Title

A Goal-Structured Risk Management Framework for User-Centered Peer Review Workflow Innovation in Scholarly Publishing

Subtitle

Aligning reviewer, author, and editor goals with workflow risks and mitigation strategies

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Abstract

Peer review plays a crucial role in ensuring quality in academic publishing. However, this process often faces many challenges, including author dissatisfaction, long turnaround times, reviewer burnout, variable review quality, editorial burden, and growing threats to research integrity. This study introduces a Goal-Structured Risk Management (GSRM) framework to innovate user-centered peer-review workflows. The framework integrates stakeholders' objectives to risk events, underlying causes, and mitigation strategies into a single, structured approach, focusing on the roles of reviewers, authors, and editors. The objective is to reduce potential obstacles in the workflow, increase transparency, encourage reviewer engagement, and promote efficiency among editors. The framework highlights that the most important workflow risks are not isolated technical issues; they are linked to human experience, system design, and operational burdens. In conclusion, the framework offers a practical approach for systematically identifying, evaluating, monitoring, and managing events that may influence the quality, objectivity, efficiency, and reliability of the peer-review process in scholarly publishing.

Background

Peer review ensures the quality, validity, and integrity of scholarly publishing. However, current workflows face major challenges:

- Reviewer burnout
- Long turnaround times
- Inconsistent review quality
- Author dissatisfaction
- Editorial backlog
- Research integrity risks

Problem Statement

Peer review workflows are **process-centric rather than user-centered**, leading to:

- Delays and inefficiencies
- Poor transparency
- Increased editorial workload
- Reduced trust in the system

Objectives

- Identify key workflow risks
- Map goals, risks, and causes
- Propose mitigation strategies
- Support user-centered workflow innovation

Research Question

How can a goal-structured risk management approach improve user-centered peer review workflows in scholarly publishing?

Methods / Framework Design

This study used a conceptual and practice-based design to model peer review as a structured risk management system. The proposed GSRM framework comprises four linked layers:

Goal → Risk Event → Risk Factors / Causes → Treatment / Mitigation

The overall goal of the system is to optimize the efficiency and quality of the peer review workflow. This is then broken into stakeholder-specific sub-goals for reviewers, authors, and editors. For each stakeholder, the model identifies the key workflow risks, underlying causes, and possible treatments. A risk register has been introduced to support prioritization and enable proactive intervention.

