RESEARCH PROPOSAL

1. TITLE PAGE

Title: Investigating Ubuntu Philosophy in Multi-Agent AI Systems for Organizational Support

A Case Study of Sun International GrandWest Casino, South Africa

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2. ABSTRACT

Multi-agent artificial intelligence systems offer significant potential for organizational IT support, yet most implementations lack cultural coherence with collaborative organizational values. This research investigates whether indigenous African philosophy can enhance collaboration in multi-agent AI systems within organizational IT departments through design science research methodology.

To investigate this question, the study develops UGENTIC (Ubuntu-Driven Agentic Collective Intelligence) as a research prototype-a six-agent AI system designed using Sun International GrandWest Casino's IT department as the case study context. The prototype includes agents representing IT Manager, Service Desk Manager, IT Support, Application Support, Network Support, and Infrastructure roles, mirroring the actual departmental structure. This design science research validates whether collective values and cultural principles can be operationalized in multi-agent architectures to enhance cross-departmental collaboration, or in other words, bridge the gap between the two.

Using an explanatory sequential mixed methods approach within a single case study, the research combines prototype development with expert validation through semi-structured interviews with 10-14 IT staff across strategic, tactical, and operational levels. These interviews assess current workflow challenges, validate the UGENTIC concept's feasibility, and provide design recommendations for AI-workplace integration. The research aims to determine whether culturally-grounded AI design principles can address organizational collaboration challenges while developing transferable implementation guidelines for other organizations.

This represents the first study combining indigenous African philosophy with multi-agent organizational AI in real departmental contexts with authentic hierarchical structures. Expected outcomes include design validation of culturally-enhanced AI collaboration, practical feasibility assessment and design recommendations, and contribution to human-centered AI development methodology.

Keywords: Ubuntu philosophy, multi-agent AI systems, organizational collaboration, IT departments, design science research, cultural AI integration, human-AI teaming

3. INTRODUCTION

Background and Context

Organizations worldwide face persistent challenges integrating AI with human work practices. Recent research reveals significant AI-workplace misalignment: the Upwork Research Institute (2024) survey of 2,500 global workers found that 77% of employees using AI report it has increased their workload, with 47% uncertain how to achieve expected productivity gains. This is corroborated by Gallup's (2024) survey of 21,543 working adults, which revealed that only 15% of employees report their organization has communicated a clear AI integration plan or strategy. This disconnect between AI capabilities and actual work practices creates productivity barriers rather than improvements.

Traditional AI implementations often ignore organizational hierarchies and team dynamics, optimize individual performance at expense of collective goals, lack cultural coherence with collaborative organizational values, and fail to respect authentic departmental workflows (Davenport and Ronanki, 2021; Bean, 2025). Organizations face persistent challenges with departmental silos that impede cross-functional collaboration and decision-making (Kanter, 2020).

Multi-agent artificial intelligence systems offer potential solutions through distributed coordination and collaborative decision-making (Moore, 2025; Krishnan, 2025). However, most multi-agent implementations lack cultural frameworks that align with organizational values. Indigenous African philosophy-specifically the concept of collective humanity where individual identity emerges through community relationships-provides a stable cultural framework for AI integration that transcends changing company policies (Mhlambi, 2020).

This foundational principle - "I am because we are" - remains constant while organizational policies evolve and AI capabilities advance rapidly. This stability makes it particularly valuable as a guiding philosophy for AI systems operating in dynamic organizational environments because it provides unchanging ethical and operational grounding, works on cultural grounds for

AI integration, ensures technology doesn't lose the human aspect, and demonstrates structural coherence with multi-agent architectures where agents are literally defined by their relationships (Mkhize, 2022; van Norren, 2023).

The UGENTIC Research Prototype

To investigate these questions, this research develops UGENTIC (Ubuntu-Driven Agentic Collective Intelligence) as a research prototype and proof-of-concept system. UGENTIC functions as a methodological artifact enabling systematic investigation of whether cultural principles can enhance AI collaboration design. The prototype uses Sun International GrandWest Casino's IT department as the case study context for authentic organizational grounding.

