Bridging Print and Digital: The P.E.A.C.E. Framework for Journals in Emerging Contexts

P.E.A.C.E. Framework for Journals

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Abstract

The transition from print to digital publishing is one of the most significant transformations in scholarly communication, particularly for journals in emerging contexts where resource limitations, cultural resistance, and technological gaps persist. While electronic journals enhance accessibility, speed, and global reach, many society-owned and regional journals struggle with sustainability and quality assurance. This paper introduces the **P.E.A.C.E. framework—Planning, Evaluation, Actuation, Constraint, and Endurance/Sustainability**—as a structured, cyclical model for guiding journals through this transition. Unlike generic continuous improvement models, P.E.A.C.E. explicitly incorporates constraint navigation and long-term sustainability, making it especially relevant for the Global South. Drawing on case studies from India (Indian Journal of Medical Research, Economic and Political Weekly, Indian Journal of Ophthalmology, Journal of the Indian Institute of Science) and international publishers (Elsevier, Nature, PLOS ONE), the framework demonstrates its applicability across diverse publishing ecosystems. The analysis shows that adopting P.E.A.C.E. enables journals to integrate strategic foresight, stakeholder-driven evaluation, resilient execution, and sustainable endurance. By bridging print and digital, the framework provides a roadmap for resilient, credible, and inclusive scholarly publishing in the digital age.

Keywords: Scholarly publishing, electronic journals, continuous improvement, P.E.A.C.E. framework, digital transition, emerging contexts

1. Introduction

The landscape of scholarly publishing has undergone profound transformations over the last century. For much of modern history, print journals represented the gold standard for academic communication, providing legitimacy, peer-reviewed quality, and a tangible medium for preserving knowledge (Fyfe et al., 2017). Institutional libraries, professional societies, and publishers acted as gatekeepers, ensuring that the flow of scholarly information remained credible and curated. The dominance of print was supported by subscription models, library consortia, and the reputational power associated with prestigious journal titles.

With the advent of the internet in the 1990s, however, the foundations of this system were challenged. The rise of the World Wide Web opened possibilities for faster dissemination, greater accessibility, and global reach at a fraction of traditional distribution costs. Initiatives such as the Budapest Open Access Initiative (2002), PubMed Central (2000), and institutional repositories catalysed the shift towards electronic dissemination (Suber, 2012). By the early 2000s, many commercial publishers—including Elsevier, Springer, and Taylor & Francis— were quick to adopt digital-first strategies, establishing online submission systems, digitizing archives, and developing hybrid open access models.

Yet, the transition from print to electronic publishing has been neither smooth nor uniform. Large commercial publishers had the financial and technological resources to make this leap, but regional, society-owned, and university-managed journals—particularly in the Global South—struggled with multiple barriers. These included inadequate technological infrastructure, limited financial resources, resistance from traditional readership accustomed to print, and concerns over long-term preservation in digital formats (Singh & Kaur, 2020).

India provides a unique lens into these challenges and opportunities. As one of the world's largest producers of scientific literature, India has a vibrant but fragmented publishing ecosystem. Journals such as the Indian Journal of Medical Research (IJMR), Economic and Political Weekly (EPW), and Indian Journal of Ophthalmology (IJO) have experimented with digital strategies while still catering to readers who rely on print. Institutional initiatives such as Shodhganga, the INFLIBNET consortium, and the UGC-CARE list reflect national efforts to ensure quality, accessibility, and digital transformation in scholarly communication. However, despite these efforts, a large number of Indian journals remain in transitional or hybrid states, struggling to balance credibility, reach, and financial sustainability (Patra & Chand, 2017).

Globally, the emergence of open access mandates such as Plan S (2018) in Europe and the UNESCO Recommendation on Open Science (2021) has accelerated the move towards digital-first publishing. These policies emphasize equity, accessibility, and inclusivity, but they also raise questions about sustainability—particularly for journals dependent on subscription revenue. The COVID-19 pandemic further underscored the urgency of this shift, as demand for immediate, open, and global dissemination of scientific research spiked dramatically (Horbach, 2021).

This dual reality—of unprecedented opportunity and persistent constraint—makes the transition from print to electronic publishing not merely a technological challenge but an organizational, cultural, and strategic transformation. It requires balancing the competing demands of tradition and innovation, financial sustainability and inclusivity, quality assurance and speed, local readership and global visibility.

To navigate this complexity, there is a need for structured frameworks that go beyond ad hoc digitization strategies. Traditional continuous improvement approaches such as Deming's PDCA cycle (Plan–Do–Check–Act) and Kaizen emphasize iterative problem-solving and incremental progress (Deming, 1986; Imai, 1997). While these frameworks have proven effective in manufacturing and services, they need contextual adaptation to address the unique challenges of scholarly publishing.

It is in this context that the P.E.A.C.E. framework—comprising Planning, Evaluation, Actuation, Constraint, and Endurance/Sustainability—is proposed. P.E.A.C.E. is not just a linear roadmap but a cyclical model, embedding foresight, implementation, feedback, barrier recognition, and sustainability into a continuous improvement loop. By explicitly acknowledging constraints and embedding sustainability as dedicated stages, the framework reflects the realities of publishing ecosystems where resource limitations, technological gaps, and long-term viability cannot be ignored.

The framework also resonates with broader movements in knowledge management and institutional strategy. Theories of systems thinking (Senge, 1990) and institutional adaptation

suggest that organizations thrive when they recognize interdependencies and embed resilience into their core processes. Scholarly publishing, as a complex knowledge ecosystem, requires exactly such a systemic, adaptive, and iterative approach.

This paper, therefore, has three main objectives:

1. To provide a comprehensive academic review of the transition from print to electronic journals, with emphasis on India and the Global South.

