

Comparative Analysis of LEED Certification Trends in Western and Eastern Europe: An Overview of Adoption and Growth (2006–2024)

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Abstract

Buildings have a crucial role since they consume around 30% to 40% of the total energy resources. Green building certification is one of the solutions to limit the energy use in buildings. Sustainable certifications such as LEED (Leadership in Energy and Environmental Design) are essential for European carbon neutrality and advance sustainability practices. In addition, LEED is seen to indicate a consideration for sustainability aspects in construction and how healthy, efficient buildings are. the purpose of This research is to investigates the evolution of Leadership in Energy and Environmental Design (LEED) certification in both Western and Eastern Europe between 2006 and 2024. The study seeks to explore and understand the temporal LEED evolution patterns, certification level distributions, and sectoral variations. The Findings from the analysis of 3587 LEED certified project indicate differences between western Europe that leads in certifications with 81.1% of all LEED certifications in the region (2,908 out of 3,587 projects) due to advanced regulations and commitments, while Eastern Europe has only 18.9% (679 projects) but it demonstrated rapid growth, caused by EU policies and economic evolution. The findings offer valuable thoughts using a regional comparability approach focusing in green LEED certified projects disparities and diagnose the problems that Disable the EU for being a sustainable continent.

Keywords: Sustainable certifications; Green buildings; Environmental performance; Sustainable buildings; Green construction