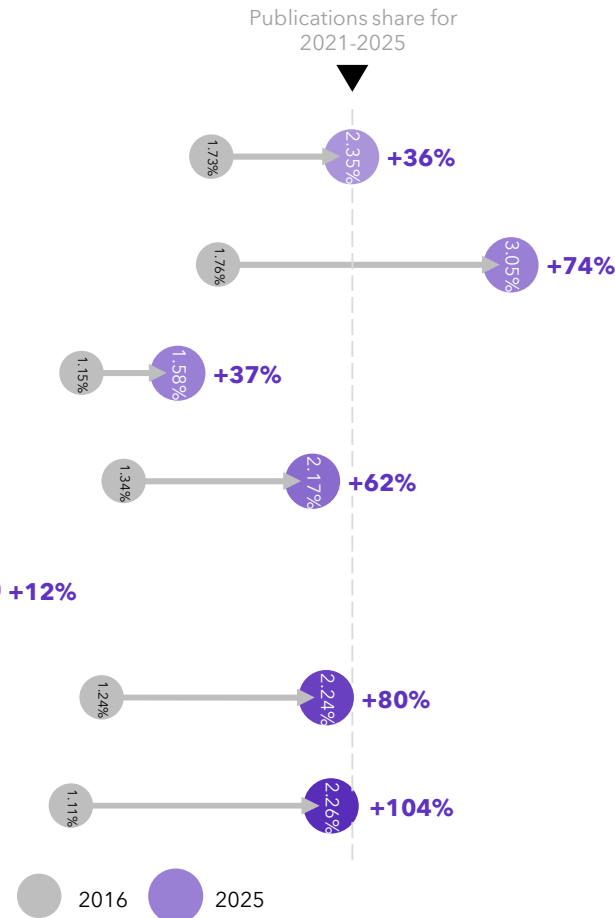
Industry Collaborations global share

Times Cited global share

Citations from Patents global share

Top 10% documents global share

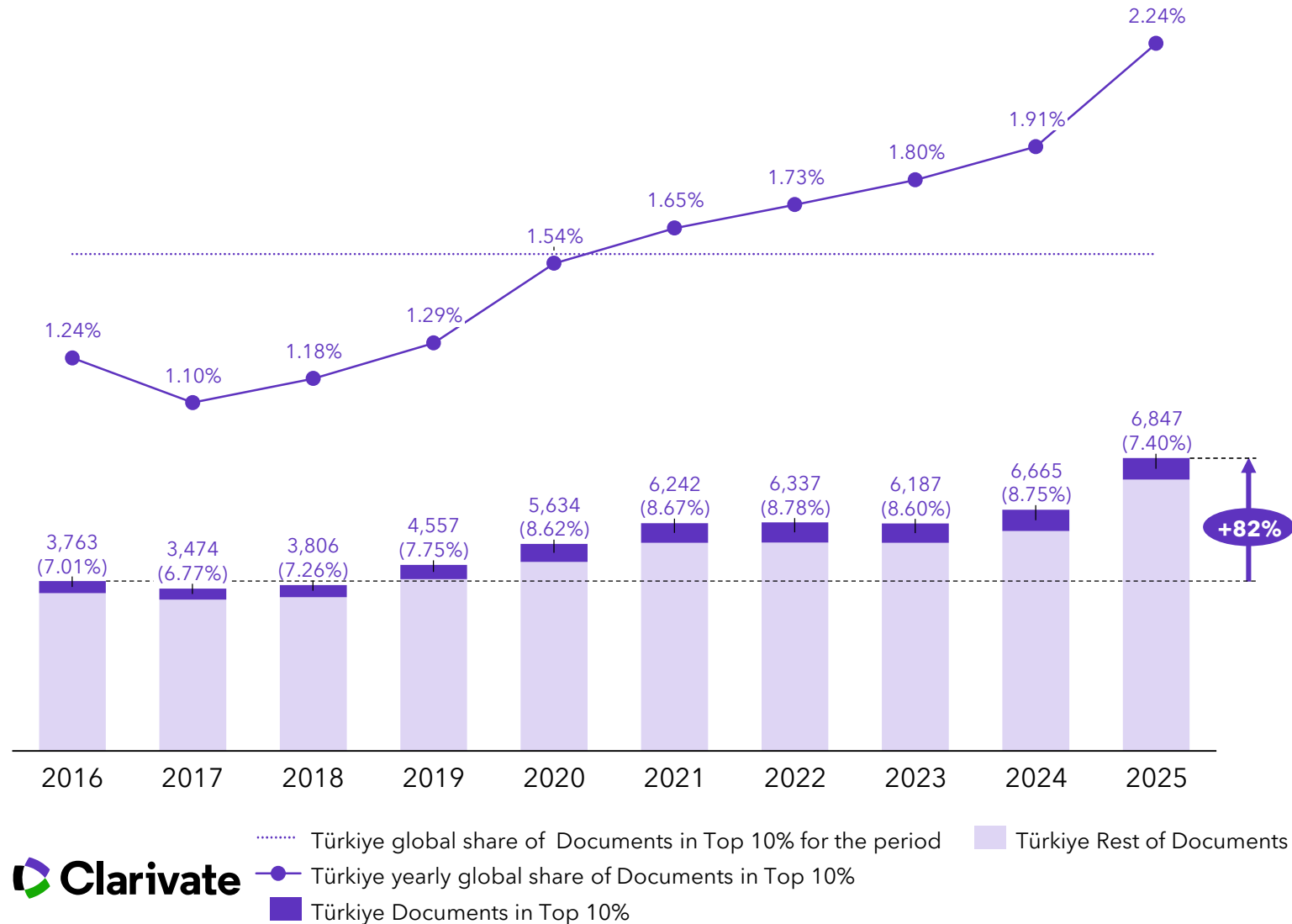
Highly Cited Papers global share



- In the radar chart, we explored the country's global footprint profile over 2016-2025. Türkiye has the highest shares in International Collaborations (2.3%) and Publications (1.9%) – revealing that the country's prominent dimensions are related to output-related indicators.
- The range chart reveals the progress dynamic between 2016 and 2025. Türkiye's research impact indicators recorded significant gains with the global share of Highly Cited Papers more than doubling (+104%, from 1.1% to 2.3%) and the share of Top 10% documents rising by 80% (from 1.2% to 2.2%).
- The multi-line time series chart shows the evolution of the considered indicators in the period 2016-2025. It is worth mentioning the growth trajectory of Industry Collaborations, reflecting an increased focus on applied research.
- While citation-based indicators showed robust improvement with the Times Cited global share rising by 62% (from 1.3% to 2.2%), the comparatively modest growth in Citations from Patents (+12%, from 0.6% to ~0.7%) suggests that the translation of research-to-innovation remains an area for further development.

Documents in Top 10%

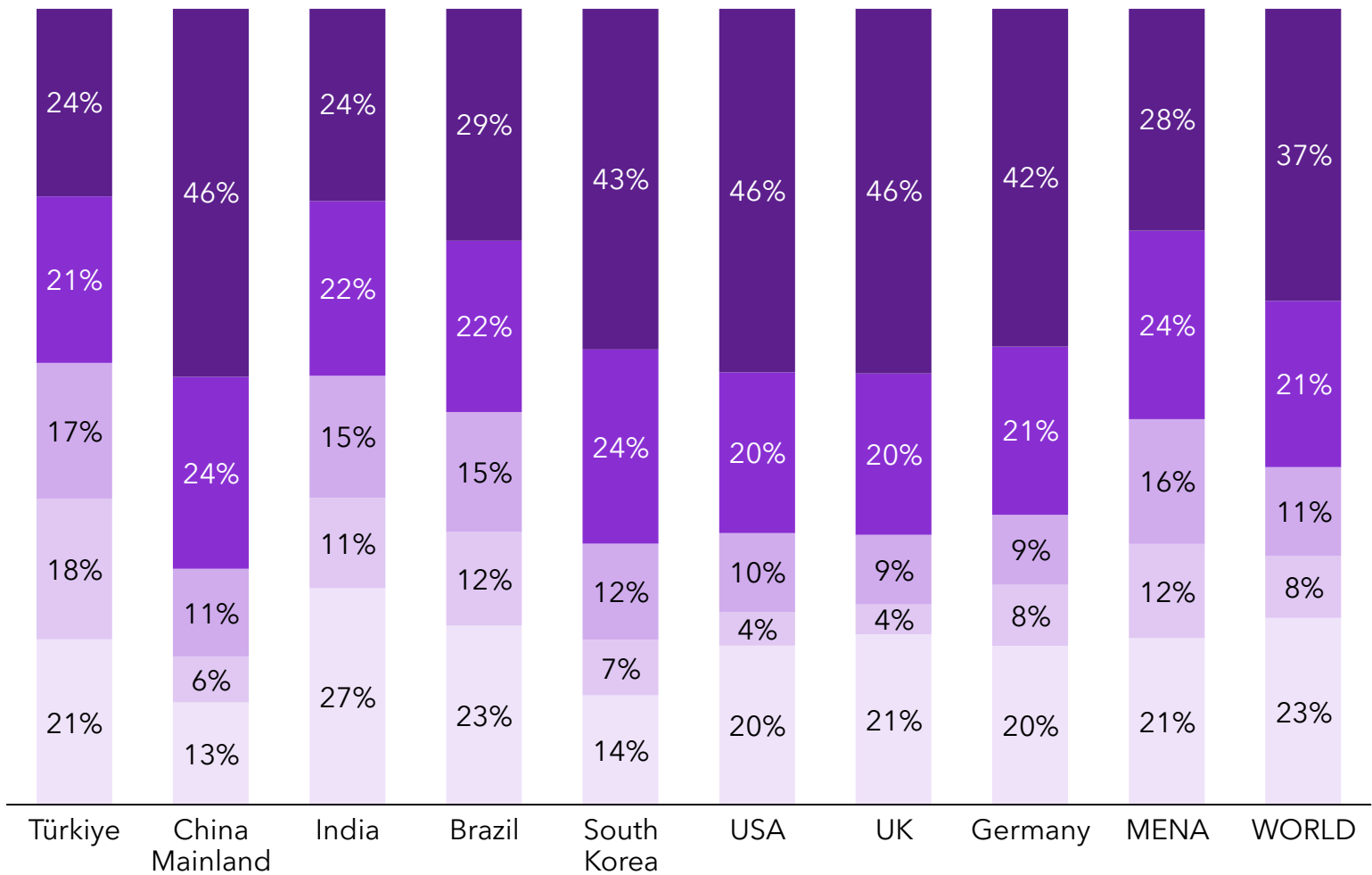
Volume and context



- Türkiye's volume of Top 10% documents nearly doubled over the 2016–2025 period, rising from 3,763 to 6,847, representing a cumulative increase of 82%, slightly higher than the growth of the national total output.
- The proportion of Türkiye's output appearing in the Top 10% climbed from 7.0% in 2016 to a peak of 8.8% in 2024, before declining sharply to 7.4% in 2025. This contraction coincides with a significant surge in total publication volume recorded in the same year.
- The country's global share of Top 10% publications rose steadily from 1.24% to a peak of 2.24% in 2025, indicating a strengthening of Türkiye's positioning within the global landscape over the period.

