Literature Review

1. Perceived Sustainability Impact of AI in Facility Management

AI-driven predictive maintenance systems, as well as energy management systems, have been recognized as tools that enable facility managers to reduce resource consumption and minimize environmental impact (R. Panchal, 2021) (J. Aguilar, 2021). There is no doubt that AI has the potential to enhance sustainability, but there are a number of challenges as well as barriers to overcome. It is important to understand that these challenges include initial implementation costs, the need for specialized expertise, as well as concerns about data privacy and security. A common challenge for facility managers is to integrate AI technologies into existing systems and workflows of the organization without disrupting the existing processes (Reza Toorajipour, 2021). In facility management, user perception is crucial for AI integration. Users who perceive AI to be effective at achieving sustainability goals and who have positive user experiences are more likely to adopt the technology (Tao Chen, 2021). The environmental and financial impacts of AI in facility management have been examined quantitatively. Results show that implementing AI can result in significant savings in energy use, operating expenses, and carbon emissions (Praveen Ranjan Srivastava, 2023). Particularly cost reductions are an important reason for businesses to participate in AI-driven sustainability projects (My, 2021).

2. Cost-Effectiveness of AI Implementation in Facility Management

Analyzing the cost-effectiveness of AI in facility management relies largely on the Return on Investment (ROI) concept (Dr.Farzad Karimi, 2013). To determine the return on investment from implementing AI, researchers have created models and approaches. The models consider factors such as initial investment, maintenance costs, and the expected savings and efficiencies achieved by AI-driven solutions (Brynjolfsson, 2018). The cost-effectiveness of AI in facility management is often examined based on industry-specific nuances. Healthcare, commercial real estate, and manufacturing sectors, for example, investigate the financial implications of AI adoption. (Qian Chai, 2020) (OECD, 2021) rely on these insights to tailor their AI strategies to their specific needs and objectives. The cost-effectiveness of implementing AI depends on various aspects. In order to optimize cost-effectiveness, AI strategies must be in line with corporate objectives (OECD, 2021).

3. Conclusion

In conclusion, artificial intelligence (AI) is a potential tool for increasing sustainability and cost-effectiveness in facility management, but its adoption is dependent on resolving difficulties, user perceptions, and ROI concerns while aligning strategies with larger corporate goals. Furthermore, various obstacles must be overcome in order to completely incorporate AI into facility management, including initial expenses, specific knowledge, and data security issues.

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