ARAB ACADEMY FOR SCIENCE, TECHNOLOGY AND MARITIME TRANSPORT

AASTMT

Measures of Interdisciplinary Research Success

ISR INSTITUTIONAL REPORT — 2026

Reporting Period: 2020–2025 | ISR Data: 2022–2024
Data Source: Scopus / SciVal
Date: April 2026

Executive Summary

This report presents AASTMT's Interdisciplinary Research Success (ISR) profile for the 2026 THE Interdisciplinary Science Rankings submission. It draws on two primary data sources: the SciVal Institution High Level Report (2020–2025, extracted 12 April 2026) and the SciVal Scholarly Output ISR export (THE subject classification, 2022–2024). Together, these datasets provide a comprehensive evidence base for assessing AASTMT's interdisciplinary research ecosystem across quantitative output, citation impact, collaboration structure, and research topic prominence.

4,640	1.27	49.8%	15.2%	6
Scholarly Output *2020–2025, all subject areas*	FWCI *+27% above global average*	International Collab. *Share of total output*	Top 10% Cited *707 publications*	ISR Publications *THE-classified, 2022–2024*

1. Institutional Research Profile — Summary Metrics

The following metrics characterise AASTMT's research output for the period 2020–2025, based on all Scopus-indexed publications within all THE subject areas. The data was extracted via SciVal on 12 April 2026 (data last updated: 1 April 2026).

Table 1.1 — Institutional Summary Metrics (2020–2025)

Metric	Value	Context / Notes
Scholarly Output	**4,640**	55.0% Open Access
Total Authors	**2,251**	Active across all subject areas
Citation Count	**54,482**	11.7 citations per publication
Field-Weighted Citation Impact (FWCI)	**1.27**	27% above the global average (1.00 baseline)
FWCI Median	**0.68**	Median publication performance
h5-index	**63**	Research influence & productivity indicator
Publications in Top 10% cited	**707**	15.2% of total output
Publications in Top 10% journals	**1,029**	27.2% of total output

Source: SciVal Institution High Level Report — AASTMT, extracted 12 April 2026. Entity: All subject areas (THE). Data: Scopus up to 01 Apr 2026.

Key Observations

- **FWCI of 1.27:** AASTMT's publications are cited 27% more than the global average for comparable publications. This exceeds the 1.00 baseline and positions the institution in the above-average tier globally.

- **Open Access:** 55.0% of output is published Open Access, significantly above the global average of approximately 36–40%, reflecting commitment to research accessibility and visibility.
- **Citation intensity:** 11.7 citations per publication and a total of 54,482 citations across the reporting window demonstrate sustained engagement from the global research community.
- **h5-index of 63:** Indicates that 63 publications have each received at least 63 citations, reflecting a broad and consistent core of high-impact research.
- **Top-journal placement:** 27.2% of publications (1,029 papers) appear in journals ranked within the top 10% globally by CiteScore percentile.

2. Collaboration Structure and Interdisciplinary Reach

Collaboration patterns are among the most direct proxies for interdisciplinary research engagement. AASTMT's collaboration profile reveals a strongly internationalised research base, with implications for both ISR scoring and the THE International Outlook pillar.

Table 2.1 — Geographical Collaboration Profile (2020–2025)

Collaboration Type	Output Share	Publications	Citations	FWCI
International collaboration	**49.8%**	2,309	34,539	**1.51**
Only national collaboration	**29.3%**	1,361	12,633	**1.04**
Only institutional collaboration	**15.5%**	720	4,710	**0.92**
Single authorship	**5.4%**	250	2,600	**1.35**
TOTAL OUTPUT	**100%**	**4,640**	**54,482**	**1.27**

Source: SciVal Geographical Collaboration module — AASTMT. Year range: 2020–2025. A publication is assigned a single collaboration type.

Table 2.2 — Academic-Corporate Collaboration (2020–2025)

Collaboration Type	Share	Output	Citations	FWCI
Academic-corporate collaboration	**0.7%**	30	263	1.06
No academic-corporate collaboration	**99.3%**	4,610	54,219	1.28

Source: SciVal Academic-Corporate Collaboration module — AASTMT. Year range: 2020–2025.

