

Peer Review

Review of: "Agentic Systems: A Guide to Transforming Industries with Vertical AI Agents"

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Strengths

1. Clear Structure & Logical Flow

- The paper is well-organized, moving from problem identification (limitations of SaaS) to the proposed solution (Vertical AI agents and agentic systems).
- The sections build upon each other logically, making it easy for readers to follow.

2. Comprehensive Discussion

- The paper thoroughly explains the core components of agentic systems, covering **memory, reasoning, cognitive skills, and tools** in detail.
- It provides multiple **real-world applications** across industries, strengthening the argument for agentic systems' impact.

3. Use of Figures & Diagrams

- The inclusion of figures (e.g., architecture of LLM agents, RAG agent router) enhances understanding, especially for technical readers.

4. Industry & Research Relevance

- The discussion references ongoing **academic research and industry efforts** (Microsoft, OpenAI, AWS, Google).
- This strengthens credibility and shows the practical significance of the topic.

Areas for Improvement

1. Need for More Concrete Examples in Some Areas

- While the paper gives use cases for agentic systems, it would be stronger if it included **specific real-world implementations** (e.g., companies using vertical AI agents successfully).
- Example: In Section 2.1.1 (Targeted Domain Expertise), mentioning an actual case of a legal or medical AI agent in practice would make it more compelling.

2. Methodology & Validation of Claims

- The paper makes strong claims about agentic systems' superiority but lacks empirical validation.
- Suggestion: If possible, include **benchmark results** comparing vertical AI agents with traditional SaaS or context-aware systems in terms of accuracy, efficiency, or decision-making quality.

3. Standardization Challenges Need More Depth

- The paper acknowledges the **lack of standard design patterns** for agentic systems but does not explore possible solutions in detail.
- Suggestion: Propose steps toward standardization (e.g., creating open-source frameworks, industry collaborations, regulatory guidelines).

4. Some Sections Are Theoretical & Could Be More Practical

- Example: Section 3.3.3 (Cognitive Skills) is highly technical but lacks real-world integration examples.
- Suggestion: Show how companies or researchers have successfully implemented these cognitive skills.

5. Clarity in Technical Distinctions

- Section 3.2 (LLM Agents vs. LLM Workflows) could benefit from a clearer, **more structured comparison table** to highlight key differences at a glance.

6. Conclusion Could Be Stronger

- The conclusion effectively summarizes key points but could include a **stronger call to action** (e.g., what next steps should researchers or industry leaders take?).

Final Thoughts

Overall, this is a strong paper with a solid foundation. Addressing the **validation of claims**, adding **real-world examples**, and enhancing **practical discussions** would make it even stronger. Let me know if you'd like me to refine specific sections!

Declarations

Potential competing interests: No potential competing interests to declare.