UGENTIC consists of six AI agents, each representing an actual IT department role:

- **IT Manager Agent** - Strategic leadership and resource allocation
- **Service Desk Manager Agent** - Team coordination (manages IT Support only)
- **IT Support Agent** - Front-line technical support (reports to Service Desk Manager)
- **Application Support Agent** - Software troubleshooting (reports to IT Manager)
- **Network Support Agent** - Network infrastructure management (reports to IT Manager)
- **Infrastructure Agent** - Server and system management (reports to IT Manager)

This hierarchy mirrors the actual GrandWest IT organizational structure, where the Service Desk Manager manages only the IT Support team, while Application Support, Network Support, and Infrastructure report directly to the IT Manager. The agents are implemented using local AI models (Ollama LLMs), retrieval-augmented generation (RAG) for departmental knowledge access, and the Model Context Protocol for inter-agent communication.

The prototype demonstrates how agents could collaborate on cross-departmental decisions while maintaining authentic hierarchical relationships, using cultural principles to guide agent behaviours such as acknowledging others' expertise, articulating collective benefits, adopting consultative approaches, providing transparent reasoning, and offering mutual support.

This research investigates whether this culturally-grounded design approach is feasible and valuable for organizational collaboration through expert validation with IT staff who understand the real departmental workflows and challenges.

Problem Statement

Despite significant advances in multi-agent AI systems and organizational collaboration theory, a critical gap exists in understanding whether and how AI agents can be designed to integrate with real departmental operations to improve organizational collaboration while maintaining cultural authenticity and respecting authentic hierarchical structures.

While extensive research exists in multi-agent AI (Moore, 2025; Wu et al., 2023), cultural philosophy (Mhlambi, 2020; Bührmann, 2024), and organizational implementation (Aldoseri et al., 2024; Holmström et al., 2025) separately, virtually no research combines cultural philosophy with multi-agent organizational AI systems in real departmental contexts with authentic hierarchical structures.

Absence of validated design methodologies for bridging real departmental operations with AI agent capabilities prevents organizations from confidently investing in AI-driven collaboration solutions. Recent evidence demonstrates significant AI-workplace challenges: the Upwork Research Institute (2024) found that 77% of employees using AI report increased workload, with 47% uncertain how to achieve expected productivity gains, while Gallup (2024) found that only 15% of employees report their organization has communicated a clear AI strategy, indicating fundamental disconnect between AI capabilities and actual work practices.

Research lacks generalizable design frameworks enabling different organizations, particularly SMEs, to adopt AI-enhanced departmental coordination with validated implementation pathways. This study addresses this critical void through design science research using UGENTIC as a prototype to validate whether cultural principles can enhance AI collaboration design without sacrificing technical capability.

To investigate whether indigenous African philosophy can enhance the design of multi-agent artificial intelligence systems for organizational IT departments, and to develop a validated methodology for designing AI systems that bridge AI capabilities with real-world organizational work practices through culturally-grounded collaboration principles.

This research aims to validate whether collective cultural principles can inform both philosophical wisdom and technical multi-agent architecture design, providing empirical evidence of their structural coherence and practical feasibility.

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4. RESEARCH QUESTIONS

Primary Research Question:

Can indigenous African philosophy enhance the design of multi-agent artificial intelligence systems for organizational IT departments, and if so, how does the principle "I am because we are" manifest in both cultural wisdom and technical architecture design?

Secondary Research Questions:

RQ1: How can real departmental workflows, expertise, hierarchical structures, and decision-making patterns be effectively translated into AI agent design specifications for organizational IT contexts?

RQ2: How can cultural philosophy principles emphasizing collective humanity be operationalized in multi-agent AI system design, and what measurable agent behaviours should demonstrate these principles in action?

RQ3: What design considerations and potential benefits for cross-departmental collaboration, decision-making efficiency, and organizational coordination could result from culturally-enhanced multi-agent systems compared to traditional approaches?

RQ4: How do IT staff perceive the feasibility and value of culturally-driven AI design compared to traditional AI tools in their daily work, and what factors influence their assessment of collaborative AI systems?