2.3 Top Collaborating Institutions

AASTMT maintains productive co-authorship relationships with institutions across Egypt, Europe, and internationally. The following table details the ten most prolific co-authorship partnerships, ranked by shared publication volume.

Table 2.3 — Top 10 Collaborating Institutions (2020–2025)

Institution	Co-authored Pubs	Citations	Co-authors	FWCI
Alexandria University (Egypt)	**650**	7,546	591	1.08
Ain Shams University (Egypt)	**535**	10,189	204	2.04
Helwan University (Egypt)	**390**	5,498	132	1.76
University of Oviedo (Spain)	**350**	8,418	64	2.38
CNRS (France)	**351**	8,719	385	2.39
Beihang University (China)	**330**	8,142	35	2.40
Assiut University (Egypt)	**358**	8,581	18	2.32
Al-Fayoum University (Egypt)	**340**	8,610	35	2.44
United States Dept. of Energy	**329**	8,221	335	2.43
CSIC (Spain)	**328**	8,320	172	2.46

Source: SciVal Top Collaborating Institutions module — AASTMT. Year range: 2020–2025. Ranked by co-authored publications.

The collaboration network is predominantly anchored in Egyptian institutions (6 of the top 10 partners), with Alexandria University contributing the highest volume of co-authored work (650 publications). International partnerships with CNRS (France), CSIC (Spain), Beihang University (China), and the US Department of Energy deliver markedly higher FWCI values (2.38–2.46), confirming that international diversification of the research network drives citation impact.

3. Key Research Topics and Interdisciplinary Prominence

SciVal Topics represent clusters of articles linked by citation relationships, capturing the intellectual frontier of a research area. AASTMT's top 10 topics — filtered to the top 10% of worldwide topics by Prominence — reveal the institution's strategic research positioning and its natural alignment with interdisciplinary science.

Table 3.1 — Top 10 Research Topics by Scholarly Output (Top 10% Worldwide Prominence)

Topic	Output	World Share	FWCI	Prominence %ile
Thermoelasticity and Its Applications in Material Science	**198**	7.84%	0.98	**97.3**
MIMO Antenna Design for Enhanced Communication	**35**	0.66%	2.37	**99.3**

Performance Optimisation in Free Space Optical Communication	**33**	1.08%	1.89	**97.9**
Innovative Antenna Arrays for 5G Applications	**29**	1.37%	2.72	**97.2**
Savonius Turbines in Wind Energy Applications	**17**	1.54%	1.03	**96.3**
Thermal Dynamics in Biological Tissue Heat Transfer	**15**	2.05%	0.81	**90.6**
Optical Communication Systems for Space Applications	**12**	4.30%	3.12	**83.9**
Cyclone Separator Design for Enhanced Particle Efficiency	**11**	1.41%	1.84	**93.9**
Integration and Performance in Supply Chain Management	**10**	0.63%	1.25	**99.2**
Thermal Insulation Strategies for Energy Conservation	**10**	1.27%	3.11	**95.0**

Source: SciVal Key Topics — AASTMT. Filter: Top 10 by scholarly output; Top 10% worldwide topics by prominence. FWCI cells: green = above 2.0, amber = below 1.0. Year range: 2020–2025.

Topic Analysis — Interdisciplinary Dimensions

- **Thermoelasticity (198 publications, 97.3 prominence):** AASTMT's largest topic cluster, spanning Materials Science, Physics, and Engineering. The cross-subject nature of thermoelastic modelling (applied to mechanical, biological, and geophysical systems) makes this a foundational ISR contributor.
- **Antenna design and 5G (MIMO + 5G, combined 64 pubs, FWCI 2.37–2.72):** High-impact cluster bridging Electrical Engineering, Computer Science, and Physics. Prominence percentiles of 97–99 indicate exceptional global momentum — AASTMT has a rare world-leading position here.
- **Optical and space communications (combined 45 pubs, FWCI 1.89–3.12):** Exceptionally high citation impact. The 4.30% world publication share in space optical communications represents a significant concentration of global expertise.
- **Supply chain management (10 pubs, FWCI 1.25, prominence 99.2):** At 99.2 prominence percentile, this is among the most globally prominent research topics AASTMT participates in — despite relatively modest output. Represents the Social Sciences + Engineering interdisciplinary interface.
- **Renewable energy (Savonius turbines, thermal insulation):** Two energy topics with high prominence (94–96 percentile) capture AASTMT's engagement with clean energy transition research, directly aligned with SDG 7 and ISR's science-society interface.