2. To introduce and elaborate the P.E.A.C.E. framework as a structured, cyclical model for continuous improvement in scholarly publishing.

3. To analyse the applications, policy implications, and managerial insights arising from the adoption of the framework, situating it within global debates on open science and digital transformation.

The rest of this paper is structured as follows: Section 2 presents a detailed literature review on the evolution of scholarly publishing, electronic journals, and continuous improvement frameworks. Section 3 elaborates on the five stages of the P.E.A.C.E. framework with examples. Section 4 discusses applications in Indian and global contexts, while Section 5 explores policy and institutional implications. Section 6 highlights managerial and strategic insights, Section 7 discusses theoretical comparisons and limitations, and Section 8 concludes with reflections on resilience and sustainability.

2. Literature Review

2.1 Evolution of Scholarly Publishing

The history of scholarly publishing is deeply tied to the evolution of science itself. The publication of Philosophical Transactions of the Royal Society in 1665 is widely regarded as the birth of modern academic publishing, establishing the principles of peer review, editorial oversight, and cumulative knowledge dissemination (Fyfe et al., 2017). For centuries, scholarly communication was print-centric, with institutional libraries serving as repositories and subscription-based distribution models financing journal operations.

This system offered credibility and permanence but was also exclusionary. Access was restricted to those affiliated with well-funded institutions, creating knowledge inequalities between the Global North and South (Guédon, 2001). By the mid-20th century, rising subscription costs produced what became known as the serials crisis, wherein library budgets were unable to keep pace with the exponential growth of scientific output (Suber, 2012).

The advent of the internet in the late 20th century triggered a paradigm shift. By the 1990s, digitization efforts and the World Wide Web enabled faster dissemination and global access. The launch of PubMed Central (2000) and the Budapest Open Access Initiative (2002) accelerated electronic dissemination, foregrounding the principle that publicly funded research should be publicly accessible.

By the 2010s, electronic journals had become dominant, with many publishers offering hybrid models that allowed authors to choose between subscription-based publication and article processing charge (APC)-funded open access. Yet, this transformation was not uniform: while major publishers (Elsevier, Springer, Wiley) scaled quickly, small society and regional journals struggled with resource constraints, cultural resistance, and limited technological capacity.

2.2 The Rise of Electronic Journals and Open Access

Electronic journals (e-journals) offered multiple advantages:

- Global reach and discoverability through digital indexing (Scopus, Web of Science, DOAJ).

- Lower distribution costs compared to print.

- Faster turnaround times for publication.

- Diverse formats including multimedia, datasets, and interactive graphics.

However, they also presented challenges:

- Sustainability: shifting from subscription to APC or institutional support raised questions of long-term viability (Björk & Solomon, 2014).

- Preservation: ensuring digital archiving (via LOCKSS, CLOCKSS, Portico).

- Equity: APC models risk excluding authors from developing countries who lack funding (Khoo, 2019).

- Legitimacy and predatory publishing: the rise of deceptive OA journals undermined trust in scholarly publishing (Shen & Björk, 2015).

Globally, open access (OA) emerged as both a disruptive and transformative force. OA models range from gold OA (immediate open access via APCs), green OA (self-archiving in repositories), and diamond/platinum OA (free for both authors and readers, typically institutionally funded). Studies show that OA improves visibility, citation impact, and inclusivity but also redistributes costs in problematic ways (Tennant et al., 2016).

2.3 Continuous Improvement and Quality Frameworks

Publishing is not only about dissemination but also about process efficiency, credibility, and sustainability. In this sense, frameworks from operations and management science offer relevant insights.

- Deming's PDCA cycle (Plan–Do–Check–Act) emphasizes iterative learning and problem-solving (Deming, 1986). Journals can apply this by planning digital strategies, piloting workflows, evaluating metrics (e.g., submission turnaround time), and adjusting accordingly.

- Kaizen focuses on incremental, continuous improvement (Imai, 1997). Applied to publishing, Kaizen principles might involve small process optimizations in peer review, editorial decision-making, or author services.

- Lean methodology emphasizes waste elimination and value creation for customers (Womack & Jones, 2003). In publishing, "waste" might include redundant review cycles, unnecessary printing, or delays in digital indexing.

- Six Sigma stresses defect reduction and process quality through statistical control (Antony, 2004). Journals might use Six Sigma to improve plagiarism detection, reviewer response rates, or acceptance-to-publication timelines.

- Capability Maturity Model Integration (CMMI) offers staged models of organizational process maturity (Paulk et al., 1993). Journals can benchmark themselves along levels of digitization maturity—from basic digitization of archives to fully integrated, AI-driven editorial workflows.

Despite these frameworks' potential, scholarly publishing literature has not systematically integrated CI principles. Existing studies primarily analyse economic models (Björk, 2017) or OA adoption, leaving a gap for structured frameworks tailored to publishing.

2.4 Indian Publishing Ecosystem

India's scholarly publishing sector is diverse, vibrant, but fragmented. With thousands of active journals across disciplines, India is one of the world's top contributors to research output. However, the sector faces quality and sustainability challenges.

- Society and university journals: Many are prestigious but underfunded, dependent on institutional subsidies.

- Commercial publishers: Elsevier, Springer, Taylor & Francis dominate high-impact publishing in India, but cost barriers limit access.

- Government initiatives:

  - UGC-CARE list (2019) ensures journals meet credibility standards, addressing the proliferation of predatory journals.

  - Shodhganga provides a national digital repository for theses and dissertations.

  - INFLIBNET consortium negotiates access to global databases for Indian institutions.

  - National Education Policy (NEP) 2020 emphasizes open and inclusive access to knowledge.

