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From an Economy of Reporting to an Economy of Knowledge: Quality-Based Assessment Criteria for Kazakhstan's Research Grant Programmes

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Abstract

The Constitution of the Republic of Kazakhstan adopted at the referendum of 15 March 2026 enshrined science and innovation as strategic priorities of the state and guaranteed freedom of scientific creativity, while a public appeal by Kazakhstani scientists framed the national choice as one between an «economy of knowledge» and an «economy of reporting». This policy brief argues that the underlying binary of trust versus control is a false one: the real task is to replace control of quantity with control of quality. Drawing on a companion review of systemic strains on the research enterprise (Kalendar, 2026) and on the international consensus codified in DORA (2013), the Leiden Manifesto (2015) and the CoARA agreement (2022), the brief translates these principles into twelve concrete changes across four points of the grant cycle — application, execution, acceptance of results, and integrity infrastructure — each anchored to a tested international precedent. It further proposes a three-phase implementation roadmap built around a pilot competition with pre-announced success criteria, an explicit register of risks and mitigations, and indicators by which the reform itself must be evaluated.

Keywords: *research assessment; science policy; DORA; responsible metrics; open science; research integrity; grant funding; Kazakhstan*

1. Introduction: A Window of Opportunity

The 2026 public appeal of Kazakhstani scientists poses the choice starkly: an economy of knowledge or an economy of reporting. The frame is politically powerful, yet it leaves unanswered a legitimate question of the state: what exactly is the budget paying for, and how can one verify that funds are converted into knowledge rather than into its imitation? As long as that question is answered by counting indicators, the system will keep reproducing whatever it measures. The task, therefore, is not to choose between trust and control, but to replace control of quantity with control of quality.

The legal foundation is already in place: the constitutional guarantee of freedom of scientific creativity adopted in March 2026 and the Law of the Republic of Kazakhstan «On Science and Technology Policy» (2023). The missing link is the assessment methodology — what counts as a result, and who verifies it and how. That is the level this brief addresses. Its diagnosis draws on a companion review of eight systemic strains on the modern research enterprise (Kalendar, 2026); its prescriptions translate the sections of that review on perverse incentives and on reform pathways into operational norms for Kazakhstan's grant programmes.

2. Why Counting Indicators Fail

Goodhart's law states that an indicator which becomes a target ceases to be an indicator. Formal models show that selecting researchers for productivity rather than reliability systematically propagates weak methods — «the natural selection of bad science» (Smaldino & McElreath, 2016) — and hypercompetition for countable outputs is recognized as a systemic risk to research integrity (Edwards & Roy, 2017). The consequences are measurable: the output of paper mills doubles roughly every eighteen months, faster than the capacity to detect it (Richardson et al., 2025), and more than 10,000 papers were retracted in 2023, a historical record (Van Noorden, 2023).

Systems in which careers and funding are rigidly tied to publication counts are the most exposed. Comparative scientometric studies have recorded for Kazakhstan one of the world's highest shares of publications in journals subsequently delisted from Scopus for malpractice (Macháček & Srholec, 2022). The same logic has a mirror image: what is not counted as a result does not get done. Research software and databases are absent from reporting forms — and are predictably abandoned: roughly 28% of computational-biology tools are no longer reachable at the addresses given in the papers that introduced them (Mangul et al., 2019).

3. The Principle: Assess the Content, Not the Container

The international consensus codified by DORA (2013), the Leiden Manifesto (Hicks et al., 2015) and the CoARA agreement (2022) reduces to three rules. First, the expert assesses the work itself, not the journal in which it appeared; journal-level metrics do not substitute for judgement. Second, a research result is not only an article: data, software, preprints, replications and negative results are recorded and recognized. Third, quantitative indicators are admissible only as supporting material for the expert and never as a decision formula. Table 1 translates these rules into concrete norms for Kazakhstan's competitions.

4. Twelve Changes Across the Grant Cycle

Table 1. *Twelve changes across four points of the grant cycle, each anchored to a tested international precedent.*

