

DELTA UNIVERSITY

FACULTY OF POSTGRADUATE STUDIES

Bibliometric Analysis of DELTA-IMPACT Framework

Delta University for Science and Technology

Publication-Related Indicators | 2023–2024

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1. Executive Summary

This report presents a publication-only bibliometric analysis of Delta University's DELTA-IMPACT performance for 2023 and 2024. It excludes qualitative indicators and focuses instead on the indicators that can be calculated or audibly derived from the SciVal- and RHN-based results.

Across the two years, Delta University demonstrates a clearly established interdisciplinary environment. The strongest evidence is structural: ASJC multi-category publication rates remained high in both years at 71.93% in 2023 and 68.82% in 2024, while multi-institution interdisciplinary collaboration remained exceptionally strong at 96.39% and 94.30%, respectively. The RHN-based I-Index proxy was also above the DELTA-IMPACT target in both years, at 0.623 in 2023 and 0.591 in 2024.

The main strategic issue is not whether interdisciplinarity exists at Delta University; it does. The issue is conversion. The cross-field environment is broad and collaborative, but that breadth is not yet consistently converting into citation premium, stronger internationalization, higher SDG linkage, or translational outputs. This is visible in the decline from 2023 to 2024 in FWCI premium, deep ASJC interdisciplinarity, top-10% citation performance, and translational interdisciplinary output.

Overall, 2023 was the stronger publication year on most core bibliometric measures, while 2024 showed selective improvement in frontier positioning and

SDG-linked visibility. The year-on-year pattern therefore suggests that Delta University already has an interdisciplinary research ecosystem with real internal coherence, but it still needs sharper conversion mechanisms to translate that environment into stronger impact outcomes.

2. Scope, Sources, and Methodological Basis

The analysis is limited to publication-related indicators under Pillars 3 and 4 of the "DELTA-IMPACT Framework" that are supported by the SciVal data. Qualitative indicators are omitted from this report rather than listed as gaps.

The 2023 and 2024 quantitative values are taken from exported SciVal publications of Delta University for years 2023 and 2024. KPI definitions and targets are aligned to the uploaded DELTA-IMPACT framework. For Metrics 3.1 and 3.2, the report follows the RHN data exported from web of science.

Operationally, interdisciplinary publication outputs are primarily interpreted through ASJC and THE field combinations, while frontier positioning is interpreted through RHN-based I-Index and co-citing-paper evidence. SDG-oriented indicators are interpreted as publication-level convergence and semantic mapping measures.

3. Supported Publication Indicators: 2023–2024 Results

ID	Indicator	Target KPI	2023	2024	2023 Status	2024 Status
3.1	I-Index Optimization	≥0.55	0.623	0.591	**Above target**	**Above target**
3.2	Horizon 'Core Papers' Targeting Rate	≥25%	12.39%	18.60%	Below target	Below target
3.3	Interdisciplinary FWCI	≥2.05	1.173	1.259	Below target	Below target
3.4	THE Cross-Field Publication Rate	≥55%	48.11%	41.80%	Below target	Below target
3.5	Deep THE Interdisciplinarity Rate	≥15%	11.79%	11.78%	Below target	Below target

3.6	ASJC Multi-Category Publication Rate	≥75%	71.93%	68.82%	Below target	Below target
3.7	Deep ASJC Interdisciplinarity Rate	≥58%	53.54%	43.65%	Below target	Below target
3.8	FWCI Premium (THE)	≥1.15	1.044	0.754	Below target	Below target
3.9	FWCI Premium (ASJC)	≥1.35	1.297	0.654	Below target	Below target
3.10	Top 10% Citation Rate for Cross-Field Outputs	≥35%	33.11%	29.53%	Below target	Below target
3.11	High-Prominence Interdisciplinary Topic Rate	≥75%	73.11%	74.50%	Below target	Below target
3.12	Mean Topic Cluster Prominence of Interdisciplinary Outputs	≥80	77.88	77.78	Below target	Below target
3.13	Multi-Institution Interdisciplinary Collaboration Rate	≥95%	96.39%	94.30%	**Above target**	**Above target**
3.14	International Interdisciplinary Collaboration Rate	≥75%	68.85%	67.45%	Below target	Below target
4.1	SDG Semantic Mapping Score	≥60%	8.02%	11.32%	Below target	Below target
4.3	SDG–Discipline Convergence Rate (THE)	≥8%	4.48%	6.47%	Below target	Below target
4.4	SDG–Discipline Convergence Rate (ASJC)	≥85%	79.41%	77.55%	Below target	Below target
4.5	Translational Interdisciplinary Output Rate	≥5%	1.64%	0.34%	Below target	Below target

4. Year-on-Year Interpretation

Interdisciplinary environment remains strong.

Delta University's publication portfolio remained unmistakably interdisciplinary in both years. Even after a modest decline in 2024, the ASJC multi-category publication rate stayed high, and multi-institution collaboration remained above 94%. The RHN-based I-Index result above target in both years further supports the conclusion that Delta's interdisciplinary environment is real, sustained, and embedded within its publication system rather than being a one-year anomaly.

2023 outperformed 2024 on most core bibliometric efficiency measures.

The strongest deterioration between the two years occurred in the depth and payoff of interdisciplinarity. Deep ASJC interdisciplinarity fell from 53.54% to 43.65%. FWCI Premium (THE) declined from 1.044 to 0.754, and FWCI Premium (ASJC) declined sharply from 1.297 to 0.654. Top-10% citation performance for cross-field outputs also weakened from 33.11% to 29.53%. These shifts indicate that Delta's 2024 cross-field publication activity was still broad, but less citation-efficient and less deeply integrated.