Case studies illustrate both progress and challenges:

- *Indian Journal of Medical Research (IJMR)* digitized archives with ICMR support.

- *Economic and Political Weekly (EPW)* maintains hybrid models balancing print and e-access.

- *Indian Journal of Ophthalmology (IJO)* successfully transitioned to a robust OJS-based system.

- Many smaller society journals, however, remain dependent on volunteer editors with limited technical capacity.

2.5 Global Policy Context

Internationally, publishing is shaped by open science policies and equity debates:

- Plan S (2018): Requires publicly funded research in Europe to be published OA, accelerating APC-based models.

- UNESCO Open Science Recommendation (2021): Calls for equitable access, transparency, and inclusivity in science.

- UN Sustainable Development Goals (SDGs): Scholarly communication intersects with Goal 4 (Quality Education), Goal 9 (Industry, Innovation, Infrastructure), and Goal 16 (Strong Institutions).

- Debates on APCs: While APC-funded gold OA enhances access, it risks creating pay-to-publish barriers, particularly affecting Global South authors (Khoo, 2019). Initiatives like diamond OA are being explored as alternatives (Bosman et al., 2021).

2.6 Research Gap

The literature on open access, digitization, and journal management is extensive, but few studies provide structured frameworks for guiding the transition from print to electronic formats. Continuous improvement approaches are well developed in industry but under-applied to publishing. Moreover, context-specific frameworks for the Global South—where resource constraints and cultural factors are pronounced—are lacking.

The P.E.A.C.E. framework seeks to fill this gap by offering a publishing-specific CI model that integrates planning, evaluation, implementation, constraint recognition, and sustainability. Unlike PDCA or Lean, P.E.A.C.E. explicitly recognizes barriers and embeds sustainability as an iterative, ongoing process.

3. The P.E.A.C.E. Framework

The P.E.A.C.E. framework—Planning, Evaluation, Actuation, Constraint, and Endurance/Sustainability—provides a cyclical continuous improvement model for the transition from print to electronic journals. Unlike linear digitization checklists, P.E.A.C.E. emphasizes iteration, adaptability, and resilience, integrating both managerial foresight and systemic constraints into the publishing process.

3.1 Planning

Effective transition begins with strategic foresight and structured planning. Planning involves defining the scope of digitization, assessing available financial and human resources, selecting appropriate technological platforms, and aligning with regulatory or indexing requirements.

At this stage, journals must answer key questions:

- What is the timeline for phasing out or reducing print?

- Should the journal adopt a hybrid or digital-only model?

- Which platforms (e.g., Open Journal Systems, Scholar One) align with editorial workflows?

- How will costs of DOI registration, archiving, and hosting be managed?

Indian Example: The *Indian Journal of Medical Research (IJMR)* adopted a phased plan under the Indian Council of Medical Research (ICMR), beginning with digitization of archival issues

before implementing an online submission and review system. This ensured that legacy content was preserved while gradually preparing stakeholders for digital adoption.

International Example: *Nature* transitioned from print-dominant distribution in the 1990s to a digital-first approach, carefully planning subscription models, metadata integration, and digital accessibility. Its planning process emphasized balancing institutional subscriptions with the emerging open-access landscape.

Planning is thus not only logistical but also strategic, requiring alignment with long-term goals such as global reach, indexing visibility, and financial sustainability.

3.2 Evaluation

After planning, journals must undertake evaluation and feasibility analysis. Evaluation ensures that decisions are informed by evidence, benchmarking, and stakeholder input, rather than assumptions.

Tools and methods include:

- Pilot testing digital workflows on selected volumes.

- Cost-benefit analysis comparing print vs. electronic dissemination.

- Benchmarking against peer journals in the same discipline.

- Surveys and focus groups with authors, reviewers, and readers to assess preferences.

Indian Example: *Economic and Political Weekly (EPW)* evaluated subscription and readership data, finding that much of its diaspora audience accessed articles electronically. This insight strengthened the case for a hybrid model balancing print circulation with a robust e-platform.

Global Example: *PLOS ONE* pioneered mega-journal open access publishing. Its evaluation phase included analysis of submission trends, author willingness to pay APCs, and projected scalability of digital peer review systems.

Evaluation is central to risk reduction. By identifying potential bottlenecks (e.g., resistance from older readerships, technical literacy gaps in editorial boards), journals can refine strategies before full-scale implementation.

3.3 Actuation

Actuation refers to the implementation phase, where planned strategies are executed through digital workflows and technological systems. It involves operationalizing submission systems, peer review tools, plagiarism detection, digital dissemination, and archiving protocols.

Core steps include:

- Deploying journal management systems such as OJS, Scholar One, or proprietary platforms.

- Retrospective digitization of archives, ensuring historical accessibility.

- Assigning Digital Object Identifiers (DOIs) and metadata tagging for discoverability.

- Ensuring multi-format accessibility (HTML, PDF, XML) for diverse readers and indexing systems.

- Integrating plagiarism detection and ORCID author identifiers.

Indian Example: The *Indian Journal of Ophthalmology (IJO)* successfully transitioned by adopting OJS, implementing plagiarism detection, and ensuring PubMed indexing. This made its articles widely discoverable while streamlining editorial workflows.

Global Example: *Elsevier* invested heavily in platforms like ScienceDirect and Editorial Manager, enabling seamless submission, review, and dissemination. This large-scale actuation allowed Elsevier to maintain competitive advantage and set industry benchmarks.

Actuation is often the most resource-intensive phase, requiring investments in technology, training for editorial staff, and ongoing troubleshooting. Success here often determines whether journals achieve credibility and visibility in the digital landscape.