Current practice	Proposed norm	Precedent
I. Application and review		
1. Full publication list; journal quartiles, percentiles and indices are used as criteria for assessing the applicant.	Narrative CV: up to five key outputs of any type with a statement of the applicant's personal contribution; journal-level metrics are removed from the assessment methodology.	DORA; SNSF; UKRI (R4RI)
2. Assessment of the idea is inseparable from the team's credentials.	Two stages: first the idea and method (anonymized where feasible), then the team's capacity and competence.	Volkswagen Foundation («Experiment!»)
3. The fate of project data is not planned at the application stage.	A short data-management plan (1–2 pages) is a mandatory part of the application.	Horizon Europe
4. Mid-ranked applications are separated by statistical noise in reviewer scores.	Pilot of partial randomization: a lottery among applications that pass the quality threshold.	SNSF; HRC (New Zealand)
II. Project execution		
5. Rigid calendar plan: changing a hypothesis or method is treated as non-performance.	A right to a reasoned revision of hypotheses and methods while the project goal is preserved — by notification, without penalty.	ERC
6. Annual publication quota («no fewer than N articles per year»).	Substantive milestones instead of annual quotas; a preprint is recognized as an interim reportable output.	NIH
7. Software and databases are not reportable outputs.	A repository with a licence, version, DOI and documentation is a recognized output; a separate line of small maintenance grants for software and databases.	CZI EOSS; the RSE movement
III. Acceptance of results		
8. Acceptance reduces to counting articles and checking paperwork.	Final review reads two–three key outputs on their merits: scientific contribution, reproducibility, availability of data and code.	CoARA
9. Data and code remain with the grantee.	FAIR publication of data and code is a condition of acceptance; justified exceptions: personal data, biosafety, intellectual-property protection.	Wilkinson et al., 2016; NIH (DMS Policy)
10. Replications and null results are not recognized as results.	A dedicated funding line for replication and confirmation studies (pilot: 1–2% of the grant budget).	NWO (Netherlands)
IV. Integrity infrastructure		
11. Publication lists in applications and reports are checked formally.	Automated screening: retraction databases, paper-mill and image-manipulation detectors; publications in journals delisted from indices for malpractice are not counted (non-retroactively).	STM Integrity Hub; Crossref / Retraction Watch
12. The use of generative AI is unregulated.	Mandatory declaration of AI use in applications and reports; reviewers are prohibited from uploading application materials to external AI services.	NIH (reviewer policy)

5. Implementation Roadmap

Phase 0 (months 0–6). A working group involving the Science Committee of the Ministry of Science and Higher Education, the National Center for State Scientific and Technical Expertise, the national scientific councils, the National Academy of Sciences and universities; accession of Kazakhstani research organizations to DORA and CoARA; drafting of an updated review methodology; selection of a pilot competition (for example, grants for young researchers).

Phase 1 (months 6–18). The pilot itself: narrative CVs, two-stage review, data-management plans, paid reviewer work. Parallel data collection: review time, score distributions, burden on applicants and reviewers.

Phase 2 (months 18–36). Scaling to the main grant and programme-targeted funding competitions, conditional on the pre-announced success criteria being met; launch of the replication and software-maintenance lines; integration of integrity screening into the standard circuit of state scientific-technical expertise.

6. Risks and Mitigations

No reform is free of its own failure modes; Table 2 lists the principal risks together with mitigations built into the design.

Table 2. *Risk register of the proposed reform.*

Risk	Mitigation
New indicators can also be gamed («Goodhart 2.0»).	Expert judgement is primary and metrics are reference material only; random audit of 5–10% of completed projects.
Higher reviewer workload under substantive reading.	Shorter document packages (a narrative CV instead of lists); paid review; randomization for the middle of the ranking.
Transition costs for researchers whose careers were built around counting indicators.	A two-year transition with parallel accounting under old and new rules; explanatory seminars.
Open data may conflict with commercialization.	Embargoes of up to 12–24 months; intellectual-property exceptions fixed in the data-management plan.
Imitation of openness: data dumps of no scientific value.	Random FAIR-compliance checks; tracking of actual reuse of data and code.

7. How to Measure the Success of the Reform Itself

A reform of assessment must obey the rules it introduces: hypotheses stated in advance, data open, results published regardless of outcome. Pilot indicators: (1) the share of researchers' working time spent on reporting (surveyed before and after); (2) the share of completed projects with open data and working code (random audit); (3) the share of applications classified by reviewers as exploratory or high-risk; (4) the dynamics of retractions and of publications in delisted journals among reported outputs; (5) reviewer time and satisfaction; (6) the share of early-career researchers among grantees.

Conclusion

The scientists' appeal rightly holds that science is born where there is trust. In a state system, however, trust is not declared — it is designed. A review process that reads works instead of counting them, recognizes data and code as results, rewards replication and systematically verifies integrity is the institutional form of trust. It answers the researchers' question («let us do science») and the state's question («show that the budget creates knowledge») at once — and it gives the constitutional guarantee of freedom of scientific creativity concrete administrative content.

Data & Code Availability

This article is a policy brief and does not contain original datasets or analysis code. All cited sources are listed in the references below.

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Ethics

This policy brief synthesizes published literature and public documents and did not involve human participants, animal subjects, or primary data collection. No ethical approval was required.

Competing Interests

The author declares no competing interests.

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