Frontier orientation is present, but still under-converted at full portfolio level.

Metric 3.1 shows a strong RHN-based interdisciplinarity profile above target in both 2023 and 2024. Metric 3.2 improved from 12.39% to 18.60%, indicating better penetration of co-citing papers across the annual publication base. However, because both values remain below the 25% KPI, the university is not yet converting enough of its total publication volume into Horizon-style frontier-positioned outputs.

Societal and SDG linkage improved selectively in 2024, but from a low base.

The indicators that improved in 2024 were mainly SDG-oriented. SDG Semantic Mapping Score rose from 8.02% to 11.32%, and THE-based SDG–discipline convergence rose from 4.48% to 6.47%. Even so, both remained materially below target, which indicates that the university's interdisciplinary environment is stronger in scientific structure than in explicitly visible SDG framing or external translation.

5. What the Bibliometrics Show About Delta University's Interdisciplinary Environment

The publication evidence points to an interdisciplinary environment that is broad, networked, and thematically coherent. It is broad because a large majority of outputs span multiple ASJC categories. It is networked because nearly all interdisciplinary outputs involve more than one institution. It is coherent because RHN-based frontier indicators show that Delta's emerging-topic activity is not random diversification, but concentrated in convergent areas such as applied AI, biomedical and therapeutic science, mathematical and statistical modeling, and engineering optimization.

This is an important institutional signal. Many universities produce occasional interdisciplinary papers without sustaining an interdisciplinary environment. Delta's profile is different: the scale of cross-category publishing, the consistency of multi-institution collaboration, and the above-target RHN I-Index values together indicate that interdisciplinarity is embedded in the university's research behavior.

At the same time, the bibliometric evidence suggests that Delta's interdisciplinary environment is presently stronger as a research structure than as an impact engine. Citation premiums remain below target, international interdisciplinary collaboration is below target in both years, and translational output remains very limited. In practical terms, Delta University appears to have built the conditions for interdisciplinary performance, but not yet the full downstream conversion into citation advantage, SDG visibility, and translation.

6. Indicator-Level Analytical Commentary

3.1–3.2 Frontier and foresight positioning

The RHN-based indicators materially improve the interpretation of Delta's publication profile. The weighted I-Index proxy is above the official target in both years, confirming interdisciplinary diversity in the knowledge base. The Core Papers Targeting Rate improved in 2024, but it remains below target when assessed against the full annual WoS publication denominator. This combination suggests that Delta is active in interdisciplinary and emerging-topic spaces, but the proportion of the overall output base penetrating those research fronts is still insufficient.

3.3–3.10 Interdisciplinary quality and citation performance

The citation-related picture is mixed. Interdisciplinary FWCI improved slightly in 2024, but premium ratios deteriorated sharply, meaning cross-field outputs did not outperform single-field outputs on average. In effect, Delta maintained interdisciplinary activity but lost citation leverage from that activity. The decline in top-10% citation performance supports the same conclusion.

3.11–3.14 Topic prominence and collaboration

Delta University remains comparatively stronger on research prominence and collaboration than on citation premium. High-prominence topic exposure improved slightly in 2024 and stayed close to target. Multi-institution collaboration is a major strength in both years. International collaboration, however, remains below target and weakened slightly, indicating that the university's

interdisciplinary network is strong but still not internationalized to the desired **DELTA-IMPACT Framework** level.

4.1, 4.3, 4.4, and 4.5 Societal linkage and translation

The publication-level societal indicators remain the weakest part of the portfolio. Although 2024 showed improvement in SDG semantic mapping and THE-based SDG convergence, the absolute levels remain low relative to target. Translational interdisciplinary output dropped sharply in 2024, indicating that policy-citation and patent-linked signals are still rare within the publication portfolio.

7. Strategic Implications

The bibliometric evidence suggests that Delta University should treat interdisciplinary performance as a two-stage problem. Stage one, building the interdisciplinary environment, is already underway and visibly established. Stage two, converting that environment into higher-value outcomes, is where the university now needs to concentrate policy attention.

The immediate strategic priority should be conversion of strong structural interdisciplinarity into stronger citation advantage, deeper frontier penetration, and clearer SDG and translational evidence. This means focusing not only on volume of cross-field outputs, but on where those outputs are published, how internationally connected they are, and how systematically they are framed, tagged, and followed through into visible impact pathways.

Because 2024 remained strong on the existence of interdisciplinary structure but weaker on its payoff, the central management implication is that Delta University does not need to create an interdisciplinary culture from zero. It needs to intensify

the quality, selectivity, international reach, and downstream capture of an environment that already exists.

8. Leadership Summary

Delta University's 2023–2024 bibliometric profile confirms a genuine interdisciplinary research environment. The strongest evidence lies in high ASJC cross-category publishing, exceptional multi-institution collaboration, and RHN-based I-Index performance above target in both years.

However, the university's main challenge is conversion. Interdisciplinarity is present and institutionalized within the publication portfolio, but it is not yet consistently translating into stronger citation premium, international cross-field reach, SDG-linked visibility, or translational output.

From a leadership perspective, the message is clear: Delta University already has the interdisciplinary environment required for DELTA-IMPACT success. The next step is to convert that environment into stronger high-impact, frontier-positioned, internationally connected, and visibly translated publication outcomes.

Prof. Tarek Elkhooly

Head of Ranking and Research

Delta University for Science and Technology