3.4 Constraint

Every transition faces constraints and barriers—financial, technical, cultural, or regulatory. Recognizing and addressing these is critical for resilience.

Common constraints include:

- Financial barriers: loss of print subscription revenue, rising costs of APC waivers.

- Technological limitations: lack of secure servers, poor cybersecurity, inadequate bandwidth.

- Cultural resistance: senior scholars or readers who prefer print.

- Copyright/licensing issues: managing permissions for digitized archival material.

- Editorial capacity: insufficient digital literacy among editorial staff.

Indian Example: The *Journal of the Indian Institute of Science (JIISc)* faced enormous challenges digitizing over a century of archives, including copyright complexities and high costs. By partnering with Springer, the journal overcame some constraints while preserving access.

Global Example: Many African society journals face server reliability issues and dependence on external funding agencies (Okune et al., 2020). These constraints limit scalability and highlight the need for sustainable, locally adapted solutions.

The constraint stage acknowledges that transitions are never smooth. Rather than seeing constraints as failures, the P.E.A.C.E. framework treats them as feedback signals that inform further cycles of planning and evaluation.

3.5 Endurance / Sustainability

The final stage emphasizes long-term sustainability. Endurance is not a static outcome but a continuous process of ensuring that journals remain financially viable, technologically updated, and institutionally supported.

Key sustainability measures include:

- Financial planning: diversifying revenue streams via APCs, institutional subsidies, consortia funding, or hybrid models.

- Preservation strategies: adopting digital archiving solutions such as LOCKSS, CLOCKSS, and Portico.

- Indexing and visibility: continuous efforts to remain listed in Scopus, DOAJ, and Web of Science.

- Editorial training: investing in skill development for digital platforms, data ethics, and AI tools.

- Policy alignment: ensuring compliance with evolving mandates (e.g., UGC-CARE, Plan S).

Indian Example: The *Indian Academy of Sciences Journals* adopted LOCKSS/CLOCKSS to guarantee preservation while developing sustainable funding through institutional and APC models.

Global Example: *Elsevier* and *Nature Publishing Group* sustain their ecosystems through hybrid publishing, APC-based open access, and heavy reinvestment in digital infrastructure, including AI-driven editorial systems.

Sustainability requires not only resources but also adaptability. The rapid rise of preprint servers (e.g., arXiv, bioRxiv, medRxiv) and AI-based peer review suggests that endurance strategies must evolve alongside technological disruption.

3.6 The Cyclical Nature of P.E.A.C.E.

Unlike linear models, the P.E.A.C.E. framework is cyclical as shown in Figure 1. Endurance naturally loops back into planning for future iterations. For example, sustainability challenges (e.g., APC inflation, cybersecurity threats) inform the next planning cycle, ensuring adaptability.

This cyclical feature makes P.E.A.C.E. particularly suited for volatile and resource-constrained contexts, where unexpected challenges (pandemics, funding cuts, technological disruptions) require resilient and iterative approaches.
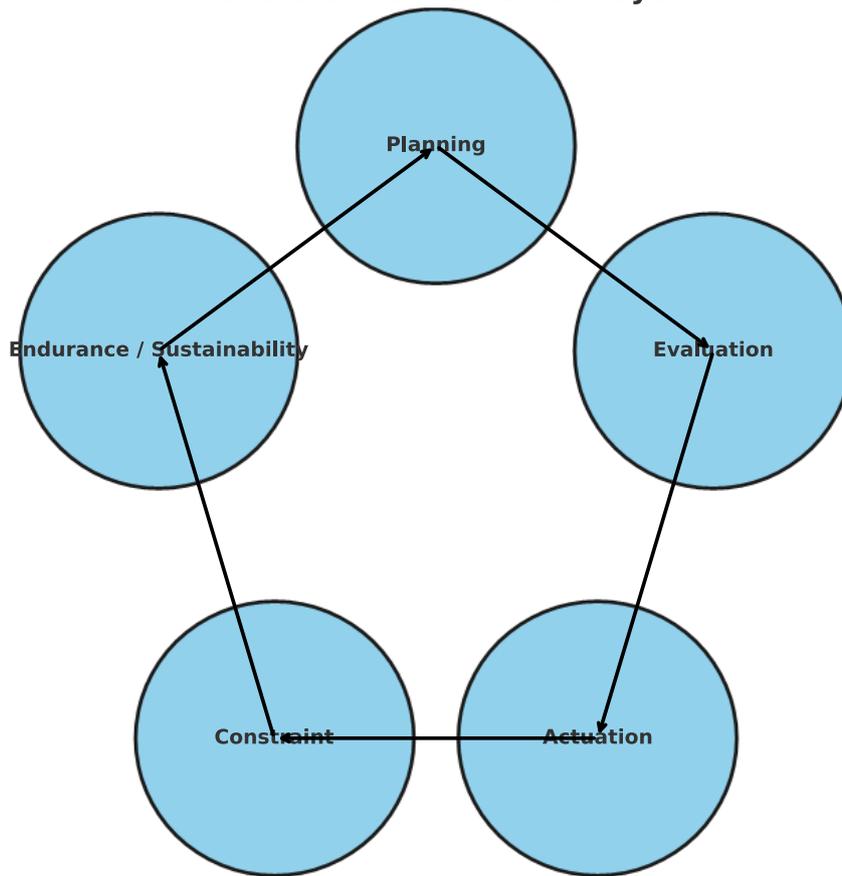
The P.E.A.C.E. Framework Cycle

Figure 1

4. Application of P.E.A.C.E. in Journal Transition

The P.E.A.C.E. framework is not only a conceptual roadmap but also a practical guide that can be applied to real-world publishing contexts. Its strength lies in its adaptability across journal sizes, funding models, and geographic regions. By examining case studies, comparative experiences, and best practices, the application of P.E.A.C.E. demonstrates both its universality and contextual flexibility.