Quartile Distribution

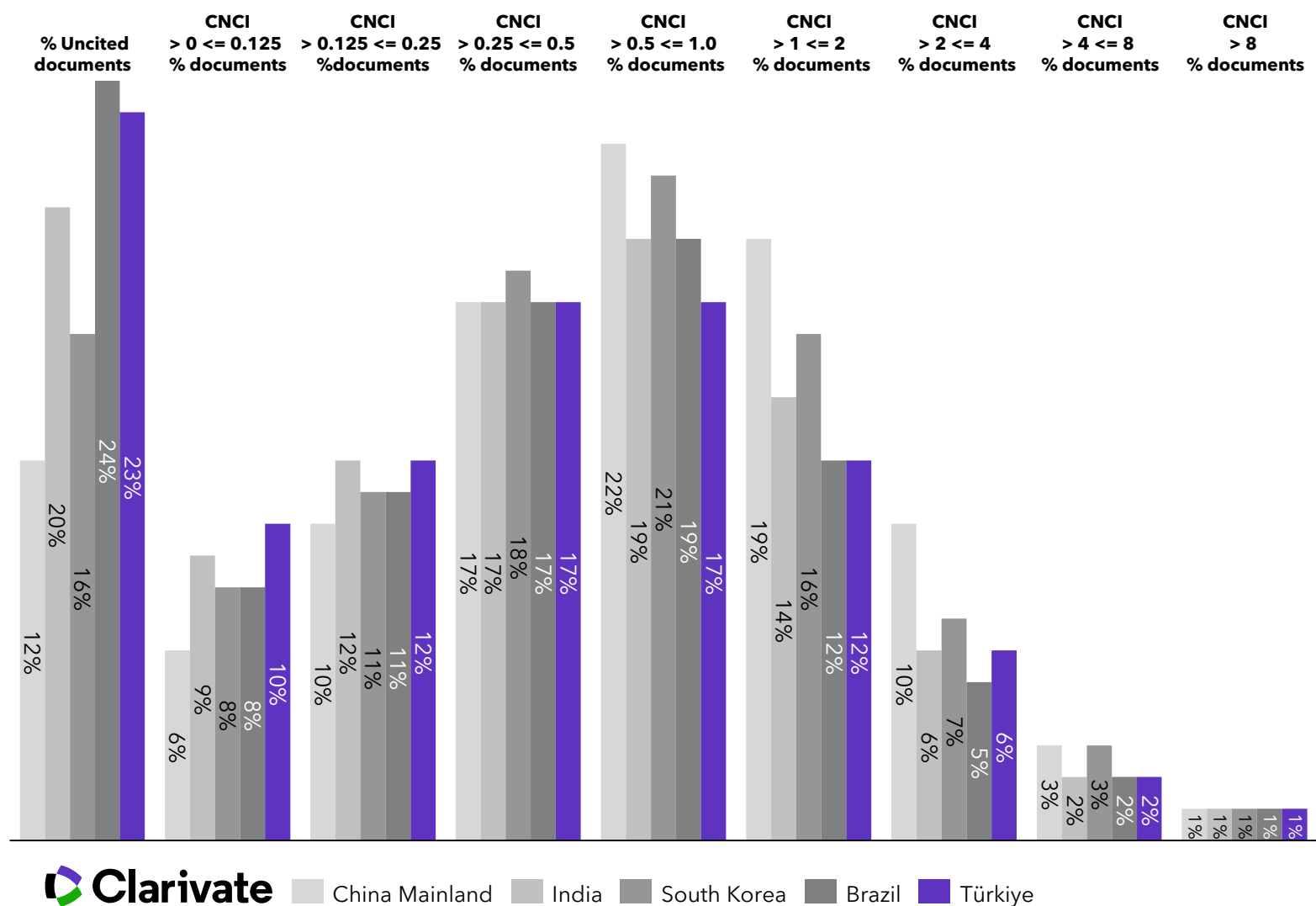
Strong foundation with clear upward potential



- This chart compares the quartile distribution of publications between 2016-2025 across multiple countries with different research profiles from established to emerging research countries.
- We observe the relative low percentage of Q1 share (24%) which is below the world average (37%), indicating a gap compared with leading research nations. The aim of the comparison is to suggest that the country should evolve toward a similar proportional structure - a greater concentration of output in Q1, rather than replicate exact figures.
- Türkiye's combined Q1 and Q2 journal share of 45% is indicating a significant segment of the country's research community is already engaging with well-established, impactful journals. This can be considered a solid foundation for increasing the research published in journals with high Impact Factor through targeted journal strategy and international collaborations.

Impact Profile - CNCI Distribution

Competitive position among emerging research leaders



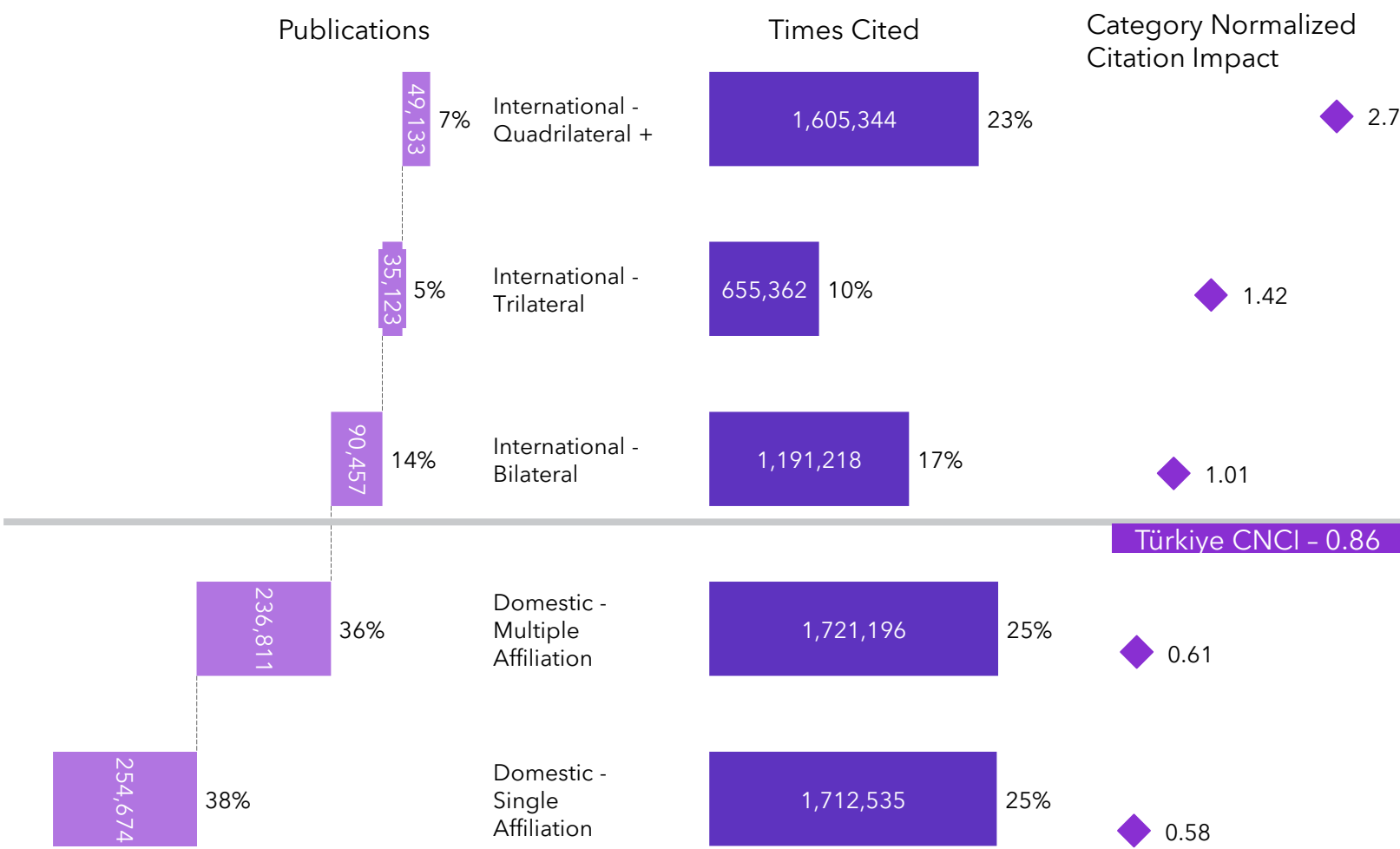
- Türkiye's CNCI of 0.86 is below the world average of 1.0, but comparable to peers such as Brazil and India. The 23% uncited rate, while among the highest in the comparison group, could be a consequence of the country's accelerated output growth in recent years, where newer publications have not yet had sufficient time to accumulate citations.
- Türkiye maintains a meaningful and growing presence in the high-impact segments of the CNCI distribution (CNCI > 2), with visible output across the CNCI > 4 and CNCI > 8 categories, demonstrating that the country's research ecosystem can produce breakthrough, highly cited work that competes at the highest levels of global research.
- The overall shape of Türkiye's CNCI distribution resembles that of South Korea and Brazil, two countries with rapidly maturing research systems. Türkiye is following a comparable development trajectory with these countries, balancing domestic research challenges and global trends.

