

**AI- Powered Retrieval-Augmented Generation (RAG) System for Knowledge
Management: A Case Study of PT. XYZ**

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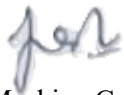


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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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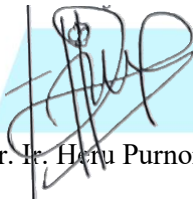


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ABSTRACT

**AI- POWERED RETRIEVAL-AUGMENTED GENERATION (RAG) SYSTEM FOR
KNOWLEDGE MANAGEMENT: A CASE STUDY OF PT. XYZ**

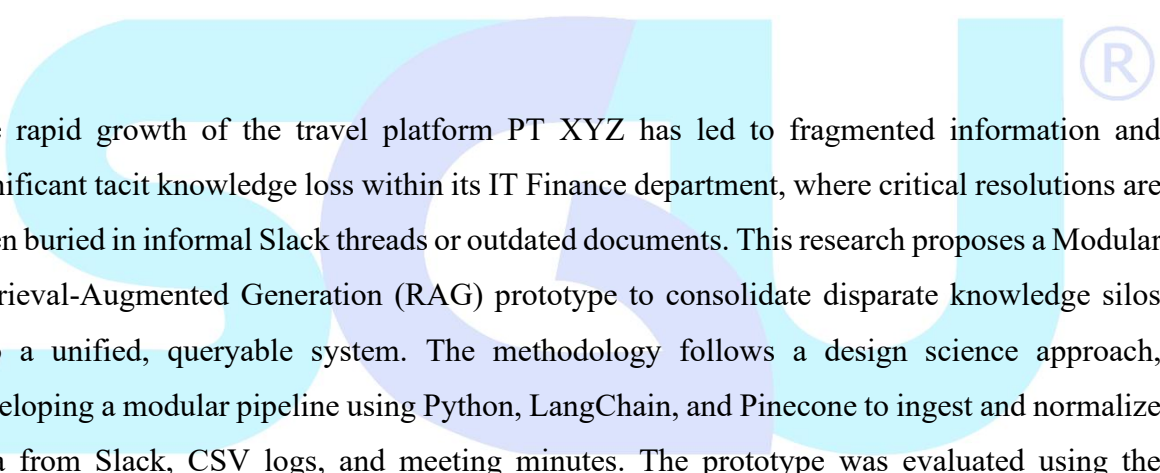
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The rapid growth of the travel platform PT XYZ has led to fragmented information and significant tacit knowledge loss within its IT Finance department, where critical resolutions are often buried in informal Slack threads or outdated documents. This research proposes a Modular Retrieval-Augmented Generation (RAG) prototype to consolidate disparate knowledge silos into a unified, queryable system. The methodology follows a design science approach, developing a modular pipeline using Python, LangChain, and Pinecone to ingest and normalize data from Slack, CSV logs, and meeting minutes. The prototype was evaluated using the RAGAS framework to quantitatively measure factual grounding and retrieval precision. Findings indicate the system achieved a Faithfulness score of 0.91 and a Context Precision of 0.84, successfully mitigating hallucination risks and prioritizing relevant technical data over conversational noise. Furthermore, the system met operational requirements with a response latency of 3.8 seconds. In conclusion, the Modular RAG prototype effectively transforms fragmented organizational memory into verified, actionable intelligence, providing a scalable solution for high-pressure financial operations.

Keywords: Retrieval-Augmented Generation (RAG), Knowledge Management, RAGAS Framework, Information Silos, Modular Architecture.



DEDICATION

I dedicate this work for the future of myself, my university,
my workplace and my country.



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1. Dr. Eka Budiarto, ST, M.Sc as the advisor who has been giving his guidance in all the time of writing of this thesis.
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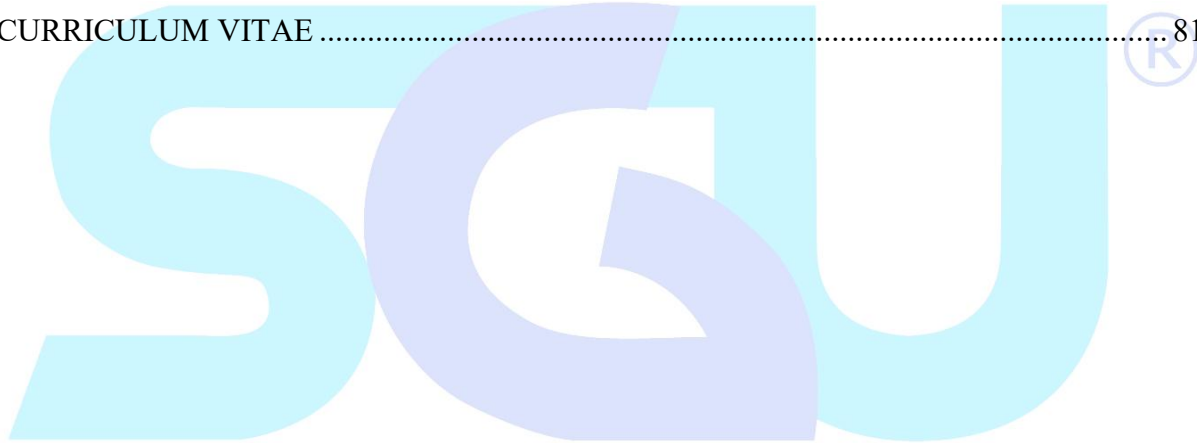
Finally, I realize there are still some unintended errors in writing this thesis and thus any constructive suggestions and criticisms would be really appreciated in order to improve this thesis. Hopefully this thesis can give any benefits to the readers.