4.1 Case Study Applications

1. Indian Journal of Medical Research (IJMR) – Planning & Evaluation
The IJMR, published under the Indian Council of Medical Research, faced the challenge of digitizing over a century of archives while maintaining credibility. Using a phased plan, the journal digitized back issues, gradually shifted to an electronic submission system, and benchmarked against international medical journals. The planning process ensured clarity of scope, while evaluation through author and reader surveys validated the feasibility of digital-first approaches.

2. Economic and Political Weekly (EPW) – Evaluation & Constraint
EPW occupies a unique space as both an academic and policy-oriented journal with a large Indian diaspora readership. Evaluation of readership data revealed that most international readers accessed the journal digitally, making hybrid publishing more sustainable. However,

the journal faced constraints in balancing open access with financial sustainability, as subscription revenue from libraries and individuals remained crucial.

3. Indian Journal of Ophthalmology (IJO) – Actuation
IJO represents a successful actuation case. By adopting Open Journal Systems (OJS), implementing plagiarism detection, and integrating PubMed indexing, the journal transitioned into a globally visible e-journal. Actuation required investment in digital literacy for editors and reviewers, illustrating the need for continuous training.

4. Journal of the Indian Institute of Science (JIISc) – Constraint Management
With archives spanning over a century, JIISc faced immense constraints in digitization costs and copyright clearance. Partnering with Springer allowed it to distribute costs and gain access to international expertise. This case highlights how constraint navigation often requires collaboration and external partnerships.

5. Elsevier and Nature – Endurance / Sustainability
Major publishers such as Elsevier and Nature Publishing Group exemplify the endurance stage. Their sustainability models combine hybrid publishing, APC-funded open access, subscription bundles, and continuous reinvestment in digital infrastructure. For smaller society journals, these cases provide lessons on scalability and strategic financial planning.

4.2 Comparative Framework

The application of P.E.A.C.E. can be synthesized through a comparative table that maps journals to framework stages:

Table 1. Application of P.E.A.C.E. Framework in Journal Transitions

Framework Stage	Indian Examples	Global Examples	Key Insights
Planning	*IJMR*: phased digitization strategy	*Nature*: early shift to digital-first models	Strategic foresight and resource mapping critical for smooth transition
Evaluation	*EPW*: readership surveys, subscription analysis	*PLOS ONE*: market testing of APC acceptance	Benchmarking and data-driven feedback reduce risk
Actuation	*IJO*: adoption of OJS, PubMed indexing	*Elsevier*: ScienceDirect, Editorial Manager	Technology integration and workflow digitization ensure credibility
Constraint	*JIISc*: copyright and cost barriers	African journals: server and funding issues	Constraint navigation requires partnerships and context-sensitive solutions

Framework Stage	Indian Examples	Global Examples	Key Insights
Endurance / Sustainability	*IAS Journals*: LOCKSS/CLOCKSS, institutional funding	*Nature, Elsevier*: hybrid OA + APC + investment	Financial diversification and archiving secure long-term survival

4.3 Lessons from Indian and Global Experiences

1. Phased Transitions Are More Sustainable
   The IJMR case shows that moving gradually—from digitizing archives to implementing submission systems—ensures continuity and minimizes disruption.

2. Data-Driven Evaluation Enhances Acceptance
   EPW's use of readership and subscription analysis demonstrates the value of evidence-based decision-making. Evaluation also builds stakeholder trust by showing responsiveness to reader needs.

3. Technology Adoption Requires Human Capacity
   The IJO's actuation success hinged not only on adopting OJS but also on training editors and reviewers. Without building human capacity, technology adoption risks failure.

4. Constraints Are Structural, Not Incidental
   JIISc's struggle with archival digitization illustrates that constraints are inherent and structural, not temporary obstacles. By embedding constraint management into the framework, P.E.A.C.E. reflects real-world publishing realities.

5. Sustainability Depends on Diversification
   While global publishers rely on APCs and hybrid models, Indian society journals benefit from institutional subsidies and consortia funding. The key lesson is that sustainability requires multiple revenue streams, not dependence on a single model.

4.4 The Role of Collaboration and Partnerships

Across applications, a recurring theme is the importance of partnerships. Indian journals that collaborated with international publishers (JIISc with Springer; IAS with consortia) overcame resource limitations. Global partnerships also enable capacity-building, exposure to advanced platforms, and access to indexing services. However, partnerships must be balanced with autonomy and ownership, as excessive dependence risks marginalizing local scholarly ecosystems.

4.5 Integration with Emerging Trends

The application of P.E.A.C.E. also aligns with emerging trends in scholarly communication:

- Preprint servers (arXiv, bioRxiv, medRxiv) challenge traditional models of evaluation and actuation. Journals must adapt planning and sustainability to incorporate preprints.

- AI-driven peer review tools streamline evaluation but introduce new ethical constraints (e.g., bias, transparency).

- Open data mandates expand sustainability concerns beyond journals to datasets, requiring integrated archiving.

- Regional OA platforms (SciELO in Latin America, AJOL in Africa) provide models for consortia-led sustainability, relevant for India.

The application of P.E.A.C.E. demonstrates its adaptability. For large publishers, it reinforces structured improvement; for smaller society journals, it offers a roadmap to navigate constraints systematically. The cyclical nature ensures that lessons from one stage—such as sustainability challenges—feed directly into replanning, making it a living framework.

Ultimately, the practical application of P.E.A.C.E. transforms journal transition from a one-time shift to an iterative process of continuous improvement, positioning journals for resilience in an uncertain publishing landscape.