International

Collaborations and countries benchmark

Türkiye Collaborations Profile

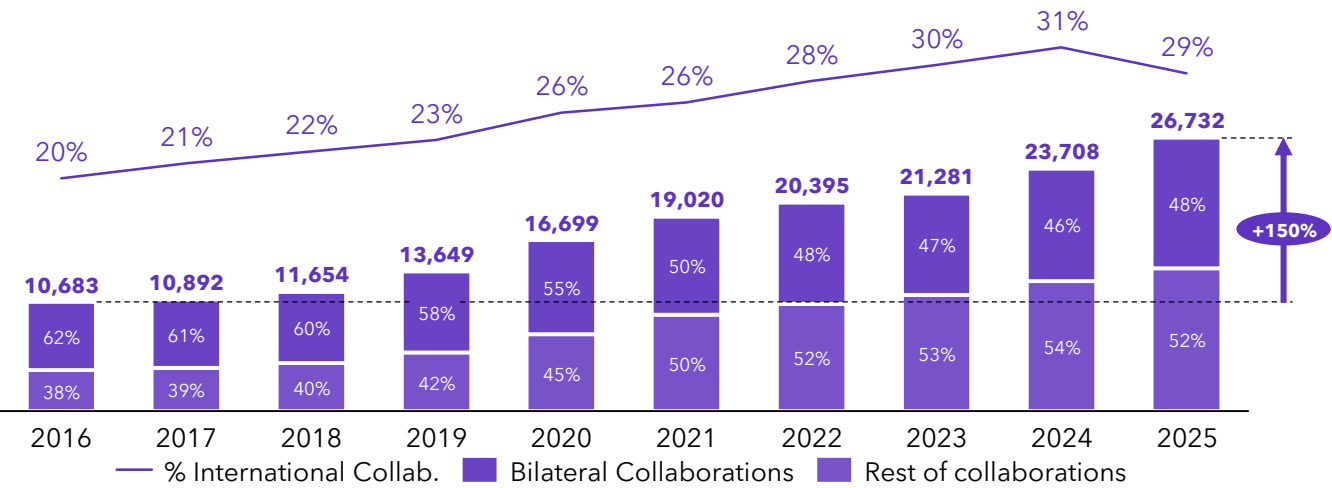
Strategic value of Türkiye’s international partnerships



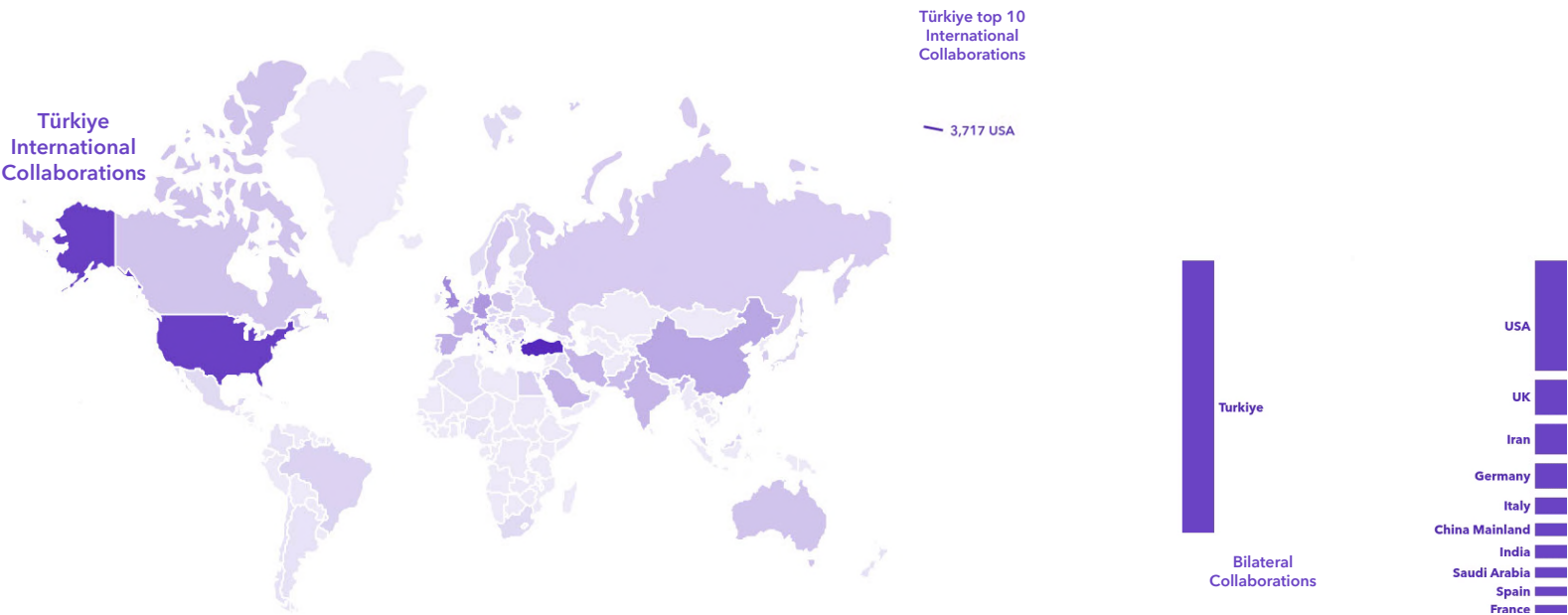
- Türkiye's collaboration portfolio shows a well-balanced international structure with significant room for strategic growth.
- International collaboration serves as a powerful amplifier of Türkiye's research impact, with Quadrilateral+ partnerships yielding a CNCI of 2.79, more than three times the national average of 0.86. They account for 23% of total citations from just 7% of publications, demonstrating an exceptional return on collaborative efforts at the multilateral level.
- Across all international collaboration types, Türkiye consistently exceeds the world citation footprint baseline (CNCI = 1.0), with Trilateral collaborations achieving a CNCI of 1.42 and Bilateral partnerships reaching 1.01. This confirms that international engagement, regardless of scale, elevates the visibility and impact of Turkish research, resulting in above-average global citation performance.
- It is important to note the high citation impact of international collaborations, which contribute 50% of all citations from just 26% of output. In comparison, domestic output (74% of publications) accounts for 50% of total citations and represents a strong, productive foundation.

