Peer response 1 - unit2-peer-responses-to-colleagues

Thank you, Jaafar, for your detailed and timely exploration of how recent advancements—particularly large language models (LLMs) and autonomous planning tools—are accelerating the adoption of agent-based systems (ABS). I found your integration of 2025 technologies such as Claude 3.5 and Gemini 2.0 particularly relevant, as these innovations demonstrate how quickly ABS capabilities are evolving.

Building on your point about modularity and resilience, I believe that cross-domain interoperability will be an increasingly important factor in realising the full potential of ABS. As Jennings and Bussmann (2003) emphasise, the ability of agents to operate across diverse platforms, industries, and data ecosystems is essential for maximising efficiency and collaboration. Establishing open standards for communication between agents—particularly those powered by different AI models—could prevent siloed operations and foster broader adaptability.

Your mention of productivity increases is compelling, and I would add that human-agent collaboration frameworks are equally vital. Russell and Norvig (2021) note that while agents can handle many autonomous tasks, human oversight remains critical for strategic decision-making and ethical governance. Creating interfaces that enable seamless handovers between human teams and autonomous agents can ensure that the system's adaptive capabilities are balanced with human judgment.

Finally, as Sapkota, Roumeliotis and Karkee (2025) note, with the growing sophistication of agents comes the challenge of controlling emergent behaviours. Implementing robust simulation and testing environments can help organisations anticipate and mitigate unintended consequences before deployment.

Overall, I fully agree with your assessment that ABS represent more than a technological trend—they reflect a fundamental shift in how organisations approach intelligent automation.

References

Jennings, N.R. and Bussmann, S., 2003. Agent-based control systems. IEEE Control Systems Magazine, 23(3), pp.61-74.

Russell, S. and Norvig, P., 2021. Artificial Intelligence: A Modern Approach. 4th ed. Harlow: Pearson Education.

Sapkota, R., Roumeliotis, K.I. and Karkee, M., 2025. AI agents vs. agentic AI: a conceptual taxonomy, applications and challenges. arXiv. arXiv:2505.10468. https://doi.org/10.48550/arXiv.2505.10468