5. Policy and Institutional Implications

The transition from print to electronic journals is not simply a matter of technological adaptation—it is deeply shaped by policy frameworks, institutional mandates, and global norms. Journals do not operate in isolation; they are embedded within systems of higher education, research funding, and knowledge dissemination that collectively define their credibility, sustainability, and reach. The P.E.A.C.E. framework provides a structured model for navigating these policy landscapes by aligning planning, evaluation, and sustainability with both national and international imperatives.

5.1 Indian Policy Landscape

India's scholarly publishing ecosystem is undergoing rapid transformation under the influence of national policy frameworks.

1. **UGC-CARE List (2019)**
   The University Grants Commission introduced the **Consortium for Academic and Research Ethics (CARE)** to combat the proliferation of **predatory journals**. Journals included in the CARE list must meet quality and ethical benchmarks. For journals in transition, aligning with CARE criteria directly informs the **planning** and **evaluation** stages of P.E.A.C.E.

2. **National Education Policy (NEP) 2020**
   NEP emphasizes open access, knowledge democratization, and the integration of digital technologies in higher education. This policy pushes journals to adopt sustainable **actuation** strategies, including digital submission, archiving, and indexing.

3. **Shodhganga and INFLIBNET**
   The **Shodhganga repository** (hosted by INFLIBNET) has digitized over 400,000

theses and dissertations, exemplifying large-scale digitization and preservation. Its success demonstrates how **endurance** can be institutionally embedded through government-supported archiving.

4. **Funding and Institutional Support**
Indian journals often depend on professional societies or government funding bodies (e.g., ICMR, ICAR). Policy incentives such as funding for digitization projects or APC subsidies can reduce **constraints**, particularly for smaller journals struggling with sustainability.

5.2 Global Policy Drivers

Beyond India, journals must respond to evolving **global mandates and open science principles**.

1. **Plan S (2018)**
Launched by coalition S in Europe, Plan S requires that publicly funded research be made openly available without embargo. For journals, compliance means revisiting **endurance strategies**: moving towards gold or diamond OA models, negotiating transformative agreements, and ensuring transparent licensing.

2. **UNESCO Recommendation on Open Science (2021)**
This global declaration highlights the importance of **equity, inclusivity, and sustainability** in scholarly communication. It explicitly recognizes the challenges of the Global South, reinforcing the need for frameworks like P.E.A.C.E. that embed **constraint recognition** into the publishing cycle.

3. **UN Sustainable Development Goals (SDGs)**
Journals are indirectly linked to several SDGs:

   o **Goal 4 (Quality Education)**: access to credible research.

   o **Goal 9 (Industry, Innovation, Infrastructure)**: building robust digital publishing infrastructures.

   o **Goal 16 (Peace, Justice, and Strong Institutions)**: transparency and accountability in knowledge dissemination.

4. **Global Funding Mandates**
Agencies such as the **NIH (USA)** and the **Welcome Trust (UK)** require funded research to be deposited in open repositories. These mandates create opportunities but also **constraints** for journals dependent on subscription revenue.

5.3 Institutional Implications

Policies cascade down to institutions—universities, libraries, and professional societies—that play a critical role in shaping publishing practices.

- **Universities**: Increasingly encourage faculty to publish in CARE-listed and Scopus-indexed journals. Institutions must provide training in digital workflows, strengthen repositories, and support faculty APC costs where necessary.

- **Libraries**: Transition from print subscriptions to digital consortia models (e.g., INFLIBNET's e-Shod Sindhu) requires careful planning and evaluation.

- **Professional Societies**: Must adopt **actuation strategies** such as OJS adoption, online peer review, and DOI assignment to remain competitive and credible.

- **Editors and Reviewers**: Need continuous capacity-building in digital literacy, metadata standards, and open science ethics.

5.4 Alignment with the P.E.A.C.E. Framework

Policy and institutional implications map neatly onto the five stages of P.E.A.C.E.:

- **Planning**: Aligning journal strategies with CARE criteria, Plan S mandates, and indexing requirements.

- **Evaluation**: Benchmarking against successful policy-aligned journals; incorporating feedback from authors and funding bodies.

- **Actuation**: Implementing digital platforms and compliance mechanisms (ORCID integration, open licensing).

- **Constraint**: Addressing financial barriers (APC affordability), resistance to OA, and technological gaps in smaller institutions.

- **Endurance**: Embedding sustainability through institutional archiving (Shodhganga), global indexing, and diversified funding models.

5.5 Policy-Driven Opportunities

While compliance can be seen as a burden, policies also create **opportunities** for journals:

- Increased visibility through open access compliance.

- Greater credibility by being CARE-listed or indexed globally.

- Funding opportunities for digitization and capacity-building.

- Integration into global scholarly networks, strengthening collaborations.

The policy environment makes clear that the **transition to electronic journals is not optional but imperative**. Journals that fail to adapt risk exclusion from indexing systems, loss of readership, and diminished credibility. By embedding policy alignment into its cyclical structure, the P.E.A.C.E. framework ensures that journals do not treat compliance as an afterthought but as an integral element of strategic planning and sustainability.

6. Managerial and Strategic Insights

The transition from print to electronic publishing is not only a technological or policy-driven process—it is also a matter of **strategic management and organizational leadership**. The P.E.A.C.E. framework offers journal managers and stakeholders a structured approach to embed **continuous improvement** into publishing. This section outlines key insights for different actors in the scholarly communication ecosystem.

6.1 For Editors and Editorial Boards

Editors are the **custodians of journal quality**. In the digital age, their role extends beyond manuscript selection to include digital literacy, author engagement, and data stewardship.