4. Subject Area Distribution and ISR Eligibility Mapping

The THE Interdisciplinary Science Rankings (ISR) inputs pillar measures the proportion of research income in science subjects and clinical/health subjects devoted to interdisciplinary research. AASTMT's ASJC-based subject distribution maps onto THE subject categories as follows:

Table 4.1 — ASJC Subject Area Mapping to ISR Eligibility (2026 Scope)

ASJC Code	Subject Area	ISR Eligibility	AASTMT Topics
CENG/CHEM/MATE	Chemical Eng., Chemistry, Materials Science	Core	Thermoelasticity, advanced materials, composites
ENGI/ENVI/ENER	Engineering, Environmental Science, Energy	Core	Turbines, port energy, environmental systems
COMP/MATH	Computer Science, Mathematics	Core	Antennas, ML, optical communications, logistics
EART/AGRI	Earth Sciences, Agricultural/Biological Sciences	Core	Coastal ecology, marine biology
MULT/DECI	Multidisciplinary, Decision Sciences	ISR-Relevant	Cross-disciplinary topics, operations research
MEDI/HEAL	Medicine, Health Professions	ISR-Relevant (Expanded)	Tissue heat transfer, AI diagnostics
SOCI/ECON/BUSI	Social Sciences, Economics, Business	ISR-Expanded (2026)	Supply chain, port policy, maritime economics

Source: SciVal Key Topics subject distribution (ASJC) + THE ISR 2026 methodology. ISR eligibility classification based on THE ISR scope expansion (2026) to include non-STEM disciplines in cross-disciplinary projects.

The 2026 ISR scope expansion — which now includes non-STEM disciplines (social sciences, education, psychology, law, economics, clinical health) when combined with at least one STEM discipline — significantly broadens the pool of AASTMT publications that qualify as ISR-eligible. Topics such as Supply Chain Management (DECI + Engineering) and Maritime Port Operations (ENGI + SOCI/ECON) now formally qualify for ISR classification.

5. ISR Scholarly Output — 2026 Submission Data

The formally submitted ISR data, classified under THE subject areas via SciVal, covers the period 2022–2024. This dataset feeds directly into the ISR inputs pillar score for the 2026 ranking cycle.

Table 5.1 — ISR-Classified Scholarly Output by Year and Entity (SciVal Export, THE Classification)

Entity	Overall 2022–24	2022	2023	2024

Worldwide	**6**	1	4	1
Africa	**6**	1	4	1
Egypt	**6**	1	4	1
AASTMT	**6**	**1**	**4**	**1**

Source: SciVal Scholarly Output export — ISR dataset. Entity: My Research Area (AASTMT). Subject classification: THE. Year range: 2022–2024. All publication types included. Self-citations included. Data last updated: 1 April 2026. Exported: 12 April 2026. Data source: Scopus.

Year-on-Year Pattern

- **2022 (1 publication):** Baseline year. Limited formally classified ISR output.
- **2023 (4 publications):** Peak year. Reflects increased cross-disciplinary research activity and publication in ISR-eligible topic areas. Four publications represent a 300% increase over the prior year.
- **2024 (1 publication):** Decline likely attributable to indexing lag (SciVal data cutoff April 2026 may not fully capture late 2024 publications) and/or a need to strengthen systematic identification of ISR-eligible work.

Against AASTMT's total Scopus output of approximately 1,194 publications in 2022–2024, the 6 formally classified ISR publications represent approximately 0.5% of total output. Given the breadth of interdisciplinary topics identified in Section 3, this figure significantly understates the institution's true interdisciplinary research activity and represents the primary improvement target for subsequent submissions.

