



PYC CONCEPT NOTE

PYC Integrated

Knowledge & Intelligence

System



1. Background

Purnomo Yusgiantoro Center (PYC) is an independent think tank focusing on energy policy analysis, energy security, and natural resource governance in Indonesia. For more than two decades, PYC has produced and curated a wide range of strategic knowledge products, including research reports, academic journal publications, energy databases, presentation and training materials, policy advisory reports to the government, as well as archives and media clippings on the energy sector dating back to the early 2000s.

These knowledge assets constitute PYC's institutional memory and a key strategic advantage. However, at present, these assets are dispersed across multiple formats, systems, and organizational units, limiting their optimal use for cross-temporal, cross-thematic, and cross-product research analysis. At the same time, energy policy dynamics are evolving at an increasingly rapid pace, influenced by regulatory changes, market conditions, geopolitics, and public and political discourse reflected in mass media.

Without a structured system for integration and issue monitoring, there is a risk of delayed identification of strategic trends, duplication of analysis, and loss of valuable institutional memory critical to policy formulation processes.

The rapid development of Artificial Intelligence (AI), particularly in semantic search, knowledge integration, and media intelligence, offer an opportunity for PYC to develop an **integrated research intelligence system** that strengthens the quality, consistency, and responsiveness of internal analysis, while maintaining academic integrity and institutional control.

2. Objectives

- To develop an integrated AI-based system to manage, connect, and analyze all PYC documents, data, archives, and media information in order to strengthen internal energy research and policy analysis.
- To integrate all PYC knowledge assets into a single unified knowledge ecosystem.
- To develop AI as an analytical support tool (research intelligence tool), not as an automated writer or decision-maker.
- To enable systematic cross-temporal, cross-thematic, and cross-product research analysis.

- To develop AI for monitoring and analyzing energy-related issues in mass media.
- To ensure data governance, security, and scientific accountability in the use of AI.
- To enhance the quality, speed, and relevance of PYC's research outputs and policy advisory services.

3. Program Scope

- Integration of Internal PYC Knowledge

The system will integrate various types of documents and data, including:

- Research reports (working papers, interim reports, final reports).
- Databases and dashboards within PYC Datasight.
- Articles and archives of the Indonesian Journal of Energy.
- Internal and external presentation materials (PPT).
- Books, policy briefs, and reports submitted to the government.
- Teaching and training materials.
- Internal research archives and background documents.
- Physical archives and energy-sector media clippings since approximately the year 2000 (digitized through scanning).

- Media Intelligence Integration

The system will include AI modules for monitoring and analyzing mass media, covering:

- Physical archives
- National online and print media.
- Strategic regional media aligned with issue-specific focus.
- Opinion pieces, policy analyses, and stakeholder statements.

These modules will be used to:

- Identify emerging trends and issues in the energy sector.
- Analyze narratives, framing, and key actors in public discourse.
- Support an early warning system for PYC's policy analysis.

- Platform Design and System Architecture

The platform will be **technically integrated with PYC Datasight but functionally and access-wise separated**:

- **PYC Datasight** serves as a public platform for data, visualization, and curated insights.

- **PYC Integrated Knowledge & Intelligence System (PIKIS)** serves as an internal, AI-based system for research and policy analysis.

All AI modules and analytical functions will be accessible exclusively to internal PYC users.

4. System Design Principles

- Single source of truth for all data and documents.
- Dual-layer access: public (Datasight) and internal (PIKIS).
- Human-in-the-loop governance: AI functions as an assistive tool and is always verified by researchers.
- Traceability: every AI-generated output can be traced back to its original sources.
- Security by design: data protection embedded from the system design stage.

5. AI Functions within the System

AI will be used for:

- Intelligent data ingestion and archiving to extract key metadata, and data description
- Semantic search across documents, data, and archives.
- Comparative policy analysis across time periods and themes.
- Tracing the evolution of policies and public discourse.
- Monitoring energy-related issue trends in mass media.
- Rapid analytical support for FGDs, policy dialogues, and advisory activities.

AI will not be used for:

- Automated publication.
- Writing final reports without human validation.
- Autonomous policy decision-making.

6. Access Governance, Ethics, and Security

- AI access is limited to internal PYC users.
- Role-based access control (researchers, editors, management, administrators).
- Segregation of sensitive documents (drafts, advisory materials, raw data).
- Audit trails for all AI activities and queries.
- PYC data will not be used to train public AI models.
- Compliance with research ethics, copyright, and information confidentiality standards.



7. Development Needs and Vendor Roles

PYC invites Development and Implementation Partner to support:

- Digitization and organization of legacy archives (OCR and metadata development).
- Development of a unified knowledge base.
- Implementation of AI using retrieval-augmented analysis.
- Development of media intelligence modules.
- Technical integration with PYC Datasight.
- Provision of a researcher-friendly internal user interface.
- System documentation, SOPs, and knowledge transfer.

Vendors are expected to understand that this project represents a long-term research platform, not merely an IT system.

8. Implementation Phases

- Mapping and assessment of PYC knowledge assets.
- Digitization and organization of legacy archives and documents.
- Development of the core system and AI configuration.
- Implementation of media intelligence modules.
- Internal pilot with selected research teams.
- Refinement, scaling, and institutionalization of the system.

9. Expected Outputs

- An integrated internal knowledge & intelligence system for PYC.
- AI-based media intelligence modules.
- Improved efficiency and quality of research analysis.
- Consistent narratives across reports, journals, and public data outputs.
- Preservation of PYC's institutional memory and historical archives.

10. Strategic Value of the Program

This program strengthens PYC as:

- An evidence-based think tank grounded in robust historical data.
- An institution with long-term analytical capacity and high responsiveness.
- A credible and sustainable steward of Indonesia's energy knowledge ecosystem.

11. Stakeholders and Responsibilities

- **PYC Team:** Define the strategic direction and system requirements; provide, manage, and validate knowledge assets; serve as the primary users of the system; conduct human-in-the-loop validation of AI outputs; coordinate project implementation and internal decision-making.
- **PIKIS Development and Implementation Partner:** The PIKIS Development and Implementation Partner shall be responsible for the end-to-end design, development, implementation, and continuous improvement of the PIKIS system. The responsibilities include:
 - a. Designing the overall PIKIS system architecture, AI modules, and technical specifications in alignment with PYC's strategic objectives and operational requirements.
 - b. Developing the implementation roadmap, and other technical documentation required for system development.
 - c. Building, integrating, testing, and deploying the PIKIS system, including AI functionalities, databases, user interfaces, and relevant system integrations.
 - d. Conducting quality assurance, performance monitoring, troubleshooting, and system optimization throughout the development and implementation phases.
 - e. Providing technical recommendations for future enhancements, scalability, security, and sustainability of the system.
 - f. Preparing technical documentation, user manuals, standard operating procedures (SOPs), and system maintenance guidelines.
 - g. Delivering knowledge transfer, training, and capacity-building activities to ensure effective system adoption and long-term management by the PYC Team.
 - h. Collaborating closely with the PYC Team to refine requirements, validate system outputs, and ensure the system meets organizational needs and quality standards.