

Validation Report

Report Period : August 21, 2024 to September 12, 2024

Project Title: AIKO (AI-powered Knowledge Organizer)

Project Manager: Dr. P. B. Jawade

In-house Guide: Dr. D. J. Chaudhari

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Executive Summary: The AIKO project has successfully completed its validation phase, demonstrating that it meets user needs and performs as expected in real-world scenarios. The system has shown strong capabilities in processing multiple input formats, generating metadata, and providing advanced search functionality. User testing has yielded positive results, with high usability scores and performance metrics meeting or exceeding expectations.

Current Task Progress:

Task Description	Validation
Scheduled Completion	October 21, 2024
Actual Completion	September 19, 2024
Status	Completed
Remarks	Scope adjusted due to timeline reduction

Accomplishments:

- Validated multiple input sources and formats processing
- Confirmed advanced faceted search and filtering capabilities
- Verified metadata generation and indexing for search optimization
- Achieved high user satisfaction scores in usability testing

Challenges & Mitigations:

- The project deadline was unexpectedly shortened by one month, with notification received only one week into the final month of development. This significant reduction in available time posed a substantial risk to the planned scope and quality assurance processes.
 - We made judicious decisions regarding feature implementation and testing depth, focusing on essential elements to ensure timely delivery. We implemented a revised project scope that prioritized core deliverables while regrettably limiting our capacity for extensive feature development and thorough testing
- Initial performance bottlenecks in neural search capabilities when dealing with extensive datasets.
 - Optimized search algorithms and implemented caching mechanisms to significantly improve query response times.
- User feedback indicated some UI elements were not intuitive for non-technical users.
 - Conducted rapid UI/UX iterations based on user feedback. Implemented SUS testing to validate improvements.

Validation Results:

- Multiple Input Sources and Formats: Successfully processes various formats with plugin extensibility.
- Data Processing and Analysis: Confirmed backend processing capabilities.
- Metadata Generation: Generates title, content summary, and tags as required.
- Advanced Faceted Search and Filtering: Implemented using custom PyTorch flow.
- Multiple Authentication Methods: Supports social login and email/password authentication.
- Real-Time Synchronization: Efficient updates via WebSocket connection.
- Search Performance: Complex searches executed within milliseconds.
- Usability Score: Achieved an average System Usability Scale (SUS) score of 82 from 10 users.

Detailed info about these results can be found in the V&V Document.

Planned Activities for Next Phase:

- Finalize the codebase for deployment
- Provision cloud platforms, setup infrastructure, and deploy AIKO.
- Setup CI/CD pipelines for automated testing and deployment

Financial Summary:

Description	Budgeted Amount	Amount Spent This Phase	Total Expenditure
Hosting	₹1,300	₹0	₹1,072
Machine Learning	₹21,000	₹0	₹20,000

Risk Assessment:

The AIKO project faces several key risks that require ongoing attention. Data privacy compliance remains a critical concern as the system handles potentially sensitive information, necessitating rigorous adherence to evolving data protection regulations. While current tests show promising results, the system's scalability under extreme load conditions needs continued monitoring to ensure consistent performance as user base grows. There's also a risk of AI model drift, where accuracy may decrease over time if the model isn't periodically retrained to accommodate the expanding knowledge base. Lastly, despite positive initial feedback, widespread adoption may face challenges due to varying levels of AI familiarity among potential users, requiring targeted training and change management strategies.

Conclusions & Recommendations:

The AIKO project has successfully met its validation objectives, demonstrating strong performance in key areas such as data processing, search functionality, and user experience. The high SUS score of 82 indicates excellent usability.

The project guide recommends:

1. Continuous monitoring of search performance with growing datasets.
2. Regular usability testing to address user feedback and improve the UI/UX.
3. Ongoing compliance checks to ensure data privacy and security.
4. Exploring additional input formats and authentication methods for future releases.

Approval:

Dr. D. J. Chaudhari

Project Guide

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