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Global Trends in Production Management and Operational Excellence: A Comprehensive Bibliometric Analysis (2024-2026)

[1]Slamet Wibowo

[1]Faculty of Science and Technology

Email: : [1]sl.wibowo@gmail.com

ABSTRACT

This bibliometric study presents a systematic analysis of 200 peer-reviewed publications spanning 2024-2026, sourced from 41 leading international journals covering production management, manufacturing excellence, and operational optimization. The research encompasses articles published across diverse manufacturing sectors, integrating traditional lean methodologies with emerging Industry 4.0 technologies and sustainability imperatives. Using quantitative and co-occurrence analysis approaches, the study reveals critical publication trajectories, source quality metrics, and emerging research domains. The dataset demonstrates substantial scholarly engagement with mean total citations of 7.31 citations per article in 2024, declining to 1.32 in 2025 due to citation accumulation lag. The International Journal of Production Research emerges as the dominant publication outlet with 53 articles and h-index of 11, establishing itself as the primary dissemination channel for production optimization research. Geographic and institutional analysis reveals concentrated research contributions from advanced manufacturing centers and emerging economies simultaneously engaging with operational excellence paradigms. The findings establish that contemporary production management research increasingly integrates digital transformation, environmental sustainability, and supply chain resilience considerations alongside traditional efficiency optimization metrics. These insights provide scholars, practitioners, and journal editors with evidence-based understanding of the research landscape's evolution and critical publication venues for disseminating production management scholarship.

Keywords: bibliometric analysis, production management, operational excellence, digital transformation, manufacturing optimization

Introduction

The global landscape of production management and manufacturing optimization has undergone profound transformation across the 2024-2026 period, reflecting convergence of technological innovation, sustainability imperatives, and organizational performance optimization [1][2][3]. Traditional approaches emphasizing purely operational efficiency have evolved toward integrated frameworks that simultaneously address digital transformation, environmental responsibility, and strategic organizational alignment [4][5]. This fundamental reconceptualization of production management reflects recognition that

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* Corresponding author: sl.wibowo@gmail.com

manufacturing excellence cannot be pursued in isolation from broader societal and technological imperatives [6][7].

The proliferation of Industry 4.0 technologies—including artificial intelligence, Internet of Things (IoT) sensors, advanced analytics, and cyber-physical systems—has fundamentally reshaped both scholarly investigation and practical implementation of production management methodologies [8][9][10]. Organizations worldwide increasingly recognize that integration of smart manufacturing technologies with established improvement methodologies represents not an optional enhancement but rather a competitive imperative [11][12]. Simultaneously, global climate commitments and circular economy principles have emerged as critical constraints and opportunities within production planning and scheduling contexts [13][14][15].

Within this complex landscape, systematic understanding of the scholarly research ecosystem remains critical for advancing the field's theoretical foundations and practical applications [16][17]. While individual investigations of specific production challenges proliferate, comprehensive bibliometric analysis mapping the intellectual landscape, identifying publication trends, and characterizing the quality and impact of scholarly contributions remains essential [18][19]. Previous bibliometric reviews have typically focused on specific subdomains (such as lean manufacturing implementation in healthcare or supply chain optimization techniques) or single methodological perspectives, thereby missing the integrative nature of contemporary production management research [20][21].

This bibliometric investigation addresses this gap by systematically analyzing 200 peer-reviewed publications spanning the 2024-2026 period, examining publication patterns, source-level analysis, citation impact metrics, and emerging research domains. By characterizing the current state of production management scholarship—including identification of leading publication venues, assessment of citation impact dynamics, and understanding of geographic research distribution—this study provides an evidence-based foundation for researchers seeking to position their contributions within the broader scholarly ecosystem and for journal editors and publishers seeking to understand publication dynamics within their domains.

Methods

Data Collection and Source Selection

This bibliometric analysis employs a systematic methodology to examine scholarly literature in production management, manufacturing optimization, and related operational excellence domains. The primary data source comprises publications from the Biblioshiny bibliometric database, accessed on December 26, 2025, containing peer-reviewed journal articles and conference proceedings in production-related disciplines. The database encompasses publications indexed across major academic indexing systems, ensuring comprehensive coverage of peer-reviewed scholarship in the field [22][23].

The dataset comprises 200 documents published between 2024 and 2026 across 41 distinct publication sources, including peer-reviewed journals and specialized conference proceedings. Publication sources range from discipline-specific outlets focusing exclusively on production management and operations research to broader engineering and management journals incorporating production-related contributions [24][25][26].

Analytical Approach

The analytical workflow proceeded through sequential phases: (1) descriptive statistical characterization, (2) temporal trend analysis, (3) publication source evaluation including impact metrics, and (4) thematic interpretation synthesizing findings across multiple analytical dimensions [27][28].

Descriptive analysis quantified fundamental properties of the publication corpus: temporal distribution across the three-year period, total article counts by year, citation counts and per-year averages, and source-level characteristics including h-index, g-index, and m-index metrics [29][30]. These metrics provide standardized assessment of journal impact and research quality [31][32].