International Collaborations

International collaboration network in full growth

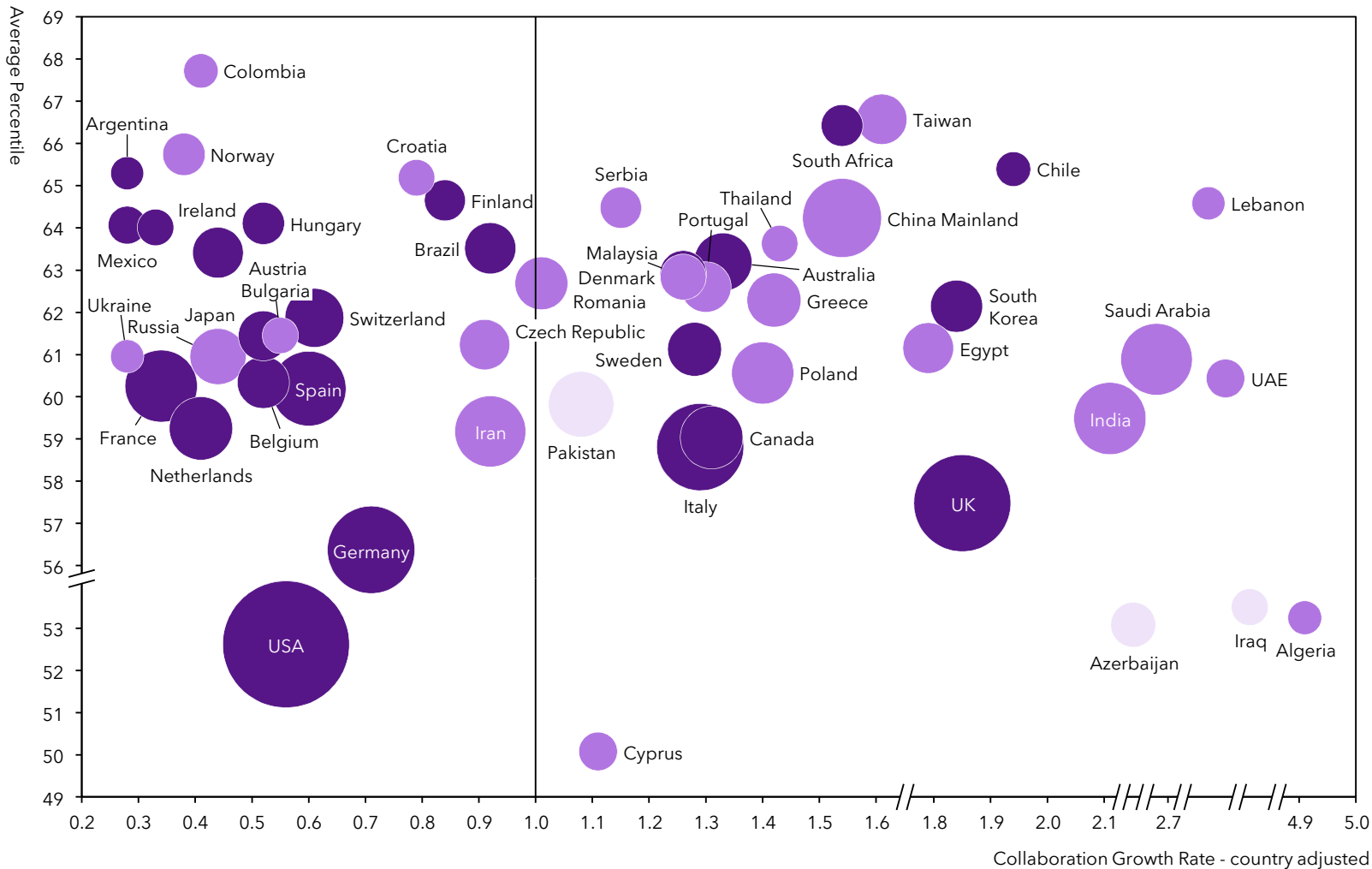


- Türkiye's international collaboration volume grew by 150% over 2016–2025 (from 10,683 to 26,732 co-authored publications), more than double the 72% growth in overall research output during the same period. More importantly, the share of international collaborations within total output increased from 20% to 29%, reflecting a sustained shift toward global research engagement.
- The composition of Türkiye's international partnerships is evolving toward greater complexity and depth, with multilateral collaborations (Trilateral and Quadrilateral+) growing from 38% of international output in 2016 to 52% in 2025. This indicates that Turkish researchers are increasingly embedded in larger, multi-country research networks rather than relying solely on bilateral ties.
- Türkiye's collaboration network spans a strategically diverse set of partners and in 2025 was led by the USA (6,485 co-authored publications), the UK (4,271), Italy (3,439) and Germany (3,203), while also encompassing key emerging-economy partners such as India and Saudi Arabia. This is positioning the country at the intersection of established and rapidly growing research ecosystems.



International Collaborations

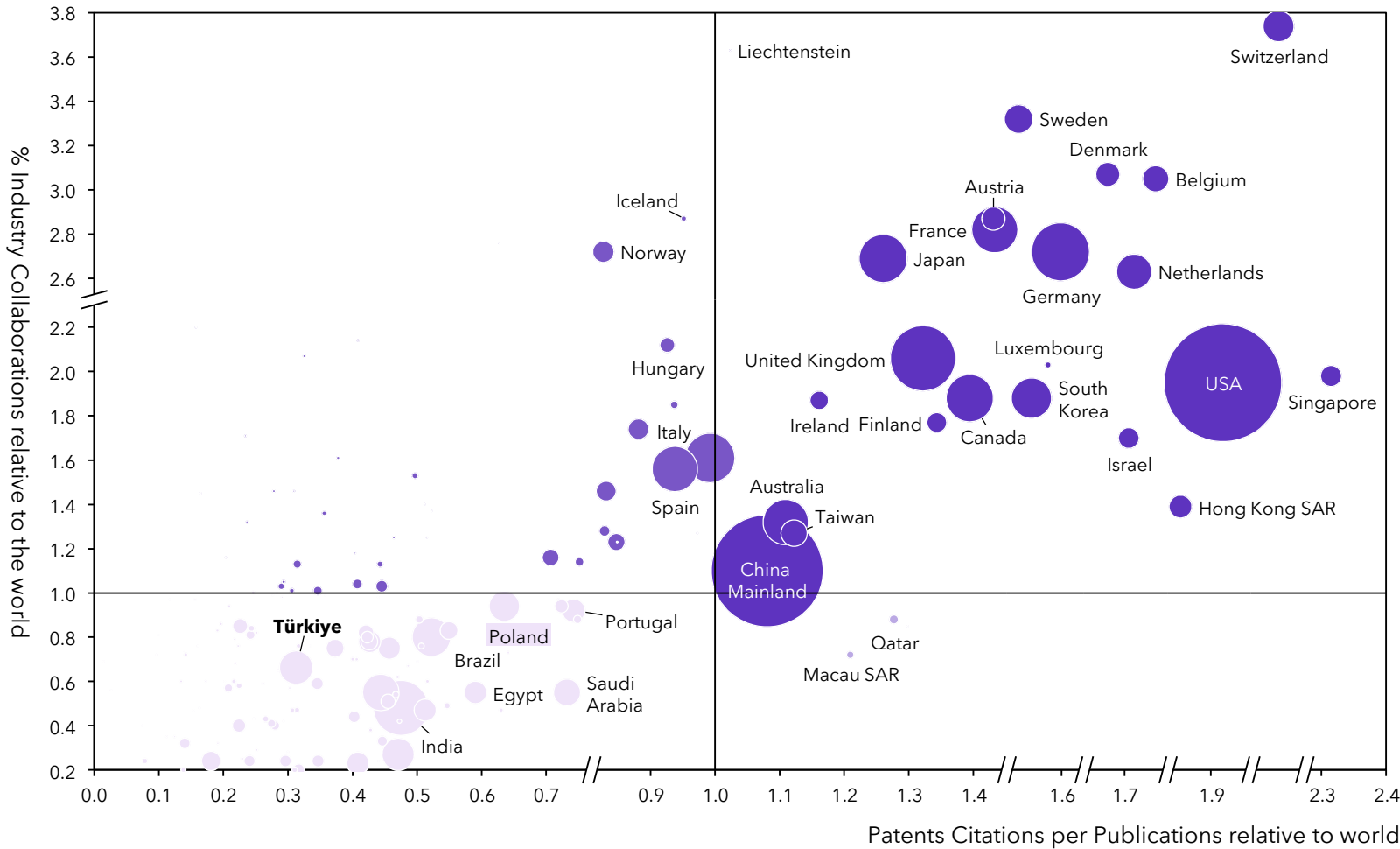
High-growth, high-impact collaborations



- Türkiye's international collaboration landscape reveals a rich and strategically diversified partner network, with high-volume partnerships with the USA (47,833 co-authored documents), the UK (27,940), Germany (22,715) and Italy (22,544). All are delivering strong Average Percentile scores and above-average patent citations and industry collaboration (dark purple), confirming that established collaborations with leading research countries continue to serve as pivots of quality and global visibility for Turkish scholarship.
- Several of Türkiye's fastest-growing collaboration partnerships combine rapid expansion with above-average research quality and impact. Most notable are Saudi Arabia, India, Egypt and China Mainland. This is signaling that Türkiye is successfully cultivating new high-impact partnerships beyond its traditional European and North American networks.
- Partners such as South Africa, Chile and South Korea stand out as emerging collaborators, showing both strong growth dynamics and high Average Percentile scores. In addition, they are showing above-average patent citation and industry collaboration indicators (dark purple). These are strategic opportunities for Türkiye to deepen engagement with countries where research-to-innovation translation is particularly strong.

Türkiye in the World

Approaching the threshold for industry collaboration



- Patent citations and % Ind. Collab. above the global average
- Patent citations below and % Ind. Collab. above the global average
- Patent citations and % Ind. Collab. below the global average
- Patent citations above and % Ind. Collab. below the global average

- Türkiye is currently positioned below the global average on both axes – % Industry Collaborations and Patent Citations per Publication – placing it within a development zone with room for growth alongside major emerging research countries such as Brazil and Poland.
- The chart highlights a clear and achievable development pathway for Türkiye from its current position with targeted policies in university-industry collaborations and technology transfer infrastructure that could move Türkiye toward the high-performance quadrant occupied by peers such as Spain and Italy.
- The upper-right quadrant of the chart illustrates the benchmark Türkiye can aspire to. This is occupied by countries that have high performances on both dimensions simultaneously: Switzerland, Singapore, the USA, Belgium, the Netherlands, Denmark and Germany. These countries combine high patent citation intensity with strong industry collaboration rates.

