

Industrial Engineering in The Last Decade: A Scientometric Perspective

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Extended Abstract

Industrial engineering has undergone substantial thematic evolution over the past decade, driven by technological innovation, sustainability imperatives, and shifting research priorities.

Based on >900 peer-reviewed documents retrieved from Scopus through an appropriate query, this speech employs a scientometric perspective to characterize this disciplinary shift, identifying temporal patterns in keyword emergence and (possible) decline. The analysis grounds on the authors' keywords, directly extracted from Scopus, and evaluated by frequency (identifying dominant topics by research volume), persistence (measuring the stability and durability of research themes), and temporal emergence (tracking the introduction and adoption trajectories of new research directions). Descriptive statistical analysis and trend visualization characterized disciplinary evolution. The methodology aligns with established scientometric frameworks for assessing research landscape maturity and identifying novel research directions [1], [2], [3].

Analysis reveals a marked transition in the intellectual core of industrial engineering research. Early research activity centered on classical mechanics-oriented topics: simulation, finite element analysis, modal analysis, stress analysis, and mathematical modeling. These foundational topics persist but are complemented—and in some cases superseded—by emergent themes reflecting disciplinary diversification. Industrial engineering and manufacturing engineering terminology now dominates the keyword landscape, accompanied by emphasis on machining, precision engineering, reliability, and durability. Concurrently, novel research directions are gaining traction, including artificial intelligence applications, additive manufacturing, virtual and extended reality technologies, and engineering education methodologies. The discipline shows neither dominance of any single intellectual center nor fragmentation, but rather a coherent—and intentional—broadening of scope.

This scientometric perspective offers empirical grounding for understanding the disciplinary trajectory of industrial engineering within broader manufacturing and logistics contexts. The findings illuminate research concentration patterns, identify emerging frontiers, and provide evidence-based direction for strategic investment in research, education, and practice by conference organizers, funding agencies, researchers, and industry practitioners.

References

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