RQ5: How can cultural philosophy be implemented within multi-agent AI system design while preserving cultural authenticity, respecting indigenous knowledge systems, and avoiding cultural appropriation?

RQ6: What organizational and cultural factors enable or constrain culturally-driven AI adoption, and what design methodology enables other organizations to successfully adopt this framework?

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5. RESEARCH OBJECTIVES

Primary Objective:

To develop and validate a practical design methodology for integrating cultural philosophy with multi-agent AI systems for organizational IT departments, demonstrating feasibility and potential value for collaborative decision-making while preserving cultural authenticity.

Secondary Objectives:

RO1 (Addresses RQ1): To examine current challenges in AI-workplace integration and develop a methodology for translating real departmental operations into AI agent design specifications that authentically represent departmental perspectives while enhancing cross-departmental collaboration.

RO2 (Addresses RQ2): To explore the practical application of cultural philosophy in designing collaborative AI systems and identify specific agent behaviours that should manifest these principles in multi-agent interactions.

RO3 (Addresses RQ3): To assess the potential effectiveness of culturally-driven AI system design through expert evaluation of design feasibility, identifying potential improvements in

cross-departmental collaboration including decision-making patterns, coordination opportunities, and team communication.

RO4 (Addresses RQ4): To evaluate expert perceptions and assessments of culturally-driven AI design versus traditional AI implementations through qualitative analysis of staff feedback, identifying factors that enhance or constrain feasibility and acceptance.

RO5 (Addresses RQ5): To validate the cultural authenticity and appropriateness of philosophical integration in AI system design through stakeholder consultation and participant feedback, ensuring respectful implementation of indigenous African wisdom.

RO6 (Addresses RQ6): To identify contextual factors, design criteria, and implementation considerations, developing generalizable design guidelines that enable other organizations (particularly SMEs) to adopt culturally-driven multi-agent frameworks adapted to their specific contexts.

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6. LITERATURE REVIEW

The comprehensive literature review encompasses six critical areas, with 60 peer-reviewed sources from 2020-2025 (80% from 2024-2025) providing cutting-edge theoretical grounding.

Multi-Agent AI Systems

Research demonstrates significant theoretical advances in multi-agent coordination, with frameworks for agent communication, coordination protocols, and distributed decision-making well-established (Moore, 2025; Krishnan, 2025; Ju, 2025). However, empirical evidence of successful design integration with real organizational structures remained limited. Moore (2025) provides hierarchical multi-agent taxonomy for industrial applications, while Krishnan (2025) presents the Model Context Protocol for agent interoperability. Ju (2025) demonstrates 73% productivity improvements in human-agent collaboration, though primarily in controlled environments. This research provides design validation in real departmental operational contexts with authentic hierarchical structures.

Cultural Philosophy and AI

Academic exploration demonstrates effectiveness of collective philosophical frameworks in enhancing organizational decision-making (Mhlambi, 2020; Mkhize, 2022). However, application to multi-agent AI system design remained largely theoretical. Mhlambi (2020) establishes indigenous philosophy as an AI ethics and governance framework, emphasizing relationality over pure rationality. Mkhize (2022) explores the role of African values in global AI inclusion discourse from a normative ethics perspective. Bührmann (2024) examines how traditional economics paradigms can be reimagined through communal philosophies, while van Norren (2023) discusses community reconstitution through shared values. This research explores practical operationalization in AI system design, investigating whether cultural frameworks enhance technological implementation.

Organizational Implementation

Research consistently identifies organizational readiness as critical for AI adoption success (Aldoseri et al., 2024; Bean, 2025; Holmström et al., 2025). This research addresses the gap by investigating AI design integration with real IT departmental structures. Aldoseri et al. (2024) provides automation integration roadmap, while Bean (2025) examines how companies use AI in 2024. Holmström et al. (2025) presents the phased AI transformation framework for navigating organizational AI journeys. Kanter (2020) explores organizational innovation beyond traditional boundaries. The research contributes practical design implementation knowledge beyond theoretical frameworks, exploring feasibility of integration with authentic hierarchies.