Research Areas

Macro and micro view

Türkiye Research Areas

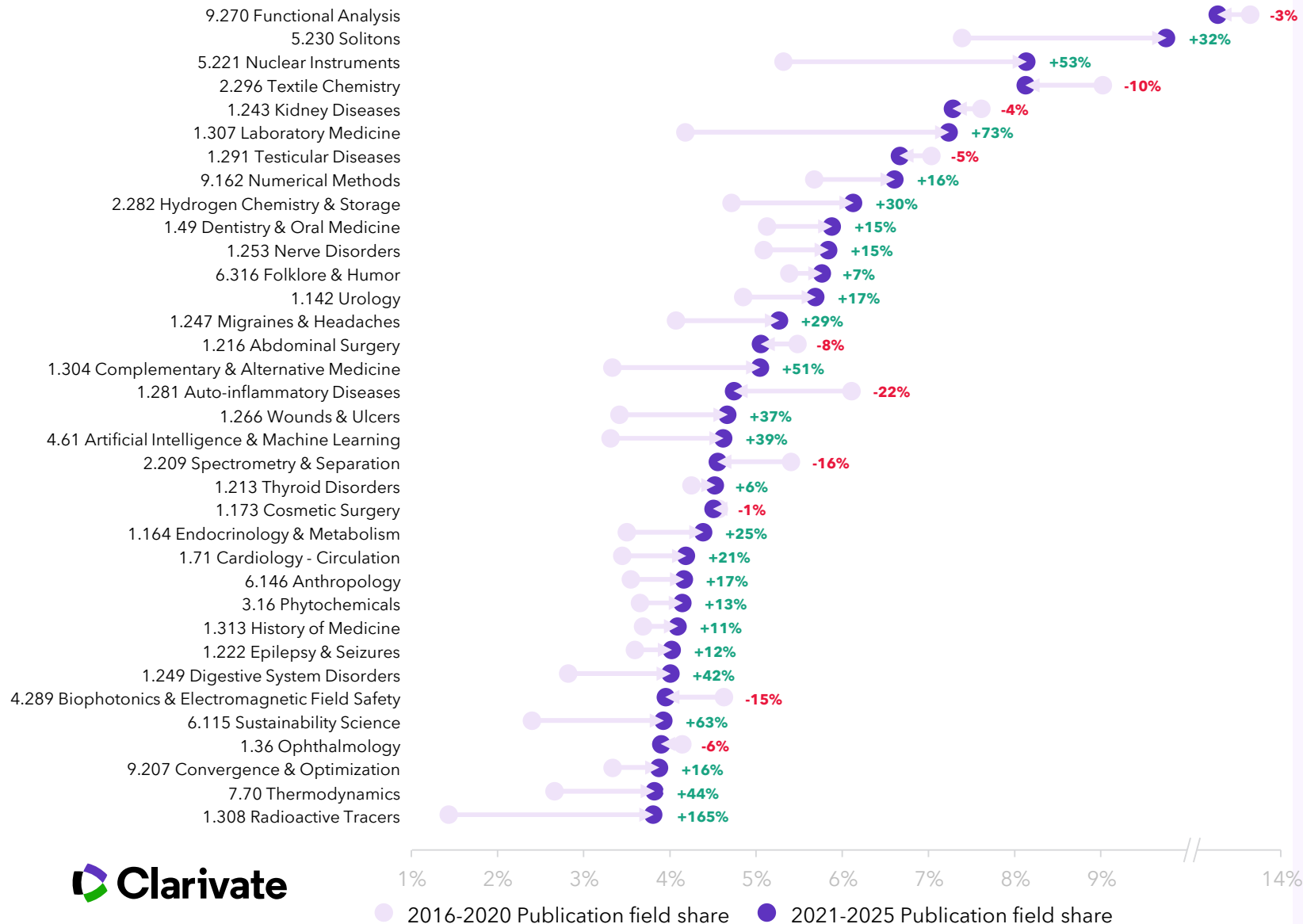
Where Türkiye excels in scale, impact and global collaboration



- Türkiye areas with the highest contributions to the overall research footprint are Mathematics, Social Sciences and Engineering & Materials Science, all positioned in the upper quadrant. They are exceeding the country-adjusted Top 10 global share and surpassing the national average on publication share.
- Clinical & Life Sciences is by far the country's largest research area at 41.66% of total output. It holds a publication global share above the country-adjusted average and a Top 10 share sitting below 1.0
- The color gradient across the chart reveals that Türkiye's highest-performing research areas have various profiles when it comes to international collaborations. The most internationally engaged are Physics and Social Sciences, while Mathematics and Engineering & Materials Science have international collaboration rates near the national average.

Türkiye Research Areas

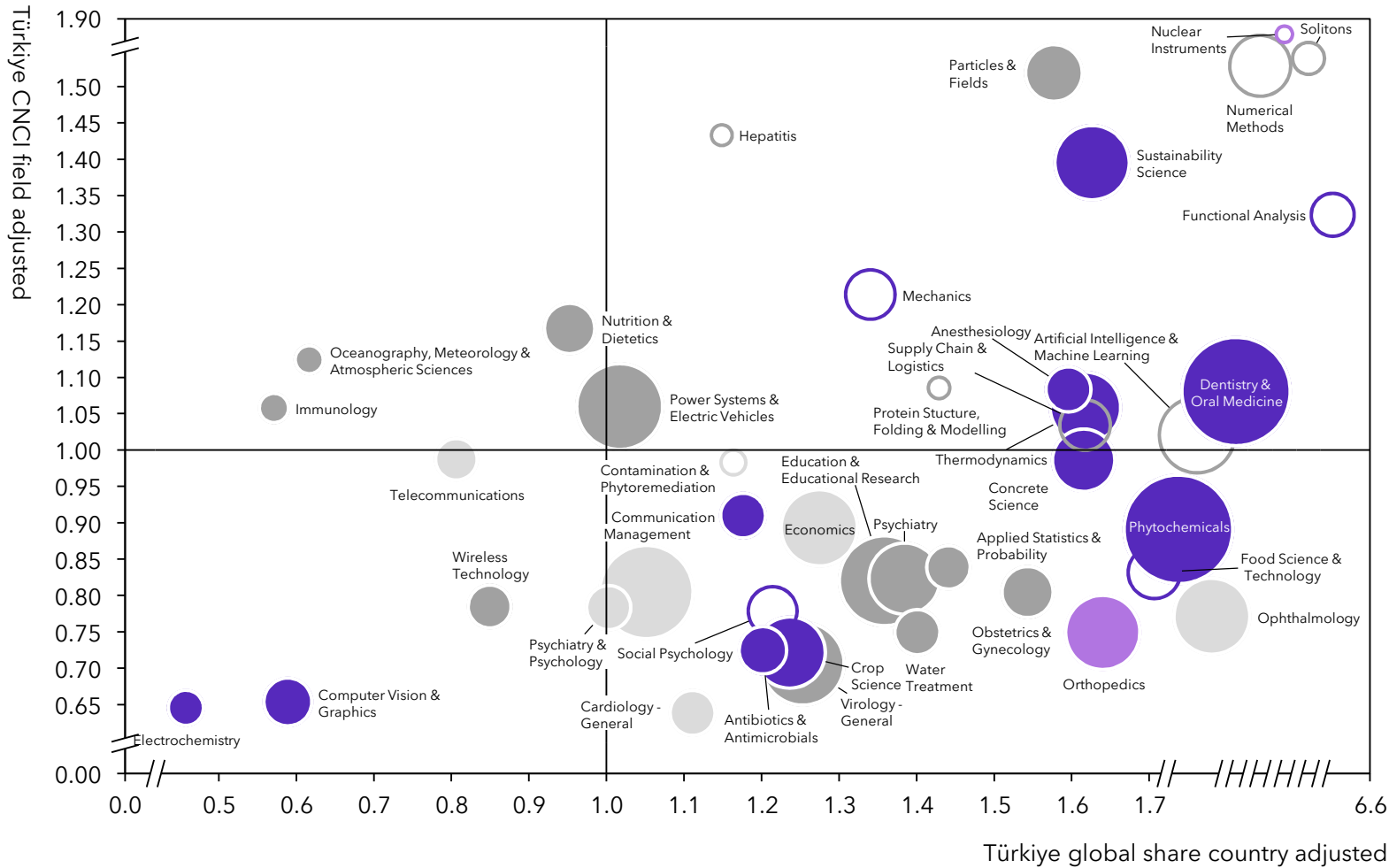
Türkiye fastest-growing disciplinary strengths



- Türkiye holds a remarkably strong global publication share across a diverse range of research areas, with several disciplines reaching shares well above the national average. Notably Functional Analysis ($\approx 13\%$), Solitons ($\approx 9\%$), Nuclear Instruments and Textile Chemistry ($\approx 8\%$). This demonstrates deep pockets of specialization, with Turkish researchers among the world's leading contributors.
- The majority of Türkiye's top research areas experienced growth between the 2016-2020 and 2021-2025 periods, with very high growth in Radioactive Tracers (+165%), Laboratory Medicine (+73%), Sustainability Science (+63%), Nuclear Instruments (+53%), Complementary & Alternative Medicine (+51%) and Thermodynamics (+44%).
- Türkiye's disciplinary portfolio reveals a blend of consistent and emerging growth areas. Long-standing high-share fields such as Functional Analysis, Textile Chemistry and Kidney Diseases continue to support the country's global presence. Rapidly growing domains like Artificial Intelligence & Machine Learning (+39%), Hydrogen Chemistry & Storage (+30%) and Sustainability Science (+63%) signal a strategic pivot toward research priorities aligned with global innovation.