- **Adopt Digital Competence**: Editorial teams must become proficient in online submission systems, metadata tagging, ORCID integration, and plagiarism detection.

- **Embed Continuous Feedback**: Using surveys and analytics to evaluate author and reviewer satisfaction mirrors the **evaluation stage** of P.E.A.C.E.

- **Foster Inclusivity**: Editors should ensure that policies around APC waivers or reduced fees support authors from under-resourced institutions, aligning sustainability with equity.

6.2 For Publishers

Publishers—whether commercial or society-based—must manage the **financial and operational backbone** of journals.

- **Diversify Revenue Models**: Hybrid models combining subscriptions, APCs, and institutional support provide resilience. This maps directly to the **endurance stage**.

- **Invest in Technology**: Platforms such as OJS or proprietary systems streamline submission-to-publication workflows. Strategic investment in AI-assisted peer review tools can further optimize efficiency.

- **Global Visibility as Strategy**: Publishers must prioritize indexing, discoverability, and digital marketing to enhance journal visibility.

6.3 For Professional Societies

Society-run journals often face resource constraints but also have **strong community credibility**.

- **Leverage Partnerships**: Collaborating with global publishers, consortia, or repositories helps overcome financial and technical **constraints**.

- **Capacity Building**: Training members in digital publishing, copyright, and data ethics strengthens long-term sustainability.

- **Preserve Autonomy**: While partnerships are useful, societies must safeguard editorial independence and local relevance.

6.4 For Policymakers and Regulators

Policy actors shape the **enabling environment** for journals.

- **Support Infrastructure Development**: Initiatives like Shodhganga and e-Shod Sindhu illustrate how government-led platforms can strengthen endurance.

- **Funding Support**: Subsidies for digitization, APC waivers, and digital training programs reduce **constraints** for smaller journals.

- **Mandate Transparency**: Regulators can enforce requirements for metadata standards, peer review processes, and licensing to raise journal credibility.

6.5 Strategic Takeaways from P.E.A.C.E.

The framework offers several cross-cutting insights for strategic management:

1. **Constraints Are Integral, Not Peripheral**
   Recognizing constraints as part of the cycle allows managers to anticipate challenges rather than react to them.

2. **Sustainability Requires Diversification**
   Endurance is secured not by a single funding model but by blending multiple strategies—APCs, institutional support, and government funding.

3. **Iterative Improvement Builds Resilience**
   By looping through planning, evaluation, and actuation repeatedly, journals remain adaptive in a fast-changing digital environment.

4. **Stakeholder-Centric Decision-Making**
   Evaluation processes that actively involve authors, reviewers, and readers strengthen legitimacy and ensure buy-in.

5. **Alignment with Global Trends**
   Journals that align strategies with open access mandates, digital archiving, and global indexing systems enhance credibility and competitiveness.

6.6 Managerial Implications in the Indian Context

In India, where many journals are society-driven and resource-constrained, managerial leadership is especially critical. Editorial boards must adopt entrepreneurial mindsets, leveraging partnerships while lobbying for policy support. Publishers should explore cost-sharing consortia, while universities must actively integrate publishing sustainability into research funding strategies.

Strategic management in scholarly publishing requires **vision, adaptability, and inclusivity**. The P.E.A.C.E. framework provides a lens through which each actor can identify their role in ensuring journals remain accessible, credible, and sustainable. Managers who internalize P.E.A.C.E. not only improve publishing processes but also strengthen their journals' contributions to national and global knowledge ecosystems.

7. Discussion

The introduction of the P.E.A.C.E. framework—Planning, Evaluation, Actuation, Constraint, and Endurance/Sustainability—provides a new lens for understanding the transition from print to electronic journals. Unlike ad hoc digitization efforts, P.E.A.C.E. embeds continuous improvement into scholarly publishing while explicitly addressing barriers and sustainability.

In this section, the framework is evaluated in relation to existing models, its limitations are acknowledged, and avenues for future research are explored.

7.1 Comparison with PDCA Cycle

The Plan–Do–Check–Act (PDCA) cycle, developed by W. Edwards Deming (1986), is one of the most widely used continuous improvement frameworks. Its four stages—planning, execution, evaluation, and adjustment—offer a simple, iterative model for process enhancement.

P.E.A.C.E. shares structural similarities with PDCA: both emphasize planning, evaluation, and iteration. However, two key distinctions emerge:

1. Constraint Recognition: Unlike PDCA, which assumes smooth process iteration, P.E.A.C.E. explicitly acknowledges constraints—financial, cultural, technological, and institutional—as integral to the cycle. This makes it more context-sensitive to the realities of publishing in resource-limited environments.

2. Sustainability/Endurance: While PDCA ends with "Act" (adjustment), P.E.A.C.E. extends into long-term sustainability, ensuring journals remain financially viable, technologically updated, and institutionally supported. This addition reflects the unique needs of scholarly publishing, where long-term viability is critical.

Thus, P.E.A.C.E. can be seen as a publishing-specific adaptation of PDCA, enhancing its relevance for knowledge dissemination systems.

7.2 Relationship to Kaizen and Lean

Kaizen emphasizes incremental, employee-driven improvements in organizational processes (Imai, 1997). Its cultural roots in Japanese management highlight the importance of continuous small changes.

In publishing, Kaizen-like practices may involve small workflow optimizations—reducing review delays, improving author communication, or streamlining copyediting. However, Kaizen does not provide a structured roadmap for navigating systemic constraints such as funding shortages or digital archiving requirements.

Lean methodology, by contrast, focuses on eliminating waste and maximizing value for customers (Womack & Jones, 2003). In scholarly publishing, "waste" may include redundant reviews, lengthy publication lags, or unnecessary printing. Lean principles align with P.E.A.C.E.'s actuation phase, where workflow digitization reduces inefficiency.