Retrieval-Augmented Generation

Advanced RAG architectures demonstrate significant potential for enterprise knowledge management (Balaguer et al., 2025; Zhang et al., 2024; Ranjan et al., 2024). The UGENTIC research prototype implements RAG capabilities for departmental knowledge access design. Balaguer et al. (2025) presents contemporary RAG frameworks for enterprise knowledge management, addressing latest advances including GraphRAG and hierarchical retrieval. Zhang et al. (2024) provides RAG framework specifically for IT operations. Ranjan et al. (2024) offers

comprehensive survey of RAG evolution and future directions. Practical RAG implementation design enables cultural principles through shared knowledge access and value retrieval.

Human-AI Teaming

Authoritative frameworks establish human-AI teaming requirements (National Academies, 2022; Daugherty and Wilson, 2024; Berretta et al., 2023). The UGENTIC research prototype design implements these principles through departmental agent specifications preserving human expertise while enabling collaborative capabilities. National Academies (2022) provides comprehensive human-AI teaming state-of-the-art analysis. Ju (2025) demonstrates 73% productivity gains empirical evidence. Daugherty and Wilson (2024) reimagine work in the age of AI, emphasizing human and machine complementary strengths. Research explores design principles for complementary strengths in collaborative intelligence while respecting human expertise and cultural values.

South African Context

Research establishes unique challenges and opportunities for AI adoption in African contexts (CIPIT, 2025; Mastercard, 2025; McKinsey, 2025). This research contributes South African-specific design implementation evidence. CIPIT (2025) provides comprehensive analysis of AI ecosystem across Africa, examining infrastructure, skills, and policy dimensions. Mastercard (2025) explores AI's transformative potential across African sectors including healthcare, agriculture, and financial services. McKinsey (2025) analyzes opportunities for generative AI in African markets, projecting significant economic value potential. Mbonye (2024) addresses POPIA compliance for AI systems with regulatory frameworks. Nzama et al. (2024) examines AI adoption barriers in South African manufacturing. Research explores feasible AI adoption design strategies despite contextual challenges while respecting POPIA requirements and cultural considerations.

Identified Research Gap

While extensive research exists in multi-agent AI, cultural philosophy, and organizational implementation separately, virtually no research combines indigenous philosophy with multi-

agent organizational AI system design in real departmental contexts with authentic hierarchical structures. This study addresses this void by providing the first design science investigation of culturally-driven multi-agent AI designed for integration with real organizational departmental workflows, hierarchies, and cultural frameworks.

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7. RESEARCH METHODOLOGY

Research Design

This study employs design science research methodology with explanatory sequential mixed methods approach within a single case study context. Design science research enables systematic investigation of innovative artifact design while generating scholarly knowledge about design principles and implementation feasibility. Mixed methods provides both depth (qualitative understanding through expert interviews) and validation (design assessment through multiple perspectives). The research uses Sun International GrandWest IT departments as the case study context for authentic organizational grounding, with framework designed for transferability to establish broader applicability.

Design Science Research Framework

Design science research follows established frameworks (Tuunanen et al., 2024; vom Brocke et al., 2020) addressing both complexity management in DSR projects and knowledge accumulation in design research. The research implements six systematic phases:

Phase 1: Problem Identification and Motivation - AI-workplace integration challenges, organizational collaboration gaps, and cultural misalignment in existing AI implementations identified through literature and organizational analysis.

Phase 2: Objectives of Solution - Define requirements for culturally-grounded multi-agent AI system that respects organizational hierarchies, enhances collaboration, and preserves cultural authenticity.

Phase 3: Design and Development - Create UGENTIC prototype implementing Ubuntu principles in multi-agent architecture with six departmental agents mirroring GrandWest IT structure.

Phase 4: Demonstration - Develop working prototype showcasing culturally-driven agent coordination, hierarchical decision-making, and collaborative problem-solving capabilities.

Phase 5: Evaluation - Validate design through expert interviews with IT staff assessing feasibility, organizational fit, and potential value. This research focuses primarily on this evaluation phase.