Türkiye Top Research Areas in the Global Context

Türkiye's strategic strengths in emerging and leading fields



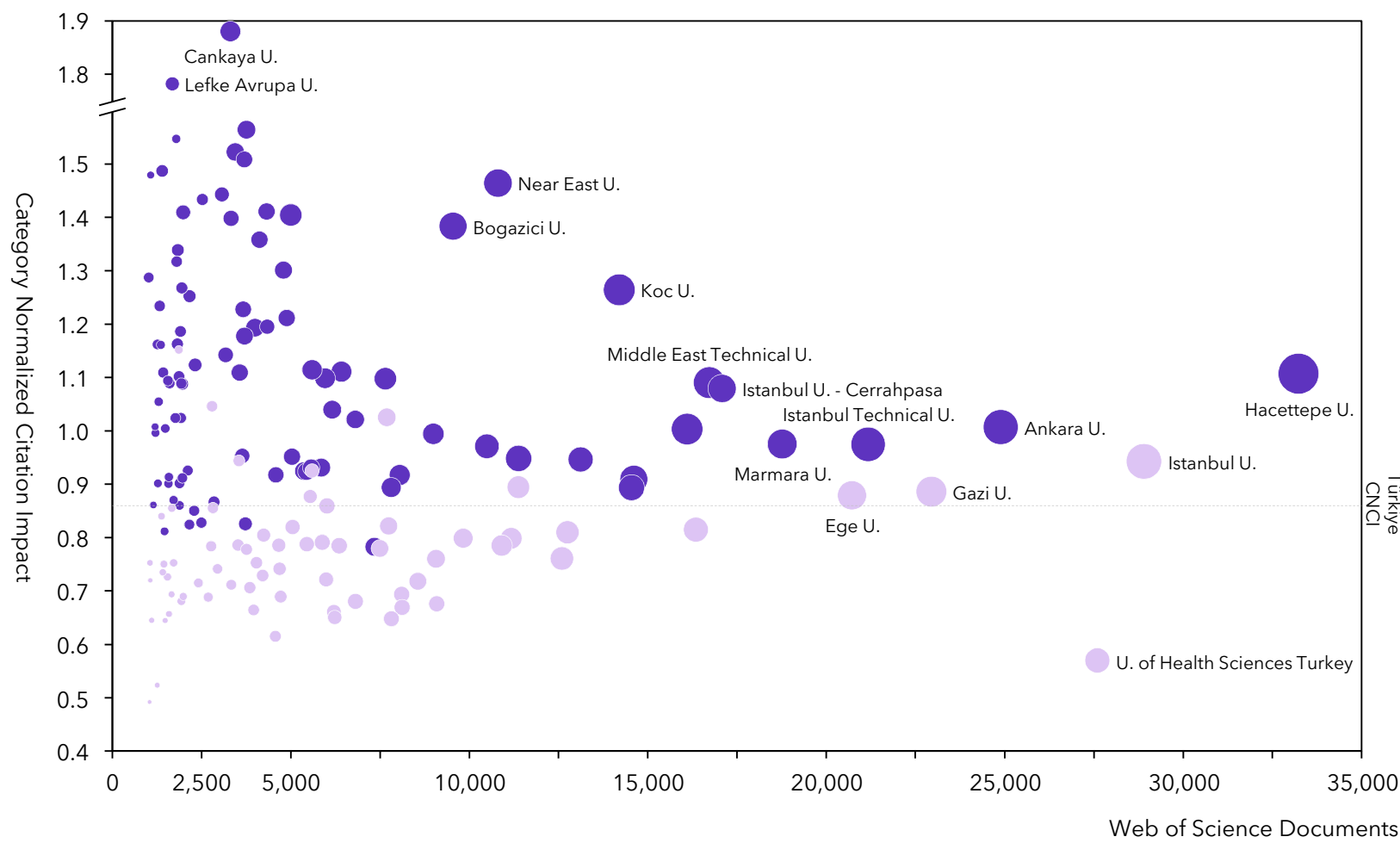
- Türkiye showed a cluster of high-performing research areas that combine above-average global share with above-average citation impact, with Nuclear Instruments, Solitons, Particles & Fields, Numerical Methods, Sustainability Science and Functional Analysis. All are positioned in the upper-right quadrant, demonstrating that the country's research system can produce high-impact research across a diverse range of disciplines
- Several of Türkiye's strongest research areas are aligned with globally emerging or growing fields. Notably Sustainability Science, Dentistry & Oral Medicine, Thermodynamics, Concrete Science and Anesthesiology (dark purple).
- Several high-volume disciplines like Phytochemicals, Crop Science and Orthopedics are showing strong global share values above the country-adjusted baseline. As their CNCI is below 1.0, increasing citation impact in those areas would increase the overall citation impact footprint, given their volume share.

Institutions

Research overview and ranking

Türkiye Major Universities by Publications

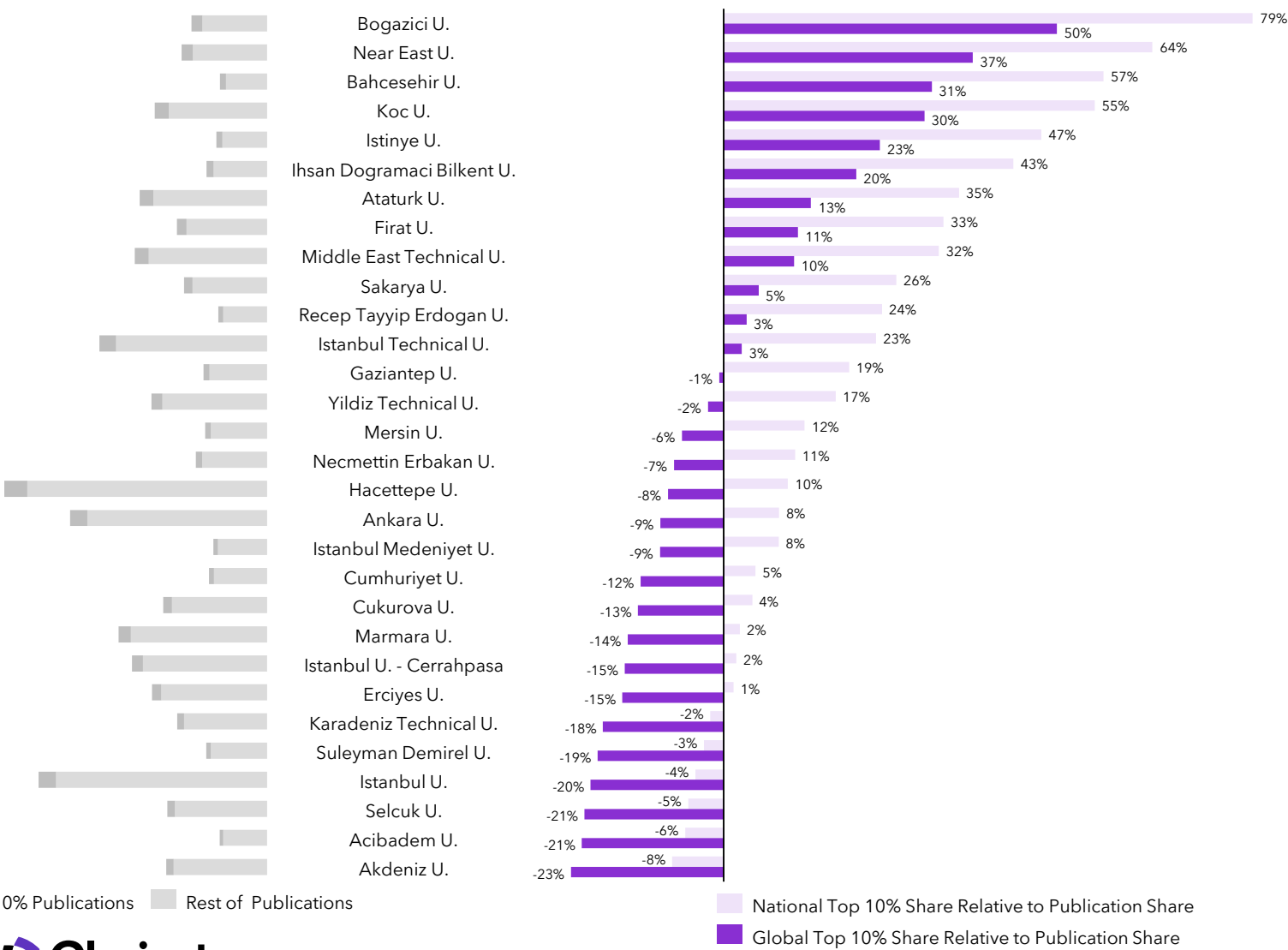
Türkiye’s universities balancing scale and research impact



- Türkiye's university landscape features a strong group of institutions that combine high publication volume with above-world-average CNCI, with Hacettepe University standing out as the country's most prolific producer ($\approx 33,000$ Web of Science documents) while maintaining a CNCI of 1.1. This a remarkable achievement for a large-scale institution, demonstrating that volume and quality can coexist effectively within the Turkish higher education system.
- Several other large universities, Boğaziçi University, Near East University, Koç University and Middle East Technical University, reached the high-impact zone with CNCI values ranging from 1.2 to 1.5 and their dark purple shading (Top 10 documents share exceeding publications national share) confirms that these institutions are high contributors to Türkiye overall output and citation footprint.
- The chart reveals a broad and diverse institutional ecosystem with numerous universities performing above the national CNCI baseline of 0.86, including large flagship institutions such as Ankara University, Istanbul Technical University and Istanbul University - Cerrahpaşa. This is indicating that research performance in Türkiye is distributed across a wide network of institutions, providing a solid foundation for system-wide quality enhancement strategies.