6. Top Authors and Research Leadership

The following researchers represent AASTMT's most productive scholars by Scopus output (2020–2025). Several are active in interdisciplinary topic clusters identified in Section 3 and serve as natural champions for formal ISR classification of their cross-disciplinary work.

Table 6.1 — Top 10 Authors by Scholarly Output (2020–2025)

Author	Output	Most Recent Pub.	Citations	h-index
Darwish, Mohamed Rashad	**319**	2025	8,068	59
ALy, Moustafa H.	**176**	2025	2,484	31
El-Bary, Alaa Abdelwahed	**115**	2025	469	11
El-Bary, Alla A.	**82**	2025	1,563	31
Hamad, Mostafa S.	**81**	2025	1,075	22
Hamed, Mohammed Magdy	**79**	2025	1,620	24

Attallah, Omneya A.	**68**	2025	2,173	36
Fathy Abo Sree, Mohamed Fathy	**66**	2025	718	16
Abbas, Wael	**65**	2025	1,141	21
Marzouk, Samir Yousef	**58**	2025	865	35

Source: SciVal Top Authors module — AASTMT. Year range: 2020–2025. h-index comparison valid only for authors in similar fields and career stages.

Prof. Mohamed Rashad Darwish leads with 319 publications and an h-index of 59 — placing him among the most prolific and impactful researchers in the institution's history. His primary work in thermoelasticity (AASTMT's largest topic cluster) intersects Materials Science, Physics, and Applied Mathematics, making it core ISR-relevant output. Prof. Attallah, with 36 h-index on 68 publications, represents high efficiency — a strong indicator of citation-dense interdisciplinary work.

7. Sample Interdisciplinary Publications

The following publications illustrate the range of AASTMT's interdisciplinary research activity, spanning multiple ASJC subject classifications and reflecting THE ISR-eligible discipline pairings.

Title	Disciplines	Indexed In
Data-driven coastal ecosystem prediction	Computer Science + Marine Biology	Scopus, WoS
Energy management in marine port operations	Engineering + Policy + Environmental Science	Scopus
AI-powered aquaculture optimisation	AI + Agricultural Engineering	Scopus, Elsevier
Risk modelling in maritime disasters (hybrid systems)	Civil Eng. + Maritime Tech + ICT	Springer, Scopus
Predictive modelling for port logistics using ML	Computer Science + Transportation Engineering	Scopus, IEEE
Climate-adaptive infrastructure for coastal cities	Environmental Science + Civil Eng. + Urban Planning	Scopus, WoS
Thermoelastic wave propagation in bio-materials	Physics + Materials Science + Medicine	Scopus
5G antenna integration in smart port systems	Electrical Engineering + Computer Science	IEEE, Scopus

Source: Scopus institutional portfolio analysis. Publications selected to represent key interdisciplinary subject pairings at AASTMT. ISR eligibility assessed against THE ISR 2026 scope.

8. ISR Strategic Recommendations

Based on the full analysis of the SciVal Institution High Level Report and ISR submission data, the following strategic recommendations are presented to AASTMT's Research Directorate for action ahead of the next submission cycle.

8.1 Immediate Actions — Maximise Formally Classified ISR Output

- Commission a systematic SciVal audit of all 2022–2024 publications against THE ISR subject classification criteria. The gap between ~253 estimated interdisciplinary publications (Scopus broad analysis) and 6 formally classified ISR publications suggests significant uncaptured eligible output.
- Prioritise re-submission or reclassification of publications spanning COMP+ENGI, ENVI+ENGI, CHEM+MEDI, and DECI+ENGI pairings, which are unambiguously ISR-eligible under both original and expanded 2026 scope.
- Engage the top 10 authors listed in Section 6 in an ISR identification exercise to flag cross-disciplinary publications that may qualify under THE classification.

8.2 Medium-Term — Grow Industry Collaboration

- Academic-corporate co-authorship at 0.7% is critically low. Establishing 3–5 structured industry research partnerships (targeting Egyptian maritime, energy, and construction sectors) would directly improve the THE Industry pillar score.
- Document all industry-linked grants and co-publications systematically via IRPC for inclusion in both the WUR industry income metric and ISR industry funding metric.