Phase 6: Communication - Document findings in dissertation and disseminate through academic channels.

Tuunanen et al. (2024) emphasize organizing complex DSR projects through design echelons-decomposing projects into logically coherent self-contained parts. This research applies this principle by treating UGENTIC's six-agent architecture as interconnected design echelons, each representing a distinct organizational role while contributing to the collective system design. vom Brocke et al. (2020) stress the importance of positioning design knowledge contributions within wider problem and solution spaces, which this research addresses by explicitly connecting cultural philosophy (solution space) with organizational collaboration challenges (problem space).

Three-Phase Research Implementation

Phase 1: Organizational Context Analysis (Completed May-August 2025)

Understanding the case study context through document analysis of departmental procedures and hierarchical structures, workflow documentation for authentic organizational patterns, hierarchical relationship mapping, and preliminary discussions with departmental staff about collaboration challenges and AI perceptions.

Phase 2: Prototype Development (Completed August-September 2025)

Developed UGENTIC research prototype with six IT department agents (IT Manager, Service Desk Manager, IT Support, App Support, Network Support, Infrastructure), implemented cultural collaboration protocols in agent design, established three-dimensional integration (technical plus cultural plus organizational), validated hierarchical coordination design respecting authentic GrandWest structure, and created working proof-of-concept demonstrating design feasibility.

Phase 3: Design Validation Through Expert Interviews (Current Phase October-November 2025)

Expert validation interviews with IT staff across departments and hierarchical levels, qualitative assessment of design feasibility and organizational fit, evaluation of cultural integration appropriateness, identification of design improvements and implementation considerations, and transferability assessment for framework abstraction.

Participant Requirements

Primary participant pool consists of Sun International GrandWest IT Staff (10-14 total) across strategic level (IT Manager: 1 participant), tactical level (Service Desk Manager: 1 participant), operational specialists (Infrastructure, App Support, Network Support: 3 participants), and operational support (IT Technicians: 6-8 participants). Selection criteria include minimum 2-3 years experience in current role, deep understanding of departmental processes and workflows, experience with cross-departmental coordination, willingness to provide honest feedback about AI design concepts, and availability for 45-60 minute interviews.

Data Collection Methods

Qualitative Data Collection: Semi-structured interviews with 10-14 participants across 6 departments and 3 hierarchical levels focusing on current workflow challenges and collaboration pain points, assessment of UGENTIC concept feasibility and organizational fit, evaluation of cultural integration appropriateness and authenticity, design recommendations for AI-workplace integration considerations (privacy, trust, acceptance factors), and expert validation of whether proposed design addresses identified challenges.

Interview Protocol Structure: - Section A: Current workflows and collaboration challenges (15 minutes) - Section B: UGENTIC concept presentation and feasibility assessment (15 minutes) - Section C: Cultural integration and design appropriateness (10 minutes) - Section D: Design recommendations and implementation considerations (10 minutes) - Section E: Transferability and organizational factors (5 minutes)

Supporting Documentation: Analysis of departmental documentation, organizational structure charts, existing workflow diagrams, and collaboration patterns to triangulate interview findings.

Data Analysis Techniques

Qualitative Analysis: Reflexive thematic analysis following Braun and Clarke (2024) six-phase methodology for identifying patterns in expert assessments, content analysis of design recommendations and feasibility concerns, cultural integration assessment evaluating framework appropriateness, feasibility assessment synthesizing expert validation across participants, and NVivo software for systematic coding and theme extraction.

Thematic Analysis Process:

1. Familiarization with interview transcripts and documentation

2. Generating initial codes for design feasibility, organizational fit, cultural appropriateness

3. Searching for themes across expert assessments

4. Reviewing themes for coherence and distinctiveness

5. Defining and naming themes related to design validation

6. Producing final analysis integrated with design recommendations

Design Validation Framework:

- **Feasibility Assessment:** Can this design work in practice?

- **Value Assessment:** Would this design add value to organizational operations?

- **Appropriateness Assessment:** Does design respect cultural authenticity?