Documents in top10%-to-Output Share Ratio

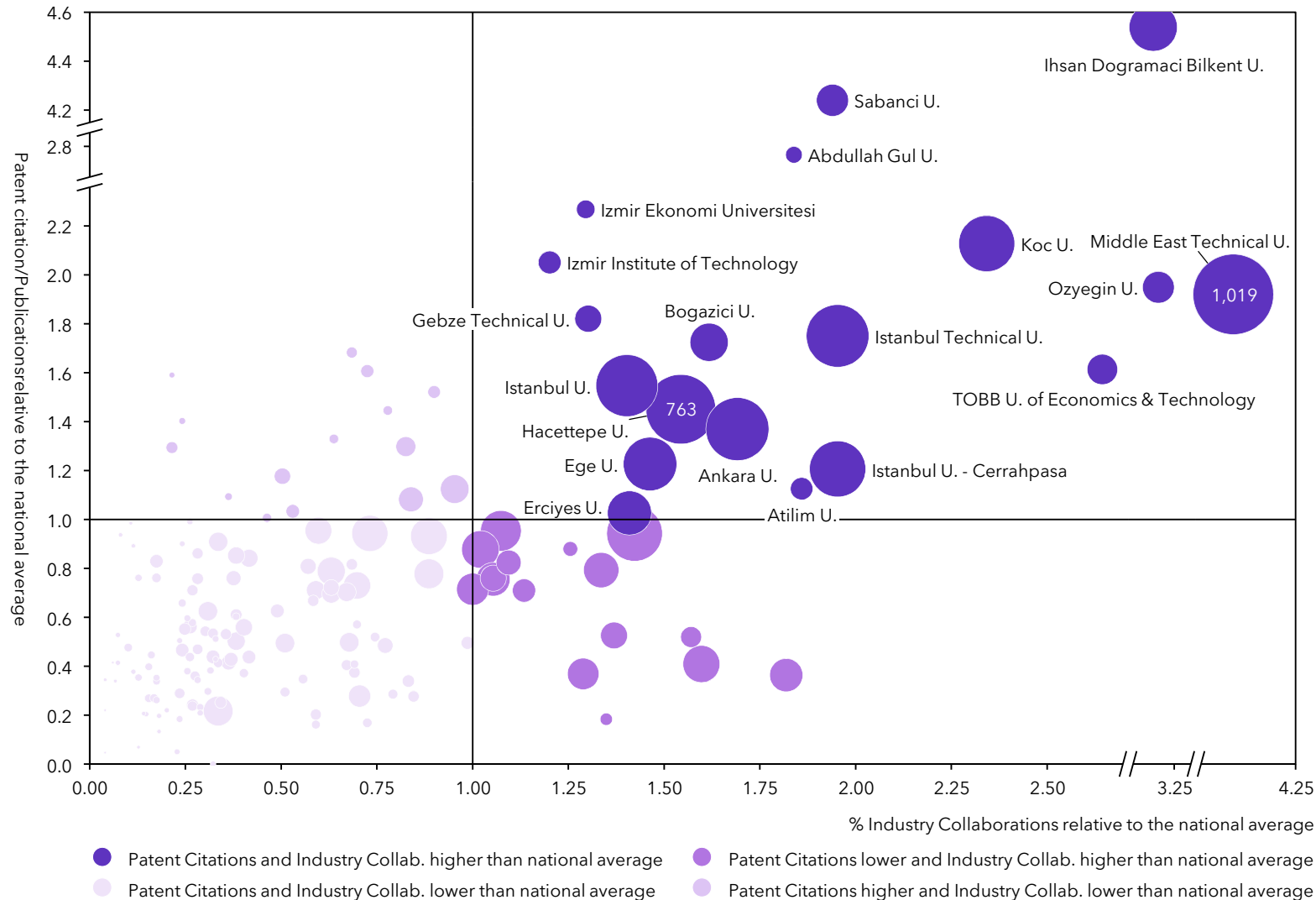
Measuring Top10% intensity



- A group of Turkish universities demonstrates exceptional Top 10% intensity, with Boğaziçi University leading the national landscape at 79% (national) and 50% (global) Top 10%-to-Output Share Ratios. This is followed by Near East University (64%/37%), Bahçeşehir University (57%/31%) and Koç University (55%/30%) , respectively. These institutions produce a high share of the country's most impactful research relative to their overall publication volume.
- The chart reveals a broad tier of universities with positive Global Top 10% Share Ratios, including Istinye University (+23%), İhsan Doğramacı Bilkent University (+20%), Atatürk University (+13%). Several others are demonstrating that high-impact research production extends across a diverse range of Turkish universities spanning different sizes, regions and institutional profiles.
- Even among institutions where the Global Top 10% Share Ratio is currently below parity, the National Top 10% Share Ratio remains positive, as seen in universities such as Gaziantep University (19%), Yıldız Technical University (17%), Mersin University (12%). This is indicating these institutions are already outperforming the national average in high-impact output and closing the gap with global benchmarks.

Türkiye major universities by publications

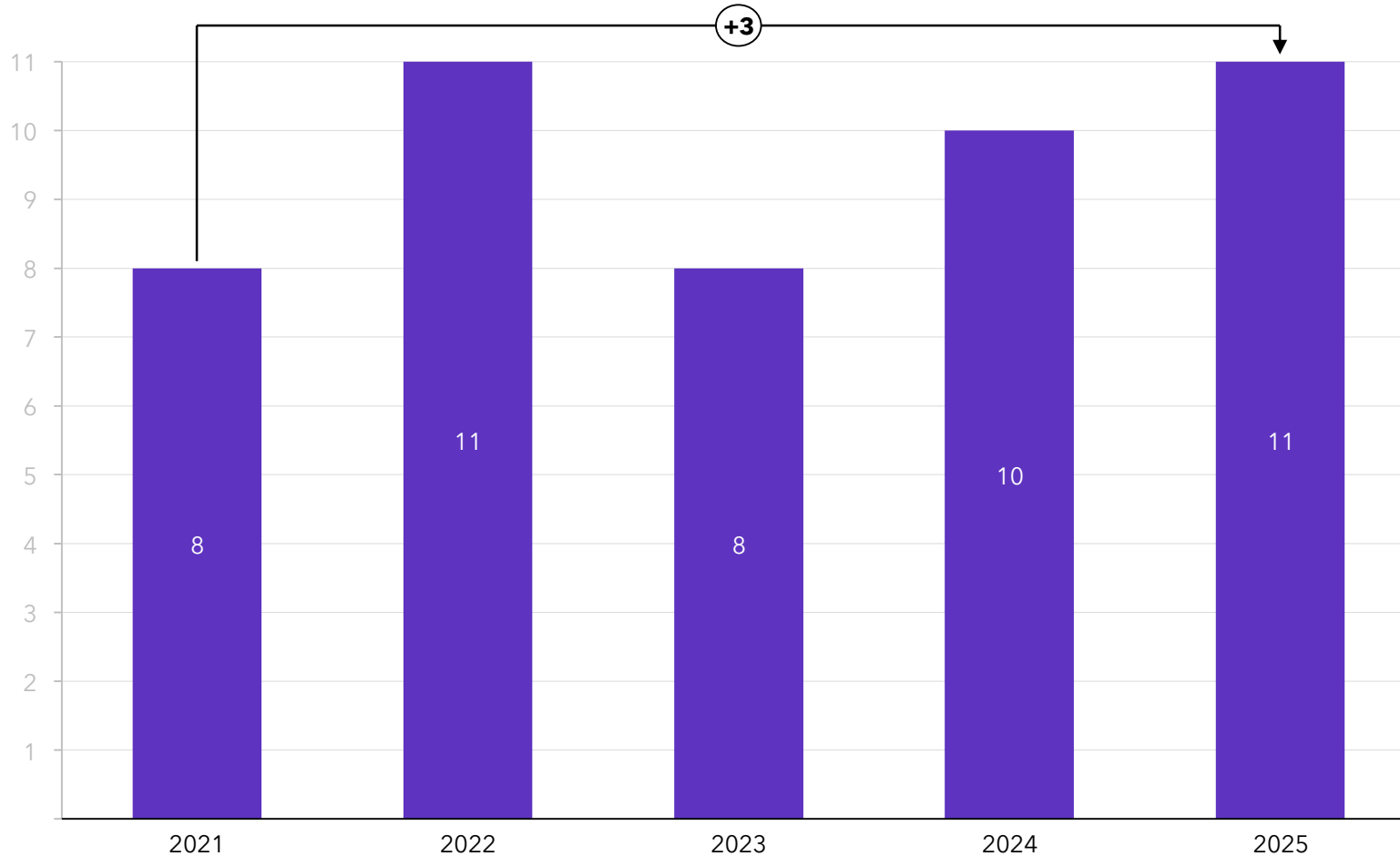
Universities leading in Industry Collaboration and Patent Impact



- A strong cluster of Turkish universities excels on both innovation dimensions simultaneously, led by İhsan Doğramacı Bilkent University ($\approx 4.5\times$ national average in patent citations, $\approx 3.3\times$ in industry collaborations), Sabancı University, Koç University, Middle East Technical University and Özyeğin University.
- In addition, major institutions such as Hacettepe University, Istanbul University, Boğaziçi University, Ankara University and Istanbul Technical University also surpass the national baseline on both axes. This confirms that innovation capacity in Türkiye is broadly distributed across the higher education system, not confined to a small group.
- Cross-referencing with the earlier analysis on Top 10% Intensity across institutions, a pattern emerges: several universities that demonstrate the highest research excellence concentration are also among the strongest performers in innovation. Boğaziçi University, Koç University, İhsan Doğramacı Bilkent University and Middle East Technical University. All appear in the upper positions of both charts.

Academic Ranking of World Universities

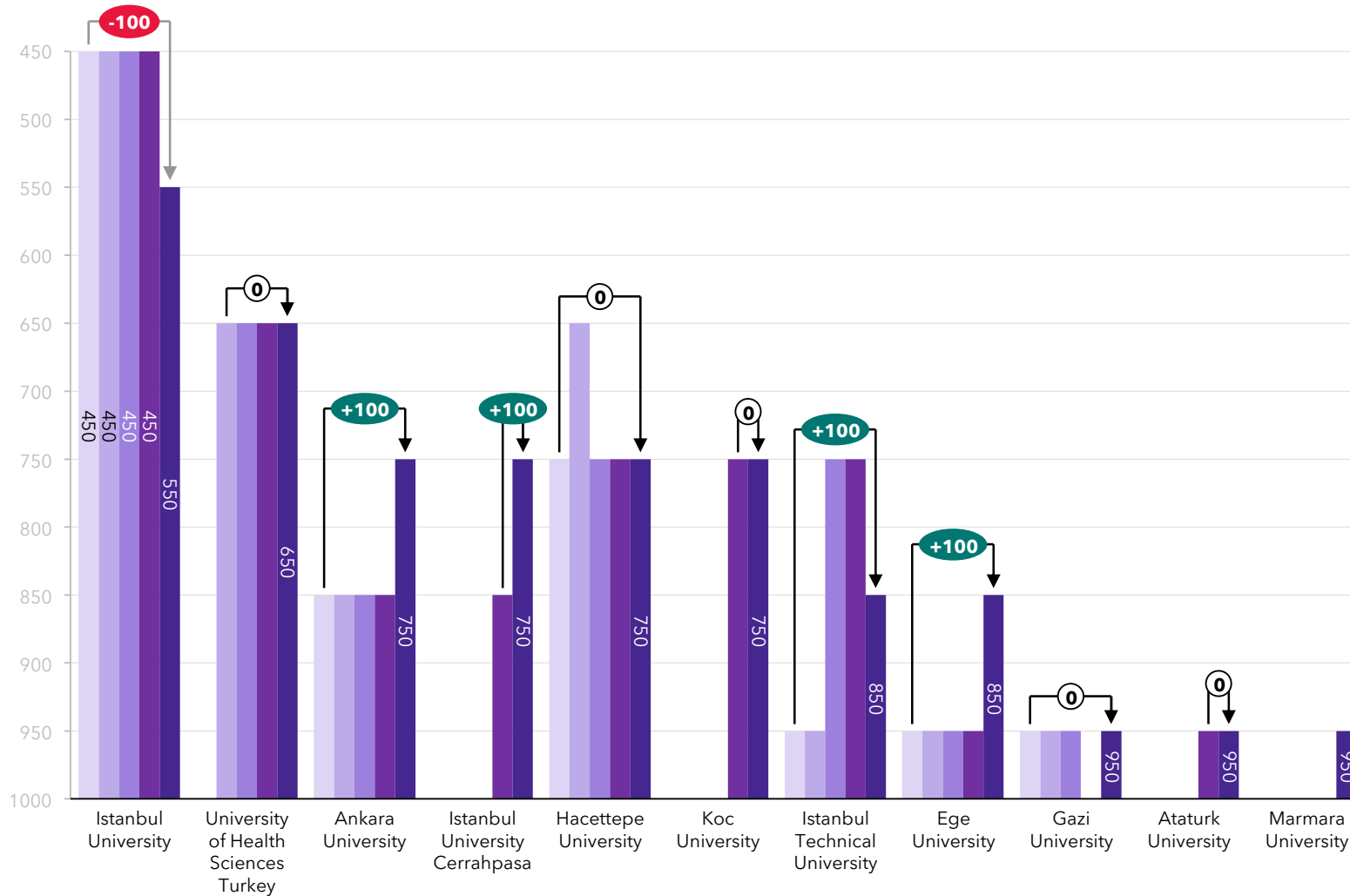
Türkiye universities rankings in Shanghai Global Ranking