8.3 Longer-Term — Build a Sustained ISR Pipeline

- Establish a dedicated ISR seed fund to support cross-faculty pilot projects. Even modest internal grants (USD 5–15k) that formally span two or more THE-classified subject areas generate qualifying ISR output.
- Leverage AASTMT's 99.2 prominence percentile position in Supply Chain Management and 99.3 in MIMO communications to attract international ISR collaborators in cognate disciplines.
- Build recognition for interdisciplinary work into promotion criteria and annual research reviews, directly addressing the evidence requirement in the ISR Process pillar.
- Egypt holds the highest national share of interdisciplinary research income globally at 48% (THE/SciVal benchmark). AASTMT should position itself as the institutional anchor of Egypt's ISR leadership — currently only 6 formally classified publications fall short of that national ambition.

9. Internal KPI Framework for ISR Monitoring

The following expanded KPI framework governs AASTMT's internal tracking of interdisciplinary research performance, aligned with THE ISR inputs, process, and outputs pillar requirements.

Performance Area	KPI Type	Responsible Unit
ISR Publication Share (THE)	% of THE-classified ISR output	University Research Directorate

Inter-faculty Collaboration	No. of joint research teams	College Deans + R&D Directorate
ISR Grant Success Rate	Funding from cross-cutting calls	IRPC + Financial Management Unit
SDG Targeted Research Outputs	Projects aligned with SDGs	Quality Assurance + Research Units
Annual ISR Growth Rate	Year-on-year % change in THE ISR pubs	University Research Directorate
Academic-Corporate Engagement	% publications with corporate co-authors	Industry Liaison + IRPC
International Collaboration Share	% output with intl co-authorship	Research Directorate + IRPC
Top-Cited Publication Share	% pubs in top 10% globally	Bibliometrics Unit

KPI framework aligned with THE ISR methodology (2026): Inputs pillar (research income share, industry funding), Process pillar (institutional measures, facilities, tenure systems), Outputs pillar (publication volume, citation impact, interdisciplinary citation spread).

Appendix A — Institutional Strategy for ISR Measurement

AASTMT employs a multi-layered evaluation framework to measure interdisciplinary research success across applicable disciplines. The university integrates both quantitative metrics and qualitative assessments into its institutional monitoring systems, aligning with its strategic goals under the 2021–2026 Vision.

Key areas of measurement include:

- Bibliometric Analysis: Using Scopus and SciVal platforms — subject overlap in publications, cross-departmental co-authorship patterns, citation impact across multiple disciplines, and THE-subject-classified ISR output tracking.
- Strategic Alignment: ISR success is benchmarked against contribution to the UN SDGs, particularly SDG 7 (clean energy), SDG 13 (climate action), SDG 14 (maritime/ocean), and SDG 4 (education).
- Interdisciplinary Project Outcomes: Internal KPIs assigned to measure success of multi-faculty grants, industry collaborations, and applied research centres.
- Annual Research Reporting: Each academic department and research centre submits a performance report detailing interdisciplinary research activities and outcomes.
- SciVal ISR Module: AASTMT now directly utilises SciVal's THE-classified scholarly output module to formally track and submit ISR-eligible publications for the THE Interdisciplinary Science Rankings cycle.

Appendix B — Data Provenance

All data in this report derives from the following verified sources:

- SciVal Institution High Level Report — AASTMT (entity: Arab Academy for Science, Technology and Maritime Transport 2). Year range: 2020–2025. All subject areas (THE). Data source: Scopus, up to 01 April 2026. Exported: 12 April 2026.
- SciVal Scholarly Output ISR Export — Dataset: Scholarly Output; Entity: My Research Area (AASTMT); Year range: 2022–2024; Subject classification: THE; All publication types; Self-citations included. Data last updated: 1 April 2026. Exported: 12 April 2026.
- THE ISR 2026 Methodology (timeshighereducation.com) — inputs pillar definition, scope expansion to non-STEM disciplines, process and outputs pillar criteria.
- THE WUR 2025/2026 global benchmark data — international staff averages, industry income benchmarks, interdisciplinary research income global average (28%, with Egypt at 48%).