Nonetheless, Lean and Kaizen often assume that efficiency gains translate to sustainability—an assumption not always valid in publishing, where financial and policy constraints play a decisive role. P.E.A.C.E. complements these frameworks by embedding constraint navigation and endurance as distinct stages.

7.3 Alignment with CMMI and Maturity Models

The Capability Maturity Model Integration (CMMI) framework conceptualizes organizational progress in stages of maturity (Paulk et al., 1993). Applied to publishing, journals may progress from basic digitization (scanning archives) to fully integrated AI-assisted editorial platforms.

P.E.A.C.E. aligns with this staged thinking but adds a cyclical feedback loop, ensuring that progress is not linear but iterative. This cyclical model is better suited for publishing ecosystems where disruptions (e.g., pandemics, funding cuts) require adaptive re-planning rather than one-way progression.

7.4 Strengths of the P.E.A.C.E. Framework

1. Contextual Relevance: By embedding constraints and sustainability, P.E.A.C.E. reflects the realities of Global South journals that face resource limitations.

2. Cyclical Adaptability: Its iterative nature allows journals to continually adapt to evolving technological and policy environments.

3. Comprehensive Coverage: From planning to long-term sustainability, the framework covers the entire lifecycle of journal transformation.

4. Scalability: Applicable to both large commercial publishers (Elsevier, Springer) and small society journals.

5. Policy Alignment: Integrates naturally with mandates such as UGC-CARE, Plan S, and UNESCO's Open Science recommendations.

7.5 Limitations of the P.E.A.C.E. Framework

Despite its strengths, P.E.A.C.E. is not without limitations:

- Conceptual, Not Empirical: The framework is currently theoretical. Empirical validation through case studies, surveys, or bibliometric analyses is needed.

- Resource Dependence: Application assumes a minimum level of digital infrastructure, which may not exist in underfunded institutions.

- Oversimplification Risk: Real-world publishing transitions are complex and multi-layered; reducing them into five stages risks oversimplification.

- Global Variability: The framework may require adaptation for regions with distinct cultural or policy environments (e.g., Latin America's SciELO model).

- Evolving Technologies: Rapid emergence of AI-based peer review, preprints, and blockchain archiving may require additional stages or modifications.

7.6 Directions for Future Research

The P.E.A.C.E. framework opens avenues for scholarly investigation:

1. Empirical Testing: Applying the framework to a set of Indian and global journals, measuring outcomes (e.g., submission-to-publication time, readership, financial sustainability).

2. Comparative Studies: Benchmarking P.E.A.C.E. against PDCA, Lean, and Kaizen across industries to assess effectiveness in publishing.

3. Bibliometric Analysis: Examining whether journals adopting continuous improvement strategies achieve higher impact factors, indexing success, or global reach.

4. Policy Integration Studies: Investigating how national and international policies (UGC-CARE, Plan S) interact with the framework stages.

5. Technology Adaptation: Assessing how AI, blockchain, and open data repositories can be integrated into the framework.

The P.E.A.C.E. framework represents a step toward contextualizing continuous improvement for scholarly publishing. By extending beyond process efficiency to address constraints and sustainability, it bridges the gap between generic CI models and the lived realities of journals in transition. Its limitations invite further research and empirical testing, while its adaptability suggests broad applicability across contexts.

8. Conclusion

The transition from print to electronic journals is far more than a technological shift—it represents a cultural, organizational, and strategic transformation in scholarly communication. While electronic publishing offers unprecedented opportunities for accessibility, visibility, and inclusivity, it also introduces challenges of sustainability, quality assurance, and equity.

This article has proposed and elaborated the P.E.A.C.E. framework—Planning, Evaluation, Actuation, Constraint, and Endurance/Sustainability—as a structured, cyclical model for guiding journals through this complex transition. Unlike generic continuous improvement frameworks such as PDCA or Kaizen, P.E.A.C.E. explicitly incorporates constraints and sustainability as dedicated stages, reflecting the realities of scholarly publishing where resource limitations and long-term viability are central concerns.

Through examples from India (*Indian Journal of Medical Research, Economic and Political Weekly, Indian Journal of Ophthalmology, Journal of the Indian Institute of Science*) and global publishers (Elsevier, Nature, PLOS ONE), the framework has been shown to be flexible, scalable, and adaptable. It offers insights for editors, publishers, societies, and policymakers, demonstrating how structured improvement can transform challenges into opportunities for innovation and resilience.

From a policy perspective, P.E.A.C.E. aligns with Indian initiatives such as UGC-CARE, NEP 2020, and Shodhganga, as well as global mandates like Plan S and UNESCO's Open Science recommendations. By embedding these requirements into its cyclical model, the framework ensures that compliance is not an afterthought but a core component of strategic planning.

From a managerial perspective, P.E.A.C.E. emphasizes the importance of data-driven evaluation, stakeholder engagement, capacity-building, and diversified financial models. It urges journal managers to see constraints not as obstacles but as feedback signals that can guide future cycles of improvement.

Looking ahead, the framework's relevance will only grow. The rise of preprint platforms, AI-driven peer review, and open data mandates underscores the need for publishing models that are adaptive, iterative, and sustainable. Empirical validation of P.E.A.C.E. across diverse journals will be an important next step, helping to refine its applicability and expand its impact.

In conclusion, the P.E.A.C.E. framework provides a resilient roadmap for journals navigating digital transformation. By combining strategic foresight, evaluative rigor, operational

execution, constraint navigation, and sustainable endurance, it enables scholarly communication systems—particularly in India and the Global South—to thrive in an increasingly open, digital, and interconnected world.

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