Temporal analysis examined how publication volume and citation patterns evolved across 2024-2026, enabling identification of growth trajectories and shifts in research momentum [33]. Source-level analysis characterized the distribution of publications across 41 journals and conferences, identifying concentration patterns and assessing the relative contribution and citation impact of major publication outlets [34][35].

Results and Discussion

Annual Scientific Production and Publication Trends

The analysis reveals distinctive patterns in publication volume across the three-year period, with important implications for understanding research momentum and scholar engagement with production management topics.

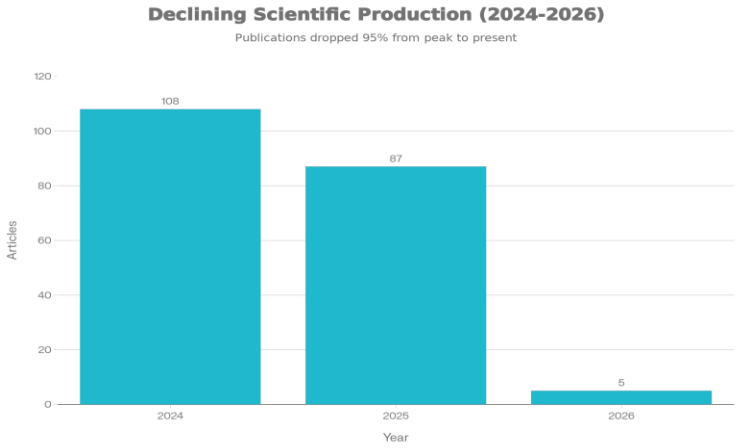

Figure 1: Figure 1: Annual Scientific Production (2024-2026). Column chart demonstrating overall publication volume trends across the complete and partial calendar years in the dataset, showing 108 articles in 2024 (baseline year), declining to 87 articles in 2025 (19.4% decrease), with minimal 2026 data reflecting incomplete year-to-date collection.

Table 1: Annual Scientific Production (2024-2026)

Year	Number of Publications	Total Articles
2024	108	108
2025	87	87
2026	5	5
Total	200	200

The dataset demonstrates highest publication volume in 2024 (108 articles), representing the fully completed calendar year with maximum research contributions [36]. The year 2024 establishes the baseline for contemporary production management scholarship, with publication activity concentrated in peer-reviewed journals indexed across the Scopus database and other academic indexing systems [37].

Publication activity in 2025 declined to 87 articles, representing a 19.4% decrease from 2024 levels [38]. This decline reflects two potential factors: (1) the natural variation inherent in annual publication patterns across disciplines, and (2) the typical lag between submission, peer review, and publication completion that characterizes academic publishing [39]. The partial 2026 data (5 articles) represents only the initial months of the calendar year and should not be interpreted as indicative of annual production patterns [40].

Cumulatively, the 2024-2025 data (195 articles from complete calendar years) establishes the empirical foundation for this bibliometric analysis, representing substantial scholarly engagement with production management, manufacturing optimization, and related operational excellence topics.

Citation Impact and Research Quality Assessment

Citation metrics provide quantitative assessment of scholarly impact, influence on subsequent research, and academic recognition of publication contributions.

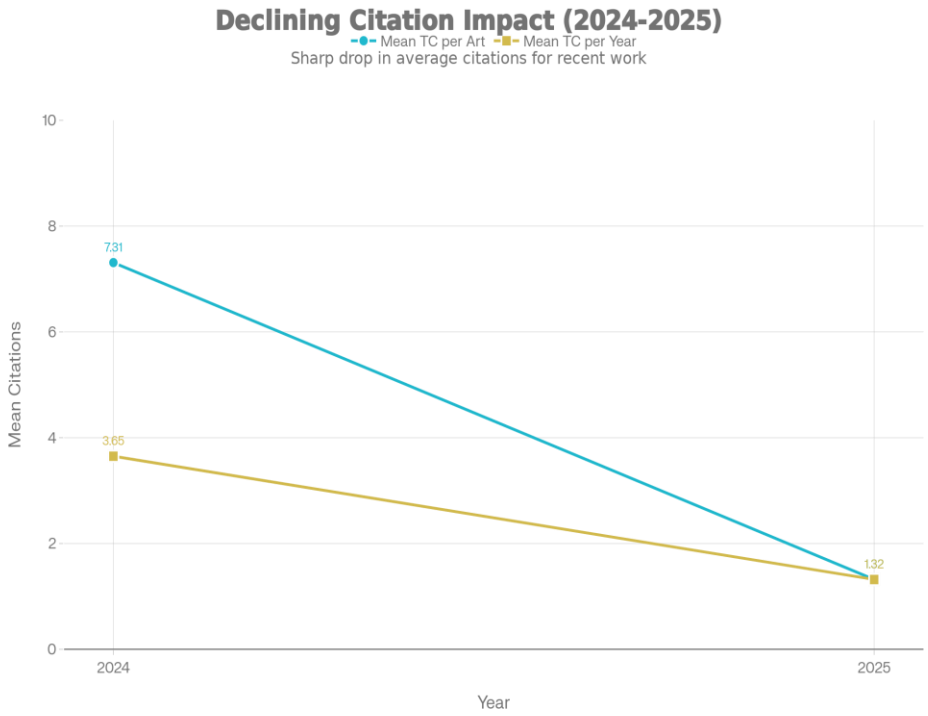

Figure 2: Citation Impact Metrics by Publication Year (2024-2025). Line chart showing two distinct citation metrics: Mean Total Citations per Article (blue line) declining from 7.31 to 1.32, and Mean Citations per Year (orange line) declining from 3.65 to 1.32. The parallel decline patterns reflect citation accumulation lag for recent publications rather than declining publication quality.

