**RICHFIELD**

**Investigating Ubuntu Philosophy in Multi-Agent AI Systems for Organizational Support: A Case Study of Sun International GrandWest Casino, South Africa**

By

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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 + Agentic: Ubuntu-Driven Agentic Collective Intelligence), a multi-agent AI system integrating Ubuntu 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 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 its technical architecture. Using an explanatory sequential mixed methods approach, the research combines system development with expert evaluation through semi-structured interviews with 10-14 IT staff. These interviews evaluate the developed system’s effectiveness, assess its feasibility and organizational fit, and validate its cultural authenticity. The research aims to demonstrate whether culturally-grounded multi-agent AI systems can enhance organizational collaboration while developing transferable implementation methodologies. This represents the first study to develop and evaluate a multi-agent organizational AI system that integrates Ubuntu philosophy with real departmental workflows. Expected outcomes include an empirical evaluation of the developed system’s effectiveness, a documented development methodology, and a contribution to culturally-grounded AI system development approaches.

### **3. INTRODUCTION**

#### **Background and Context**

Organizations worldwide face persistent challenges integrating AI with human work practices. Recent research reveals significant AI-workplace misalignment: an Upwork Research Institute (2024) survey found that 77% of employees using AI report it has increased their workload. This is corroborated by Gallup’s (2024) research, which revealed that only 15% of employees report their organization has communicated a clear AI integration plan. This disconnect between AI capabilities and actual work practices creates productivity barriers. Traditional AI implementations often ignore organizational hierarchies, team dynamics, and cultural values, failing to respect authentic departmental workflows (Davenport and Ronanki, 2021; Bean, 2025).

Multi-agent artificial intelligence systems offer potential solutions through distributed coordination (Moore, 2025; Krishnan, 2025). However, most multi-agent implementations lack cultural frameworks. The indigenous African philosophy of Ubuntu—where individual identity emerges through community relationships ("I am because we are")—provides a stable cultural framework for AI integration that can guide ethical and operational grounding (Mhlambi, 2020; Mkhize, 2022). To investigate this, the research develops UGENTIC (Ubuntu-Driven Agentic Collective Intelligence) as a proof-of-concept system, using Sun International GrandWest Casino’s IT department as the case study context. UGENTIC consists of six AI agents, each representing an actual IT role (IT Manager, Service Desk Manager, IT Support, etc.), mirroring the real organizational structure. This research investigates whether this culturally-grounded design approach is feasible and valuable for organizational collaboration through expert validation.

#### **Problem Statement**

Despite advances in multi-agent AI systems, a critical gap exists in understanding how AI agents can be designed to integrate with real departmental operations to improve organizational collaboration while maintaining cultural authenticity and respecting hierarchical structures. While extensive research exists in multi-agent AI, cultural philosophy, and organizational implementation separately, virtually no research combines these domains in real departmental contexts. This absence of validated design methodologies prevents organizations from confidently investing in AI-driven collaboration solutions and contributes to the documented disconnect between AI potential and workplace reality (Upwork, 2024; Gallup, 2024). This study addresses this void through design science research, using the UGENTIC prototype to validate whether cultural principles can enhance AI collaboration design.

#### **Research Aim**

To investigate whether indigenous Ubuntu 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.

### **4. RESEARCH QUESTIONS**

Primary Research Question:

How can indigenous Ubuntu philosophy be integrated into the development of a multi-agent AI system (UGENTIC) for an organizational IT department, and how effective is the resulting system in enhancing collaborative decision-making when evaluated by IT staff experts?

**Secondary Research Questions:**

1. How can real-world departmental workflows and cultural principles of collective humanity be translated into the design and development of a multi-agent AI system that authentically represents an organizational IT context?
2. How can the cultural authenticity of the Ubuntu-driven AI system be validated throughout the development process to ensure it respects indigenous knowledge systems and avoids appropriation?
3. How do IT staff experts evaluate the effectiveness, feasibility, and organizational fit of the developed UGENTIC system for improving cross-departmental collaboration and decision-making?
4. What generalizable design methodology and implementation guidelines can be derived from the UGENTIC development process to enable other organizations to adopt similar 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.

**Secondary Objectives:**

1. To design and develop the UGENTIC system by translating real departmental workflows and operationalizing Ubuntu principles of collective humanity into its architecture, agent behaviors, and coordination protocols.
2. To ensure cultural authenticity by validating the philosophical implementation through iterative participant feedback, thereby respecting indigenous knowledge systems throughout the development process.
3. To evaluate the developed UGENTIC system’s effectiveness, feasibility, and organizational fit through expert assessment by IT staff, measuring its perceived benefits and limitations for collaboration.
4. To document the development process and derive a generalizable methodology with implementation guidelines that enables other organizations to adopt culturally-driven multi-agent AI frameworks.

### **6. LITERATURE REVIEW**

The comprehensive literature review encompasses six critical areas, with 60 peer-reviewed sources from 2020-2025 providing theoretical grounding. Key themes include Multi-Agent AI Systems, where research shows theoretical advances but limited integration with real organizational structures (Moore, 2025); Cultural Philosophy and AI, where application remains largely theoretical (Mhlambi, 2020); and Organizational Implementation, which identifies readiness as critical for success (Aldoseri et al., 2024). The review also covers Retrieval-Augmented Generation (RAG) for enterprise knowledge management (Balaguer et al., 2025), Human-AI Teaming frameworks (National Academies, 2022), and the South African AI Context (CIPIT, 2025). The identified research gap is the lack of studies combining indigenous philosophy with multi-agent AI design in real departmental contexts. This study addresses this void by providing the first design science investigation of a culturally-driven multi-agent AI integrated with real organizational workflows.

### **7. RESEARCH METHODOLOGY**

This study employs a design science research methodology with an explanatory sequential mixed methods approach within a single case study of the Sun International GrandWest IT department. The research follows six systematic phases: (1) Problem Identification, (2) Definition of Solution Objectives, (3) Design and Development of the UGENTIC prototype, (4) Demonstration, (5) Evaluation, and (6) Communication. The primary data collection method involves semi-structured interviews with 10-14 IT staff across strategic, tactical, and operational levels. Qualitative data will be analyzed using reflexive thematic analysis (Braun and Clarke, 2024) to identify patterns in expert assessments of the system's feasibility, value, and cultural appropriateness. Ethical considerations, including informed consent, data anonymization, and compliance with the POPIA, will be strictly maintained.

### **8. EXPECTED OUTCOMES**

This research is expected to produce validated design principles demonstrating how cultural philosophy can enhance multi-agent AI collaboration. Practical deliverables include the working UGENTIC research prototype and comprehensive design guidelines to enable other organizations to adopt the framework. Academic contributions include the first design science validation of a culturally-driven, multi-agent organizational AI in a real-world context and a novel framework for translating departmental operations into AI agent specifications. Societally, the research demonstrates AI augmentation over replacement, validating African philosophical contributions to global AI innovation.

### **9. LIMITATIONS AND DELIMITATIONS**

The study is limited by its single case study context (Sun International GrandWest IT), which may affect direct generalizability, though the framework is designed for transferability. The validation is based on expert interviews regarding a prototype, not a live operational deployment. The study is delimited to the IT department within the hospitality industry and focuses specifically on Ubuntu philosophy. The investigation focuses on design validation through expert assessment, which is feasible within the dissertation timeframe.

### **10. PROPOSED CHAPTER OUTLINE**

1. Introduction
2. Literature Review
3. Research Methodology
4. Findings and Data Analysis
5. Discussion
6. Conclusion and Recommendations

### **11. REFERENCES**

*(Reference list remains the same as in the original document)*