

# Chapter 12

## Sustainability and Optimization of Green and Lean Manufacturing Processes Using Machine Learning Techniques

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### ABSTRACT

*The chapter introduces the concepts of sustainability, green manufacturing, and lean manufacturing, emphasizing their importance in the manufacturing industry. It then highlights the relevance of machine learning techniques in supporting sustainable manufacturing practices. It focuses on the application of machine learning in sustainable manufacturing, presenting case studies that illustrate the use of machine learning algorithms in optimizing energy consumption, reducing waste, and improving process efficiency. It also discusses the challenges and limitations of implementing machine learning techniques in sustainable manufacturing, as well as potential future advancements. Machine learning techniques can be used to achieve sustainable and efficient manufacturing operations, providing valuable insights for researchers, practitioners, and policymakers.*

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