- Türkiye's representation in the Academic Ranking of World Universities shows a clear strengthening over the period, increasing from 8 universities in 2021 to 11 universities in the 2025 edition, reflecting a broader national presence in a highly competitive global ranking landscape.
- Although the number of included institutions fluctuated slightly across the years, the overall trajectory remains encouraging, with Türkiye reaching 11 universities in both 2022 and 2025 and sustaining strong visibility in the ranking in the most recent years.
- The 2025 outcome highlights positive momentum in the international standing of Turkish higher education, demonstrating that a larger group of institutions is now achieving the level of performance and recognition required for inclusion in this prominent global ranking.

Academic Ranking of World Universities

Türkiye universities rankings in Shanghai Global Ranking



- The 2025 results highlight encouraging upward movement across several Turkish universities, with Ankara University improving from the 850 band to the 750 band and Ege University moving from the 950 band to the 850 band, demonstrating stronger competitive positioning in the Shanghai Global Ranking.
- A few Turkish institutions have maintained stable visibility over time, including the University of Health Sciences Türkiye at the 650 band and Gazi University at the 950 band, while Koç University also sustains its position in the ranking, reflecting continuity and resilience across the national higher education landscape.
- The 2025 profile shows a broader and more diverse institutional presence for Türkiye, with institutions represented across multiple ranking bands from 550 to 950, indicating that international visibility is being sustained not only by leading universities but also by a wider group of nationally recognized institutions.



Think forward

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Overview	Iulian supports MENA universities and research centers with advanced analytics helping them to better assess their research output. He has more than 15 years of experience in scientific information industry. He has worked with all levels of stakeholders involved in research and scientific information dissemination. During his career he had interacted with major international scientific publishers	Ayman heads the MENA consulting team working with research centers and universities in strategizing their research, ranking and reputation approaches. Ayman is a former researcher at Max Planck Institute with more than 12 years of experience in research management, assessment and planning, university ranking, R&D projects.	Nicolas works closely with universities and research institutes helping them at assessing and evaluating their performance. Nicolas used to be a researcher at Max Planck Institute. Additionally, Nicolas has 3 years of experience in forming strategies of international leading companies in diverse industries at the intersection of business and technology.	Ahmed collaborates closely with governments, universities and research centers facilitating innovation and fostering discovery throughout MENA. Ahmed has effectively engaged with diverse stakeholders across various industries in managing data and information. He moved to Clarivate in 2018, joining as a Solutions Consultant for MENA.	Nikica works with A&G Consulting at Clarivate, supporting startups and innovation teams across the MENA region in turning early-stage biotech and deep-tech ideas into validated, investment-ready products through TRL advancement and hypothesis-driven experimentation. He was recognized as one of 140 Global Innovators by Expo 2020 and a finalist at the GEN Entrepreneurship World Cup in Riyadh, combining scientific rigor with practical execution to drive commercialization and scaling.

Data Sources

Indicators	Definition
Web of Science	The data used in this report came from the Clarivate Web of Science databases, which give access not only to journals but also to conference proceedings, books, patents, websites, and chemical structures, compounds and reactions (https://clarivate.com/webofsciencegroup/solutions/web-of-science/). Web of Science has a unified structure that integrates all data and search terms together and therefore provides a level of comparability not found in other databases. It is widely acknowledged to be the world's leading source of citation and bibliometric data. The Web of Science Core Collection is the premier resource on that platform and includes over 20,000 peer-reviewed, high quality scholarly journals published worldwide (including Open Access journals); over 190,000 conference proceedings; and over 90,000 editorially selected books. Coverage is both current and retrospective in the sciences, social sciences, arts and humanities, in some cases back to 1900. Clarivate has extensive experience with databases on research inputs, activity and outputs and has developed innovative analytical approaches for benchmarking and interpreting international, national and institutional research impact.
InCites	InCites Benchmarking & Analytics was used in this report to generate relevant metrics and indicators (https://clarivate.com/webofsciencegroup/solutions/incites/). InCites is a customized, citation-based research evaluation tool enabling analysis of productivity and benchmarking of output against peers worldwide, with underlying data drawn from the Web of Science Core Collection. InCites provides disambiguated data for over 18,000 unified organizations, as well as data for all publications in the Web of Science Core Collection.
Web of Science Research Intelligence - WOS RI	Clarivate's AI-native research intelligence platform, designed to support discovery, research strategy, collaboration development, and impact assessment through integrated research data and advanced analytics. It combines information on publications, funding, patents, and other research outputs within a single environment, enabling institutions to gain a comprehensive view of research performance and emerging opportunities. The platform was used to support the analysis presented in the Türkiye Research Landscape Report, providing insights into research strengths, emerging topics, collaboration networks, and institutional performance.

Understanding Indicators

Indicators	Definition
Category Normalized Citation Impact (CNCI)	The CNCI of a document is calculated by dividing the actual count of citing items by the expected citation rate for documents with the same document type, year of publication and subject area. When a document is assigned to more than one subject area an average of the ratios of the actual to expected citations is used. The CNCI of a set of documents, for example the collected works of an individual, institution or country/region, is the average of the CNCI values for all the documents in the set. CNCI is a valuable and unbiased indicator of impact irrespective of age, subject focus, or document type. Therefore, it allows comparisons between entities of different sizes and different subject mixes. • A CNCI value of 1 represents performance at par with world average. • Values above 1 are considered above average. • Values below 1 are considered below average. • A CNCI value of 2 is considered twice world average. CNCI is an ideal indicator for benchmarking at all organizational levels (author, institution, region etc). When dealing with small sets of publications, for example, the publications of one individual, the CNCI values may be inflated by a single highly cited paper.
Average Percentile	The percentile of a publication is determined by creating a citation frequency distribution for all publications in the same year, subject category, and document type (arranging the papers in ascending order of citation count), and determining the percentage of papers at each level of citation. If a paper has a percentile value of 99, then 99% of the papers in the same subject category, year, and document type have a lower citation count. A percentile is a normalized indicator because it indicates how a paper performed relative to others in its field, year, and document type. For any set of papers, an Average Percentile can be calculated as the arithmetic mean of all the percentiles of all the papers in the set. In the case that a paper is assigned to more than one category, the category in which the percentile value is closest to 100 is used (the best performing value). Percentile values are rounded to the second decimal place.
Documents in top 10%	Publications among the top 10% most cited globally within their field and year. This indicator highlights the extent to which a research entity produces publications that achieve strong international visibility and recognition.
Highly Cited Papers	Papers classified as highly cited in Essential Science IndicatorsSM (ESI). Highly cited papers are the top one percent in each of the 22 ESI subject areas per year. They are based on the most recent 10 years of publications. Highly Cited Papers are considered indicators of scientific excellence and top performance. Although Highly Cited Papers are synonymous with % Documents in the Top 1% in InCites, they differ in subject schema, time period, and document type.

Understanding Indicators

Indicators	Definition
International Collaborations	Shows the number of publications that have been found with at least two different countries among the affiliations of the co-authors. They are considered to be pivotal in developing and disseminate scientific knowledge and a driver of scientific impact (number of citations). Internationally co-authored documents gain more visibility in the global scientific community and tend to receive more citations.
Industry Collaboration	Papers that contain two or more Organizations with at least one Organization listing its organization type as corporate or global corporate. When a corporate or a global corporate organization is searched in InCites, its publications will be captured in the Industry Collaboration indicator.
Citations from Patents	Displays the number of citations a set of publications has received from patents indexed in Derwent Innovations Index™ on Web of Science. This integration provides unique opportunities to not only assess the impact of patents on publications but also allows user to further explore trends and patterns in innovations to deliver further insight into emerging fields of research. Patent citation analysis is used as an evaluation technique in science and technology with the premise that scholarly documents cited by later patents contain important ideas upon the subsequent inventions. The references to scholarly publications may have been added by the patent examiner at the time of prosecution and may provide background about the topic, methodology, or new potential areas for development.
Global Share	Represents the proportion of worldwide activity accounted for by Türkiye for a given indicator, such as publications, citations, collaborations, or highly cited papers. This macro-benchmarking indicator helps assess a country's relative position within the international research landscape.