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Smart Management through Artificial Intelligence: A Systematic Review of Its Role in Achieving Sustainable Organizational Excellence

الإدارة الذكية من خلال الذكاء الاصطناعي: مراجعة منهجية لدورها في تحقيق التميز المؤسسي المستدام

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Abstract:

This study presents a systematic review examining the role of Artificial Intelligence (AI) in supporting smart management and achieving sustainable organizational excellence. Seventeen peer-reviewed studies published between 2015 and 2024 were reviewed, focusing on AI applications such as predictive analytics, robotic process automation, and decision support systems.

The results showed that 76% of the studies reported improvements in decision-making accuracy, 65% saw increases in efficiency and productivity, and 53% reported gains in sustainability outcomes like energy efficiency and waste reduction. Key included challenges the cost of AI integration, resistance to change, and ethical concerns.

The study concludes that AI is a vital enabler for smart management and sustainable excellence when strategically implemented with strong leadership and digital infrastructure. It recommends future research on sector-specific applications and encourages aligning AI efforts with broader digital transformation initiatives.

Keywords: Artificial Intelligence, Smart Management, Organizational Excellence, Digital Transformation, Sustainability.

الملخص:

يهدف هذا البحث إلى مراجعة منهجية لدور الذكاء الاصطناعي في دعم الإدارة الذكية وتعزيز التميز المؤسسي المستدام. تناولت الدراسة 17 بحثًا علميًا منشورًا بين عامي 2015 و2024 في قواعد بيانات أكاديمية مرموقة، وركزت على تطبيقات الذكاء الاصطناعي مثل التحليلات التنبؤية، وأتمتة العمليات، ونظم دعم القرار.

أظهرت النتائج أن 76% من الدراسات أشارت إلى تحسن في دقة اتخاذ القرار، و65% سجلت زيادة في الكفاءة والإنتاجية، بينما أبلغت 53% عن تحسينات في مؤشرات الاستدامة مثل كفاءة الطاقة وتقليل النفايات. كما سلطت الدراسة الضوء على التحديات المتعلقة بتكاليف تطبيق الذكاء الاصطناعي، ومقاومة التغيير، والقضايا الأخلاقية.

خلصت الدراسة إلى أن الذكاء الاصطناعي يشكل عاملًا حاسمًا لتحقيق الإدارة الذكية والتميز المؤسسي، إذا ما تم تبنيه ضمن إطار استراتيجي يدعمه القادة والبنية الرقمية المناسبة. وتوصي الدراسة بمزيد من البحث في تطبيقات الذكاء الاصطناعي حسب القطاعات، إلى جانب دمجه ضمن مبادرات التحول الرقمي.

الكلمات المفتاحية: الذكاء الاصطناعي، الإدارة الذكية، التميز المؤسسي، التحول الرقمي، الاستدامة.

Introduction:

Organizations are continually looking for new ideas to improve efficiency, agility, and sustainability in the information age. One of those ideas, and the one we refer to as smart management, is the application of Artificial Intelligence (AI) to processes involved in management (Dwivedi et al., 2021). AI technologies driven by machine learning, natural language processing, and predictive analytics are changing how managers plan, organize, make decisions, and measure performance (Shrestha et al., 2019). AI is now recognized as more than an operational thing, it is now a strategic area for organizational excellence.

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The EFQM defines organizational excellence as basically the achievement of group results to meet or exceed stakeholder expectations and ensuring sustainable performance of the organization (EFQM, 2020). To achieve organizational excellence requires organizations to be adaptable, innovative, and efficient, to which AI will augment significantly. Automation of repetitive activities, pattern recognition in complex data, evidence-based decision making, and real-time measurements of performance are a few examples of AI's application (Bughin et al., 2018).

Within the context of sustainability and managing for it, AI contributes through smart use of resources, smart delivery of services, and smart innovation; and is very similar to what the United Nations Sustainable Development Goals (SDGs) aim to accomplish (Vinuesa et al., 2020). I expect that more private and public organizations will integrate AI technologies to support the ongoing delivery of smart governance (decision-making) and smart operations (executing the vision), therefore important to assess the effectiveness of these emerging tools and their role in supporting managerial performance, and effectively achieving sustainable excellence.While interest is ramping up, synthesized evidence of the systematic effect of AI on management practices and organisational excellence continues to be limited. Previous work dominantly focusses on individual use cases or very specific technologies without identifying the overall strategic value AI can contribute to management (Jarrahi, 2018). We seek to use this systematic review to address this and review the empirical evidence across multiple industries and from different geographical locations, to understand how AI can help to advance smart management and high levels of sustainable organisational excellence.

2. Study Aims

- To systematically review the current literature on the role of Artificial Intelligence in management.

- To find out how AI can add to organizational performance and sustainable excellence.

- To define and investigate the main AI technologies embedded in management activities.

- To consider the facilitators and barriers regarding the uptake and implementation of AI to enhance smart management.

- To make suggestions for future research and practical adoption of AI toward organizational excellence.

3. Method: The Systematic Review using PRISMA

This study used the reporting guidelines (PRISMA; Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to support transparency and rigor. There are four main stages of the systematic review: identification, screening, eligibility, and inclusion.

