# RESEARCH PROPOSAL

## INVESTIGATING UBUNTU PHILOSOPHY IN MULTI-AGENT AI SYSTEMS FOR ORGANIZATIONAL IT SUPPORT

**A Case Study of Sun International GrandWest Casino, South Africa**

| **Student:** | Craig Vraagom |
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| **Student Number:** | 40241517 |
| **Qualification:** | BSc Honours in Information Technology |
| **Institution:** | Richfield Graduate Institute of Technology |
| **Supervisor:** | Jemini Matiya |
| **Co-Supervisor:** | Dr Stephen Akandwanaho |
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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 develops and evaluates UGENTIC (Ubuntu-Driven Agentic Collective Intelligence), a multi-agent AI system integrating indigenous African philosophy with organizational IT workflows through design science research methodology.

The study develops a working UGENTIC prototype—a six-agent AI system built using Sun International GrandWest Casino’s IT department as the case study context. The developed system includes agents representing IT Manager, Service Desk Manager, IT Support, Application Support, Network Support, and Infrastructure roles, mirroring the actual departmental structure. The system implements cultural principles of collective humanity through specific agent behaviors, coordination protocols, and decision-making mechanisms, operationalizing the philosophy “I am because we are” within technical multi-agent architecture, or in other words, bridging the gap between cultural wisdom and AI system development.

Using an explanatory sequential mixed methods approach within a single case study, the research combines system development with expert evaluation through semi-structured interviews with 10-14 IT staff across strategic, tactical, and operational levels. These interviews evaluate the developed system’s effectiveness for cross-departmental collaboration, assess its feasibility and organizational fit, validate cultural authenticity, and provide implementation recommendations. The research aims to demonstrate whether culturally-grounded multi-agent AI systems can enhance organizational collaboration while developing transferable implementation methodologies for other organizations.

This represents the first study developing and evaluating multi-agent organizational AI systems that integrate indigenous African philosophy with real departmental workflows and authentic hierarchical structures. Expected outcomes include empirical evaluation of the developed system’s effectiveness, documented development methodology and implementation guidelines, and contribution to culturally-grounded AI system development approaches.

**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 behaviors 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 developing and evaluating multi-agent AI systems that 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 has developed and evaluated multi-agent organizational AI systems that combine cultural philosophy with real departmental contexts and authentic hierarchical structures.

Absence of validated development methodologies and evaluation frameworks for building AI systems that bridge 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 documented system development approaches and generalizable implementation methodologies enabling different organizations, particularly SMEs, to build and adopt AI-enhanced departmental coordination systems with validated pathways. This study addresses this critical void through design science research by developing the UGENTIC system as a working prototype and evaluating its effectiveness through expert validation, thereby documenting whether cultural principles can successfully enhance multi-agent AI system development for organizational collaboration.

### Research Aim

To develop the UGENTIC multi-agent AI system that integrates indigenous African philosophy with organizational IT department workflows, and to evaluate its effectiveness through expert validation, thereby creating a documented development methodology that enables other organizations to build culturally-grounded AI systems for enhancing collaborative decision-making.

This research aims to demonstrate whether indigenous African philosophy can be successfully operationalized within multi-agent AI system development, providing empirical evaluation of the developed system’s effectiveness and practical implementation guidelines for replication in other organizational contexts.

## 4. RESEARCH QUESTIONS

**Primary Research Question:**

How can indigenous African philosophy be integrated into the development of multi-agent artificial intelligence systems for organizational IT departments, and what is the effectiveness of the developed UGENTIC system in enhancing collaborative decision-making when evaluated by IT staff experts?

**Secondary Research Questions:**

**RQ1 (System Development - Requirements):** How can real departmental workflows, expertise, hierarchical structures, and decision-making patterns be translated into development requirements for building multi-agent AI systems that authentically represent organizational IT contexts?

**RQ2 (System Development - Cultural Integration):** How can cultural philosophy principles emphasizing collective humanity be operationalized during the development of multi-agent AI systems, and what specific agent behaviors and coordination mechanisms should be implemented to demonstrate these principles?

**RQ3 (System Evaluation - Effectiveness):** What are the evaluated benefits and limitations of the developed UGENTIC system for cross-departmental collaboration, decision-making efficiency, and organizational coordination compared to traditional AI approaches, as assessed by IT staff experts?

**RQ4 (System Evaluation - Feasibility):** How do IT staff experts evaluate the feasibility, value, and organizational fit of the developed culturally-driven UGENTIC system compared to traditional AI tools, and what factors influence their assessment?

**RQ5 (System Development - Cultural Authenticity):** How can cultural philosophy be implemented within the development of multi-agent AI systems while preserving cultural authenticity, respecting indigenous knowledge systems, and avoiding cultural appropriation?

**RQ6 (System Transferability - Implementation Methodology):** What development methodology and implementation guidelines can be derived from building the UGENTIC system to enable other organizations to successfully develop and adopt culturally-driven multi-agent AI frameworks?

## 5. RESEARCH OBJECTIVES

**Primary Objective:**

To develop the UGENTIC multi-agent AI system integrating indigenous African philosophy with organizational IT workflows, and to evaluate its effectiveness for enhancing collaborative decision-making through expert validation by IT staff across organizational levels.

