

There has been a recent rise in adopting agent-based systems by organisations across different sectors (Bonabeau, 2002). The agent-based systems approach is based on the concept of autonomous agents capable of interacting with each other to achieve a common goal. In this post, The factors that have led to the rise of agent-based systems and the benefits it offers organisations will be the focus of this post.

Agent-based systems can improve the organisation's adaptability and agility in response to changing market conditions. Furthermore, by modelling different scenarios, agent-based systems can help organisations to test the impact of various decisions and policies and adjust their strategies accordingly (Bonabeau, 2002).

Moreover, agent-based systems can take full advantage of distributed computing resources, allowing organisations to harness the power of multiple systems and devices to achieve their objectives. This approach also facilitates the introduction of interoperability, modularity, and dynamism, which can help organisations to streamline their operations, improve collaboration, and boost productivity. (Osongi, 2016)

(Monostori, 2019), made a compelling point: With the ability to work with uncertain and incomplete information and knowledge, agent-based systems are uniquely equipped to tackle various manufacturing-related tasks, from engineering design to supply chain management. In addition, by leveraging agents that can communicate and cooperate, organisations can benefit from a flexible, responsive, and highly efficient approach to their operations, whether they rely on small, simple agents or large, sophisticated ones that can handle coarse- or fine-grained tasks with ease. The result is streamlined and could help organisations stay competitive in today's fast-paced business environment.

The rise of agent-based systems can be attributed to the increasing complexity of modern business environments and the numerous benefits this approach can offer organisations. By improving responsiveness, reducing costs, improving collaboration and knowledge-sharing, enhancing decision-making, and improving adaptability and agility, agent-based systems can help organisations to gain a competitive advantage in the market.

Reference:

Bonabeau, E. (2002). Agent-based modeling: Methods and techniques for simulating human systems. *Proceedings of the National Academy of Sciences*, 99(suppl 3), 7280-7287.

Osongi, F. (2016) *An Agent-Based Model of a Responsive Network Monitoring System*. 1st ed. Europe: LAP LAMBERT Academic Publishing.

Monostori, L. (2007) *Agent-Based Systems for Manufacturing*. Available from: <https://www.sciencedirect.com/science/article/pii/S1660277306000053> [Accessed 6 May 2023]