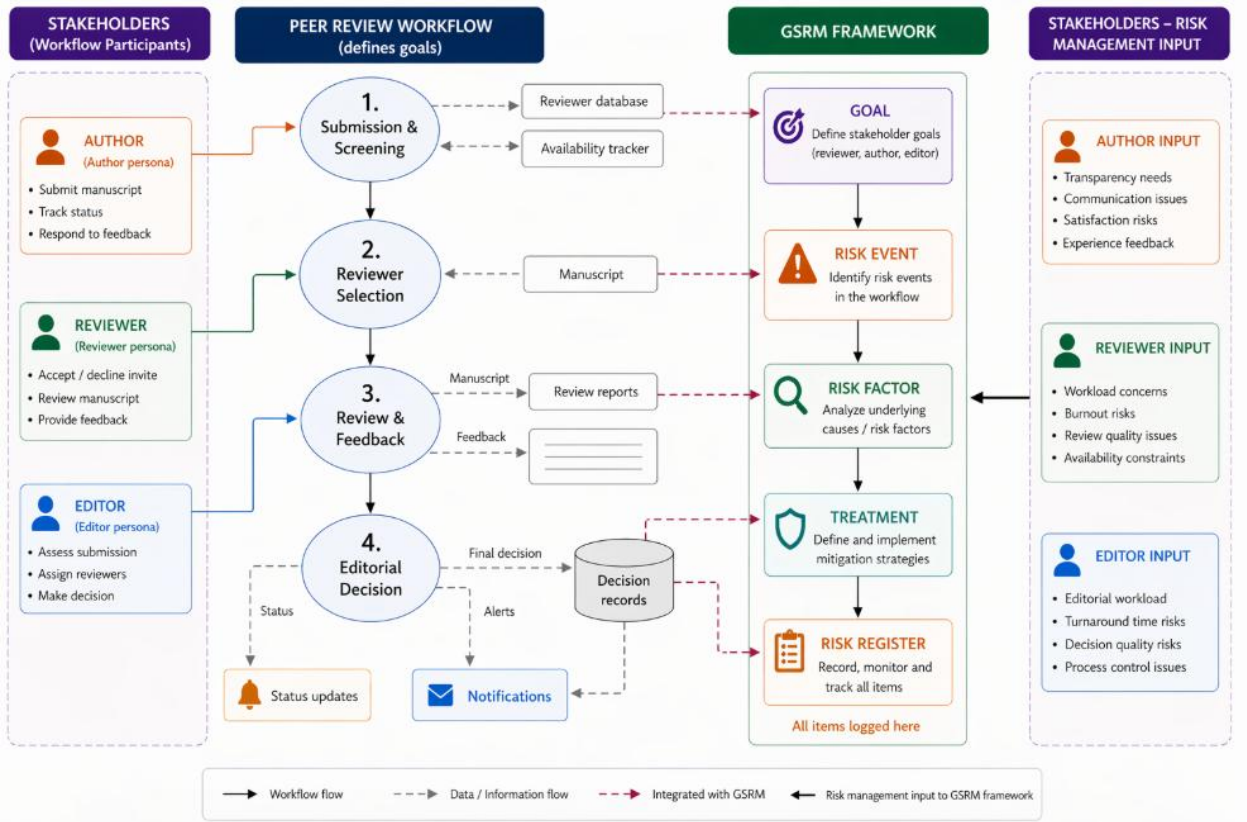

Fig 1: Integrated Peer Review Workflow and Goal-Structured Risk Management (GSRM) Framework

Table 1: Risks in Peer Review Workflow (GSRM-Based)

Rank	Stakeholder	Risk Event	Risk Factors	Treatment
1	Reviewer	Reviewer non-response / decline	Poor matching, overload, irrelevant invites	Reviewer recommender, availability tracker, smart filtering
2	Reviewer	Review delay (late submission)	Cognitive burden, long forms, low motivation	Simplified forms, auto-reminders, recognition
3	Reviewer	Poor review quality	Lack of expertise, no guidance, superficial review	Structured templates, reviewer guidelines, matching

4	Editor	Editorial delay/backlog	Reviewer non-response, manual processes	Automation, escalation workflow, alerts
5	Author	Author dissatisfaction	Low transparency, delayed communication	Status dashboard, notifications, clear feedback
6	Editor	Inefficient reviewer selection	Manual search, lack of filtering	Reviewer recommendation engine
7	Editor	Inconsistent decision quality	Fragmented reviews, no synthesis	Review summary tools, decision templates
8	Author	Revision delay	Complex revision process, unclear guidance	Revision checklist, structured feedback
9	Author	Poor status visibility	Lack of a tracking system	Workflow tracking dashboard
10	System	Integrity risk (missed misconduct)	Weak screening, process gaps	Pre-screen checks, integrity alerts

Data Collection

- Literature review

Risk Register (Key Risks)

- Reviewer decline
- Review delay
- Poor review quality
- Author dissatisfaction
- Editorial backlog
- Integrity risk

Key Findings / Insights

- Risks are not only technical
- Strong link to:

    - Human experience
    - System design
    - Operational workload
- Reviewer fatigue slows workflow
- Poor visibility affects authors
- Manual tasks increase editorial burden

Implications for Scholarly Publishing

- Supports **journals, publishers, and platforms**
- Combines:
    - User experience
    - Risk management
- Adaptable across disciplines and workflows

Conclusion

The GSRM framework integrates goals, risks, causes, and treatments into a unified model. It improves:

- Efficiency
- Transparency
- Decision-making
- Trust in peer review

Take-Home Message

Peer review workflows improve when stakeholder goals, workflow risks, and mitigation strategies are designed together within a user-centered framework.

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