TABLE OF CONTENTS

STATEMENT BY THE AUTHOR	2
ABSTRACT	3
DEDICATION	5
TABLE OF CONTENTS	7
LIST OF TABLES	10
LIST OF FIGURES.....	11
1. CHAPTER 1 - INTRODUCTION	12
1.1. Background	12
1.2. Research Problem.....	13
1.3. Research Questions	14
1.4. Research Objectives	15
1.5 Hypothesis	15
1.6. Scope and Limitations	16
1.7. Thesis Structure.....	16
2. CHAPTER 2 - LITERATURE REVIEW	18
2.1. Company Overview.....	18
2.2. Business Process and Problem	19
2.3. Current Knowledge Management Process	20
2.4. Knowledge	23
2.5. Knowledge Management.....	23
2.6. Information Retrieval (IR)	25
2.7. Gap Analysis in Knowledge Management and Information Retrieval	25
2.8. Large Language Models (LLMs)	26
2.9. Retrieval-Augmented Generation (RAG)	29
2.10. Comparison of RAG vs Traditional Search	30
2.11. Types of RAG	31
2.12. Risk Analysis in RAG	35
2.13. Requirements Engineering in Knowledge Systems	36
2.14. Critical Incident Technique (CIT).....	37
2.15. Indicators to Choose RAG	37

2.16.	Simulated Data Creation	38
2.17.	RAG Evaluation with RAGAS (Retrieval-Augmented Generation Assessment) Framework	39
2.18.	User Acceptance Testing (Functional Requirements Validation).....	41
2.19.	Success Criteria for RAG Prototype	42
2.20.	Review of Previous Studies.....	42
2.21.	Research Gap and Novelty	44
2.22.	Methodological Selection Matrix	45
3.	CHAPTER 3 – RESEARCH METHODOLOGY	47
3.1.	Research Framework.....	47
3.2.	Business Problem Analysis	48
3.3.	Gap Analysis	48
3.4.	Solution Proposal: RAG.....	50
3.5.	Risk Analysis in RAG	51
3.6.	User Requirement Gathering.....	51
3.6.1.	Document Analysis	51
3.6.2.	Interviews with IT Finance Team	52
3.6.3.	Analysis and Specification	52
3.7.	RAG Type Selection	52
3.7.1.	Identification of Selection Indicators	52
3.7.2.	Comparative Analysis Framework.....	53
3.7.3.	Selection Logic.....	53
3.8.	Analysis and Design of the Selected RAG.....	53
3.9.	Simulated Data Creation	53
3.10.	RAG Development	55
3.11.	Success Criteria for RAG Prototype	56
3.12.	RAG Evaluation (RAGAS framework)	57
3.13.	Functional Requirement Validation	57
4.	CHAPTER 4 – RESULTS AND DISCUSSION	58
4.1.	Business Problem Analysis Result.....	58
4.2.	Gap Analysis Result	58
4.3.	Risk Analysis Result	60
4.4.	User Requirement Result	62
4.4.1.	Requirement Specification Matrix	62
4.4.2.	Functional Requirements.....	63

4.4.3.	Non functional Requirement	64
4.5.	RAG Type Selection: Modular RAG	64
4.6.	RAG Analysis and Design Result	66
4.7.	Simulated Data Result	69
4.8.	RAG Output Result	70
4.9.	RAG Evaluation Result	72
4.10.	User Acceptance Result (Functional Requirement Validation)	73
4.11.	Non-Functional Requirement Validation	75
4.12.	Deployment Analysis: Cloud-Based RAG for PT XYZ	77
CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS		78
5.1.	Conclusions	78
5.2.	Recommendations	78
REFERENCES		80
CURRICULUM VITAE		81



LIST OF TABLES

Table 2.1 Real cases in PT XYZ	19
Table 2.2 LLM Comparison.....	27
Table 2.3 Previous Studies Summary	42
Table 2.4 Methodological Selection Matrix.....	45
Table 3.1 Simulated Data List.....	54
Table 4.1 Gap Analysis Result.....	59
Table 4.2 Risk Mitigation Matrix.....	61
Table 4.3 Requirement Specification Matrix	62
Table 4.4 Comparison of RAG Types.....	65
Table 4.5 Evaluation Calculation Result.....	72
Table 4.6 UAT Summary Result.....	73
Table 4.7 Functional Requirement and RAG Component Mapping.....	74
Table 4.8 Non-Functional Requirement and RAG Component Mapping	76



LIST OF FIGURES

Figure 1.1 Fish Bone Diagram	14
Figure 2.1 Knowledge Management Process in Leisure Activities Product Area	21
Figure 2.2 SECI Model	24
Figure 2.3 RAG Architecture	30
Figure 2.4 Naïve RAG	32
Figure 2.5 Advanced RAG	33
Figure 2.6 Modular RAG	34
Figure 3.1 Research Framework	47
Figure 4.1 Modular RAG Architecture Workflow	69
Figure 4.2 Slack Conversation	70
Figure 4.3 Issue Log in Microsoft Excel	70
Figure 4.4 Sreamlit Web Interface	71