## APPENDIX H1 – Explanation of MNJ components

The MNJ score is computed as a weighted average of three key components, **Transparency**, **Speed**, and **Impact**, according to the following Formula 3:

$$MNJ = (3.3 * Transparency + 3.3 * Speed + 3.4 * Impact) / 10$$

Indicator data for these components were collected between May and December 2024, then updated from April to May 2025, using 2024 as the reference year. The data were sourced from multiple reputable platforms, including the journal's official website, Scimago (https://www.scimagojr.com/), DOAJ (https://doaj.org/), and Researcher Life (https://researcher.life/).

Transparency component in academic publishing is a composite metric that evaluates the clarity and openness of journal policies and processes, contributing 33% to the MNJ score. It is calculated as:

$$Transparency = (FITJ+2*TAPH+2*JTTP)/5$$

Where each indicator addresses a critical aspect of publishing transparency.

FITJ is the Facility to Identify the Type of Journal, which measures how easily readers can find the journal's open access models (ranging from diamond/platinum, Hybrid, Gold, Green to Fully paid) on a scale from "Very Easy" (1.0) to "Very Difficult" (0.0).

TAPH is the Transparency of Article Publication History, which evaluates whether journals fully disclose the complete article timeline (received, accepted, and published) dates (1.0), or only partial information (0.5) or merely the publication date (0.0).

JTTP means Journal Transparency of Time to Publish, which assesses how openly journals communicate to the society the average or mean taken from submission to publication process.

The formula assigns double weight to both TAPH and JTTP, emphasizing the importance of temporal transparency in scholarly communication, which allows researchers to better evaluate publication efficiency and editorial processes.

In addition, each element is scored on a 0-1 scale, with higher scores indicating greater transparency for the reader when deciding to visit the official journal site. They are aligned with Open Science principles and practices (Chan et al., 2020; Spitschan et al., 2021) and emerging standards like The Transparency and Openness Promotion Guidelines or TOP Factor, which evaluates journal policies for the degree to which they promote core scholarly norms of transparency and reproducibility (Mayo-Wilson et al., 2021).

The Speed (33% of MNJ) component measures how quickly each journal processes manuscripts from submission to publication, an increasingly important factor for researchers under pressure to publish. For every journal listed in Appendix H2, the official website was visited to find or determine the Number of Days from Submission to Publication (NDP).

If the information was unavailable on the Journal website, additional sources such as DOAJ or Researcher Life were consulted. If the NDP could not be determined, a question mark (?) was recorded in the NDP (Days) column.

As a result, among 588 journals, the NDP value was found for 445 journals (76%), while for 142 journals (24%), the data was not available, confirmed the zero values in JTTP column, suggesting a lack of transparency regarding submission, acceptance, and publication dates.

In the MNJ framework, Speed is quantified by the Normalized Number of Days from Submission to Publication (NDPN). After converting "NDP (DAYS)" to numeric form, its distribution was partitioned at the 0 %, 20 %, 40 %, 60 %, 80 %, and 100 % percentiles, resulting five quintiles (Figure 9) each contain 20 % of the data and correspond to discrete speed categories: Super-Fast (≤ 109.8 days, 1.0), Fast (109.8–150.0 days, 0.8), Moderate (150.0–204.4 days, 0.6), Slow (204.4–298.4 days, 0.4), and Super Slow (> 298.4 days, 0.2).

Journals lacking NDP values and not possible to find in other source, receive a score of 0. This approach ensures uniform representation across performance tiers and highlights the critical impact of rapid dissemination in accelerating research advancement.

The Impact component accounts for 34% of the MNJ score and is calculated as

$$\text{Impact} = (2*\text{CLRPE} + 2*\text{TJ} + 3*\text{SJRN} + 3*\text{HIN}) / 10$$

This formula gives higher weight to bibliometric indicators (SJRN and HIN) compared to CLRPE and TJ, ensuring a balanced measure of both broad scholarly influence with cross-field relevance and open access accessibility.