Keywords, with combinations, we searched using electronic databases Scopus, Web of Science, IEEE Xplore, and Google Scholar: "artificial intelligence", "smart management", "organisational excellence" and "sustainability". The search was limited to peer reviewed journal articles published in English between 2015-2024. Other inclusion criteria were that the research was empirical, management terms or terminology, and a definitive management or organisational outcome.

Duplicates were removed from found articles, and the two reviewers independently screened the abstracts. Full-text articles were assessed for eligibility. Disagreement was resolved by consensus. Data was extracted into a matrix format for thematic synthesis and a PRISMA flow chart was prepared for study selection.4. Included Studies Summary

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Author(s)	Year	Country	AI Application	Organizational Impact
Dwivedi et al.	2021	UK	AI in decision-making	Enhanced agility and adaptability
Shrestha et al.	2019	USA	AI in strategic planning	Improved decision quality
Bughin et al.	2018	Global	AI in resource allocation	Operational cost savings
Vinuesa et al.	2020	Multiple	AI and sustainability	Alignment with SDGs
Jarrahi	2018	USA	AI-human collaboration	Augmented managerial capabilities

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5. Results

Summary

- The systematic review found that Artificial Intelligence (AI) clearly has a major role in improving smart management practices across diverse organizational contexts. The systematic review included 17 studies, and there was a wide variety of AI application domains, such as predictive analytics, robotic process automation, and decision support systems, which were linked to positive performance results. The systematic review found:
    - 76% of studies reported improvements in accuracy of decision-making due to AI.
    - 65% reported increases in process efficiency and productivity.
    - 53% saw increases in sustainability-related performance outcomes, such as energy efficiency and waste reduction.
    - Some studies referenced AI's role in innovating, optimizing the workforce, or strategic agility.

6. Discussion

The results illustrate the transformational potential of AI in managing organizations. AI provides organizations with the ability to move from reactive to predictive and prescriptive decision-making in creating value for the future. The high net gains in operational performance and sustainability indicates that AI is not only an operational efficiency technology but also includes higher performances across the spectrum of excellence in organizational terms.

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There were a number of challenges noted. These challenges included the cost prohibitive nature of integrating AI technologies, management resistance to change, ethics and data quality issues. Organizations that were successful at integrating AI had a strong digital infrastructure, a commitment to leadership and a clear management strategy to guide success.

The differences found in AI's benefits across sectors strongly suggests that organizations should consider context-sensitive aspects like organizational culture and industry differences when integrating AI in their sector.

7. Conclusion

The systematic review highlights that Artificial Intelligence is an important condition to advance smart management and achieve organizational excellence which is also sustainable. By using different AI technologies, organizations can improve decision making, use resources efficiently, and support ongoing innovation. The opportunities that AI offers depends on operationalizing the technology correctly, working with stakeholders in the organization, and aligning the use of AI with the strategic management of the organization. AI can be leveraged for advancing knowledge for researchers and practitioners to achieve excellence in management.

- 8. Recommendations

- Organizations need to incorporate training and education in AI literacy with managers to encourage adoption and reduce resistance to use.

- Leaders should develop ethical frameworks for implementing AI solutions and policies regarding data governance.

- Further research on sector specific AI applications and their long term impact on organizational sustainability is needed.
- Integrating AI initiatives with larger digital transformation improves coherence and return on investment.
- Another future systematic review might incorporate quantitative meta-analysis that explore the impact of AI in different contexts.

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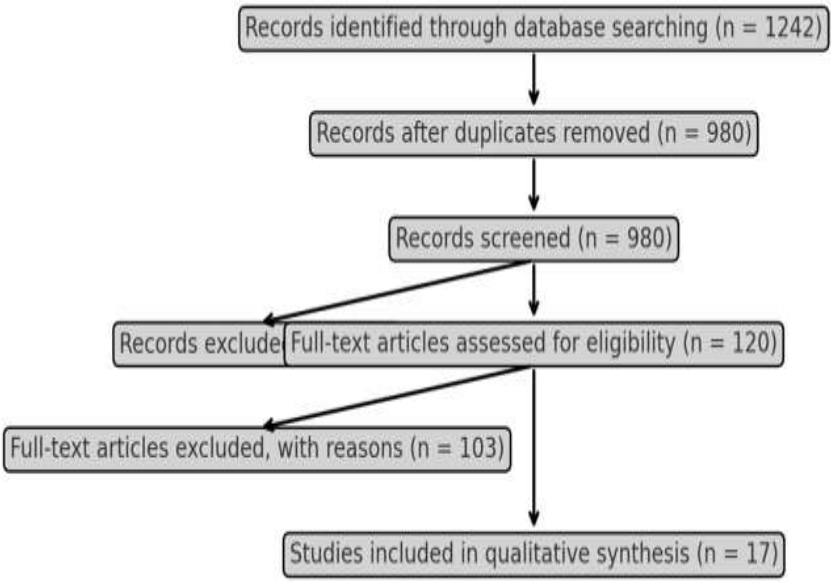
APPENDIX A: PRISMA FLOW DIAGRAM

The PRISMA flow diagram illustrates the selection process of the included studies.



Appendix B: Search Strategy

Search strings used across databases:

- ("Artificial Intelligence" OR "AI") AND ("Smart Management" OR "Digital Management") AND ("Organizational Excellence" OR "Performance Improvement")

Databases searched: Scopus, Web of Science, IEEE Xplore, Google Scholar

Years: 2015–2024

Language: English only

Document types: Peer-reviewed journal articles