- **Transferability Assessment:** Can design principles apply to other organizations?

Mixed Methods Integration: Triangulation across multiple expert perspectives for validation, convergent analysis synthesizing evidence across interviews and documentation, member checking for participant validation of interpretations, and synthesis of findings into design recommendations and implementation guidelines.

Ethical Considerations

Ethics application will be submitted to Richfield Ethics Committee with organizational approval request to Sun International GrandWest. Research poses minimal risk as no production deployment occurs and no operational systems are affected. Participants provide expert assessment only, with no requirement to use or test AI systems.

All departmental information and participant data will be anonymized and stored securely. Organizational data remains confidential with compliance to POPIA (Protection of Personal Information Act) requirements throughout.

All participants receive detailed information about research objectives, interview process, time requirements, and data usage. Voluntary consent required for participation with clear explanation of rights including withdrawal at any time. All research data stored on encrypted, password-protected systems with access limited to authorized research personnel.

Research maintains high cultural sensitivity in philosophical interpretation and application, with explicit validation of cultural appropriateness through participant feedback. Full compliance with POPIA requirements including lawful processing, purpose specification, minimal data collection, data quality, openness, security safeguards, and data subject participation rights.

8. EXPECTED OUTCOMES

This research will produce design validation evidence demonstrating whether cultural philosophy can enhance multi-agent AI collaboration design effectiveness, expert assessment of UGENTIC concept feasibility and organizational fit, and qualitative insights into how IT staff perceive culturally-driven AI design compared to traditional approaches. The research will identify design recommendations for improving AI-workplace integration, understanding of cultural integration appropriateness and authenticity considerations, and evidence of factors influencing feasibility and organizational acceptance.

Practical deliverables include the working UGENTIC research prototype demonstrating culturally-driven multi-agent framework functionality with six AI agents designed for integration with real departmental workflows respecting authentic organizational hierarchies. Comprehensive design guidelines will enable other organizations to adopt the framework, with adaptation guidelines for different organizational contexts and sizes, resource requirements and realistic timelines for implementation, and design considerations for privacy, trust, and cultural appropriateness.

Validated design principles for culturally-enhanced collaboration effectiveness, feasibility criteria for implementation across different organizational types, and comparison frameworks for traditional versus culturally-driven design approaches will provide design benchmarks for future implementations.

Academic contributions include the first design science validation of culturally-driven multi-agent organizational AI in real departmental contexts, novel framework for translating real departmental operations into AI agent design specifications, and mixed methods approach combining organizational analysis with expert validation. The research contributes to practical application methodology of indigenous African philosophy to AI system design and human-centered AI development discourse.

Societal impact includes demonstrating AI augmentation rather than replacement design principles, supporting approaches addressing societal concerns about AI impact, and preserving human expertise and dignity in technological advancement. The research shows how indigenous philosophies can inform modern AI system design while maintaining cultural authenticity and respect for indigenous knowledge, validating African philosophical contribution to global AI innovation.

Regardless of whether findings support or challenge the hypothesis, the research will advance knowledge. If culturally-driven AI design proves feasible and valuable, validated approach exists for others to adopt. If expert assessment identifies significant challenges, identification of design limitations and barriers contributes knowledge. If results are mixed, realistic understanding of design opportunities and constraints emerges.

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9. LIMITATIONS AND DELIMITATIONS

Research Limitations

Primary focus on Sun International GrandWest IT departments as case study context may limit direct generalizability to other organizational sectors. However, framework designed for transferability testing establishes broader applicability principles through detailed documentation of design adaptation strategies.

Cultural aspects specific to South African and broader African contexts. Cultural framework design principles may translate to other collective-oriented cultural contexts, but adaptation required for individualistic cultural environments. Expert validation limited to one organizational context.

Design validation through interviews rather than operational deployment means findings demonstrate conceptual feasibility rather than empirical performance measurement. Short validation timeframe (October-November 2025) captures expert assessment at single point rather than longitudinal validation.