CLRPE was already explained in Step 7.

TJ represents Type of Journal, it prioritizes accessibility through open access (OA) models, in the following order:

Diamond/Platinum OA journals receive the highest score (1.0) due to the fact it is completely free and very convenient for low-resources researchers.

Followed by Green OA, usually no fee to publish, which allows authors to self-archive their manuscripts in repositories, providing free access alongside traditional publishing. These Journal scores are slightly lower (0.9) because while access may be free, there may be embargo periods or restrictions.

Hybrid Open Access journals publish both traditional or subscription-based (in this case the author can select to not pay APC, but only the abstract will be available) and open access articles, typically charging APCs for open access; they score 0.8, reflecting partial accessibility but potential financial barriers for authors if he or she wishes to make all the article content opened.

Gold Open Access journals fully charge APCs to authors for immediate open access, scoring 0.6, acknowledging accessibility for readers but significant cost burdens for authors. However, some Gold OA journals are free to publish in (e.g., funded by institutions or consortia).

Finally, fully OA (paid) or subscription-only journals score zero, as they impose financial hurdles on authors and restrict access to readers without subscriptions.

SJRN incorporates the Scimago Journal Ranking from 2024, normalizing scores from 1.0 for elite journals (SJR ≥ 2.235) down to 0.2 for those with minimal impact (0.157 > SJR > 0). Similarly, HIN incorporates the H-Index from 2024, with normalized scores ranging from 1.0 for journals with H-Index ≥ 326.8 to 0.2 for those with H-Index between 1 and 89.

The normalization process of the SJR variable was developed using a systematic quantitative approach that integrated data extraction, statistical analysis, and a tier-based classification mechanism.

Initially, the SJR values were extracted from the dataset, and detailed descriptive statistics were computed to understand the distribution of the values. Key quantiles, specifically the 25th, 50th, 75th, and 95th percentiles, were calculated to identify data-driven thresholds.

Based on these quantiles, the SJR values were segmented into five tiers that represent distinct performance levels among journals.

The finalized classification system is as follows:

SJRN=1 (Top Tier; SJR>=$P_{95}$): Journals with SJR >= 2.235, representing the highest performance. This tier includes 148 journals, corresponding to 25.21% of the total.

SJRN=0.8 (High Tier; $P_{75} \leq$ SJR < $P_{95}$): Journals with SJR values in the range 1.466 ≤ SJR < 2.235. This group comprises 147 journals, accounting for 25.04% of the journals.

SJRN=0.6 (Mid-high; $P_{50} \leq$ SJR < $P_{75}$): Journals with SJR values within 1.000 ≤ SJR < 1.466, also containing 147 entries (25.04%).

SJRN=0.4 (Mid-low; $P_{25} \leq$ SJR < $P_{50}$): Journals with SJR values between 0.157 ≤ SJR < 1.000, including 146 entries (24.87%).

SJRN=0.2 (Low Tier; SJR < $P_{25}$): Journals with SJR<0.157, which in this dataset amounted to 0 entries (0.00%).

The same process was applied to the HI values listed below:

HIR=1 (Top Tier; HI>= $P_{95}$): Journals with HI>=326.8 representing the highest performance. This tier includes 30 journals, corresponding to 5.11% of the total.

HIR=0.8 (High Tier; $P_{75} \leq$ HI < $P_{95}$): Journals with HI values in the range 196.0 ≤HI< 326.8. This group comprises 119 journals, accounting for 20.27% of the journals.

HIR = 0.6 (Mid-high; $P_{50} \leq$ HI < $P_{75}$): Journals with HI values within 135≤ HI< 196.0, containing 147 entries (25.04%).

HIR = 0.4 (Mid-low; $P_{25} \leq$ HI < $P_{50}$): Journals with HI values between 89.0 ≤ HI < 135, including 146 entries (24.87%).

HIR=0.2 (Low Tier; HI < $P_{25}$): Journals with HI<89.0, including 145 journals (24.7%).