**Secondary Objectives (Aligned 1:1 with Research Questions):**

**RO1 (Addresses RQ1 - System Development Requirements):** To analyze real departmental workflows, hierarchical structures, and decision-making patterns, translating these into concrete development requirements and technical specifications for building multi-agent AI systems that authentically represent organizational IT contexts.

**RO2 (Addresses RQ2 - System Development Cultural Integration):** To develop and implement cultural philosophy principles within the UGENTIC system architecture, operationalizing collective humanity concepts through specific agent behaviors, coordination protocols, and communication mechanisms.

**RO3 (Addresses RQ3 - System Evaluation Effectiveness):** To evaluate the developed UGENTIC system’s effectiveness through expert assessment, measuring perceived benefits and identifying limitations for cross-departmental collaboration, decision-making efficiency, and organizational coordination compared to traditional approaches.

**RO4 (Addresses RQ4 - System Evaluation Feasibility):** To assess the feasibility, organizational fit, and practical value of the developed UGENTIC system through qualitative analysis of IT staff expert evaluations, identifying factors that influence acceptance and implementation success.

**RO5 (Addresses RQ5 - System Development Cultural Authenticity):** To ensure cultural authenticity in the development process by validating philosophical implementation through participant feedback, respecting indigenous knowledge systems, and avoiding cultural appropriation throughout system development.

**RO6 (Addresses RQ6 - System Transferability Implementation):** To document the development methodology and derive generalizable implementation guidelines from building UGENTIC, enabling other organizations (particularly SMEs) to develop and adopt culturally-driven multi-agent AI frameworks adapted to their specific contexts.

## 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.

## 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 the fully developed UGENTIC multi-agent AI system as a working prototype demonstrating successful integration of indigenous African philosophy with organizational IT workflows. The developed system consists of six operational AI agents (IT Manager, Service Desk Manager, IT Support, Application Support, Network Support, and Infrastructure) implementing cultural principles through specific behaviors and coordination mechanisms.

Empirical evaluation evidence will demonstrate the developed system’s effectiveness through expert assessment by 10-14 IT staff across organizational levels. Evaluation findings will include perceived benefits and limitations for cross-departmental collaboration, feasibility assessment for organizational implementation, validation of cultural authenticity and appropriateness, and identification of factors influencing acceptance and adoption success.

Comprehensive development methodology documentation will enable other organizations to replicate the system-building approach, including step-by-step development guidelines, cultural integration implementation strategies, technical architecture specifications (RAG, MCP, Ollama), adaptation guidelines for different organizational contexts and sizes, resource requirements and realistic development timelines, and evaluation frameworks for assessing system effectiveness.

Validated implementation methodologies derived from building UGENTIC, including requirements translation process (from workflows to agent specifications), cultural operationalization techniques (philosophy to behaviors), hierarchical coordination design patterns, and evaluation criteria for measuring collaborative AI effectiveness will provide replicable frameworks for future implementations.

Academic contributions include the first developed and evaluated multi-agent organizational AI system integrating indigenous African philosophy in real departmental contexts, documented development methodology for culturally-grounded AI systems, novel framework for translating organizational operations into AI agent implementations, and mixed methods approach combining system development with expert evaluation. The research contributes empirical evidence for practical application of indigenous African philosophy to AI system development and human-centered AI engineering discourse.

Societal impact includes demonstrating successful development of AI augmentation rather than replacement systems, providing working evidence that addresses societal concerns about AI impact, and preserving human expertise and dignity through culturally-authentic technological advancement. The research shows how indigenous philosophies can inform and improve modern AI system development while maintaining cultural authenticity and respect for indigenous knowledge, validating African philosophical contribution to global AI innovation.

Regardless of whether evaluation findings are positive, negative, or mixed, the research advances knowledge. If the developed system proves effective and valuable, validated development approach exists for others to adopt. If expert evaluation identifies significant limitations, documentation of development challenges and system constraints contributes knowledge. If results are mixed, realistic understanding of development opportunities and implementation barriers emerges.

## 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.

## 10. PROPOSED CHAPTER OUTLINE

The final dissertation will comprise seven chapters totaling 45,000-50,000 words:

**Chapter 1: Introduction** (~4,120 words) - 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** (~7,200 words) - 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** (~5,400 words) - 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** (~8,100 words) - 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** (~6,000 words) - 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** (~9,400 words) - 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** (~4,200 words) - 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 (247 words) 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), 47,867 words written, Chapter 5 (Design Validation Findings) requires interview data, 55 days to December 5, 2025 deadline.

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**Note:** Full bibliography of 60 sources available in dissertation references. All sources meet 5-year requirement (2020-2025). Foundational works (Hevner 2004, Peffers 2007, Lewis 2020, Gwagwa 2020) replaced with recent sources that build upon and extend these seminal contributions.

**END OF PROPOSAL**

**Document Status:** UPDATED - System Development & Evaluation Focus  
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**References:** 60 sources, 80% from 2024-2025, ZERO sources older than 2020  
**Update:** Research questions revised to explicitly incorporate system development and evaluation per supervisor feedback