Sample of 10-14 expert participants, while sufficient for qualitative saturation in stratified organizational study, represents subset of total IT staff and may not capture all perspectives. Expert assessments reflect perceptions and professional judgment rather than measured operational outcomes.

Prototype design dependent on existing IT infrastructure compatibility and organizational technology environment assumptions. Replication in different technical contexts may face varying infrastructure constraints requiring design modifications.

Researcher's role as prototype developer and investigator requires careful boundary management. However, this dual role provides unique design insights and deep organizational understanding advantages. Expert interviews may include participant bias or socially desirable responses. Mitigated through confidentiality assurances and triangulation across multiple expert perspectives.

Research Delimitations

Study deliberately focused on Sun International GrandWest Casino in Cape Town, South Africa for authentic cultural environment and established organizational relationships enabling deep access. Research limited to IT department operations within hospitality industry, enabling depth of investigation while providing transferable design principles.

Focus specifically on collective cultural philosophy rather than broader spectrum of African philosophies, selected for well-established theoretical foundation and clear operationalization potential. Study examines multi-agent collaborative AI systems specifically, excluding single-agent systems or fully autonomous AI without human-in-loop design.

Investigation focuses on design validation through expert interviews rather than operational deployment or performance measurement. This delimitation enables feasible completion within dissertation timeframe while providing meaningful design validation evidence.

Research conducted October-November 2025 for expert validation interviews, chosen to meet dissertation deadline while providing sufficient design assessment evidence. Study includes only IT staff directly involved with departmental operations for authentic organizational expertise.

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10. PROPOSED CHAPTER OUTLINE

The final dissertation will comprise seven chapters:

Chapter 1: Introduction - Complete. Background, problem statement, research questions (RQ1-6), research objectives (RO1-6) with 1:1 alignment, significance, scope, and dissertation structure overview.

Chapter 2: Literature Review - Complete. Multi-Agent AI Systems (8 sources), Cultural Philosophy and AI (7 sources), Organizational Implementation (8 sources), Retrieval-Augmented Generation (8 sources), Human-AI Teaming (8 sources), South African Context (7 sources), Research Gap Identification, Theoretical Framework. Total 60 peer-reviewed sources (80% from 2024-2025).

Chapter 3: Research Methodology - Complete. Design Science Research Framework, Case Study Context, Research Prototype (UGENTIC), three implementation phases, expert validation through interviews, data analysis techniques, ethical considerations, validity and reliability measures.

Chapter 4: System Design and Implementation - Complete. UGENTIC Research Prototype Overview, Six-Agent Architecture Design, Hierarchical Structure Design, Cultural Operationalization in Design, Technical Infrastructure (Ollama, RAG, MCP), Knowledge Management Design, Workflow Integration Design, Three-Dimensional Framework, Design Challenges, Prototype Demonstration.

Chapter 5: Design Validation Findings - Pending Interview Data Collection. Participant Demographics (10-14 IT staff), design validation findings for each research question (RQ1-6), qualitative results with thematic analysis of expert assessments, feasibility assessment synthesis,

cultural appropriateness validation, design recommendations, unexpected insights. BLOCKED requires expert validation interviews (October-November 2025).

Chapter 6: Discussion - Complete (will be revised after Chapter 5). Discussion of primary research question and RQ1-6 analysis, theoretical implications for design science, practical implications for implementation, comparison with literature, three-dimensional design integration effectiveness, feasibility factors, design constraints and considerations, limitations, alternative design approaches.

Chapter 7: Conclusion and Recommendations - Complete (will be revised after Chapter 5). Research summary, design validation synthesis, research aim achievement, academic contributions, practical contributions to design methodology, societal contributions, recommendations for design practice/SMEs/policy/future research, generalization principles, implementation roadmap, final reflections.

Supporting Materials: Abstract Complete. References (60 sources) Complete, Harvard style, 80% from 2024-2025. Appendices Prepared including interview protocols, ethics documents, architecture diagrams, cultural operationalization framework, design validation instruments, consent forms.

Current Status: 87% Complete (6 of 7 chapters), Chapter 5 (Design Validation Findings) requires interview data, 55 days to December 5, 2025 deadline.

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