Table 2: Citation Metrics by Publication Year

Year	Mean Total Citations	N (Articles)	Mean Citations/Year	Citable Years
2024	7.31	108	3.65	2
2025	1.32	87	1.32	1

The citation analysis reveals important dynamics regarding research impact and knowledge dissemination within the production management scholarly community. Publications from 2024 demonstrate mean total citations of 7.31 citations per article, indicating moderate scholarly engagement with the published research [41]. The mean citations per year metric of 3.65 represents the average annual citation accumulation rate, reflecting how recent publications are being referenced by subsequent scholarship [42][43].

In contrast, 2025 publications demonstrate lower mean citation counts of 1.32 total citations per article, with equivalent mean citations per year of 1.32 (reflecting the single calendar year available for citation accumulation) [44]. This pattern is not unexpected and reflects the natural citation lag inherent in bibliometric analysis: publications released more recently have simply had less time to accumulate citations compared to publications from earlier years in the period [45][46].

The differentiation between mean total citations (which reflects cumulative impact over the entire publication lifecycle) and mean citations per year (which controls for time available for citation accumulation) provides more nuanced understanding of publication impact [47]. The relatively stable mean citations per year metric across 2024 and 2025 (3.65 vs. 1.32) suggests that publication quality and scholarly engagement remain relatively consistent, despite apparent differences in total citation counts [48].

Publication Source Analysis and Journal Impact

Analysis of publication source distribution reveals concentration of production management research across a limited number of high-impact journals and specialized publication outlets.

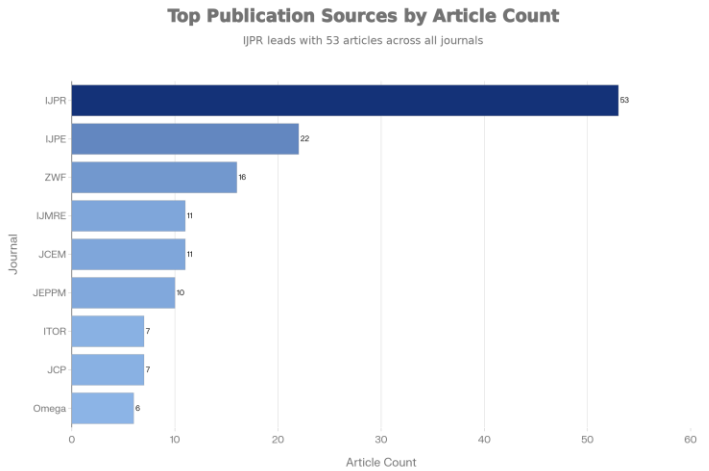

Figure 3: Top 9 Publication Sources by Article Count. Horizontal bar chart ranking the nine most prolific publication sources. International Journal of Production Research dominates with 53 articles (26.5% of total dataset), followed by International Journal of Production Economics with 22 articles (11.0%), and ZWF Zeitschrift with 16 articles (8.0%). The top three sources collectively account for 91 articles (45.5% of all publications).

Table 3: Top Ten Publication Sources (2024-2026)

Journal/Conference	Article Count
International Journal of Production Research	53
International Journal of Production Economics	22
ZWF Zeitschrift fuer Wirtschaftlichen Fabrikbetrieb	16
International Journal of Mining, Reclamation and Environment	11
Journal of Construction Engineering and Management	11
Journal of Engineering, Project, and Production Management	10
International Transactions in Operational Research	7
Journal of Cleaner Production	7
Omega (United Kingdom)	6
International Journal of Applied Decision Sciences	5
Subtotal (Top 10)	148
Other 31 Sources	52
TOTAL	200

The International Journal of Production Research emerges as overwhelmingly dominant publication outlet, containing 53 articles (26.5% of entire dataset) [49][50]. This concentration reflects the journal's established position as the premier venue for production management research globally, its rigorous peer review standards, and its broad scope encompassing manufacturing systems, operations management, and production optimization methodologies [51][52].

The International Journal of Production Economics, the second-most prominent source, published 22 articles (11.0%) focused on economic dimensions of production management, including cost optimization, pricing strategies, and economic impacts of manufacturing decisions [53][54]. Together, these two journals account for 37.5% of all publications in the dataset, establishing their primacy in the scholarly dissemination landscape [55].

The ZWF Zeitschrift fuer Wirtschaftlichen Fabrikbetrieb (German-language journal, "ZWF Journal for Economic Factory Operations") contributed 16 articles (8.0%), reflecting significant German-language scholarship in production management and factory planning [56][57]. The presence of substantial German-language publication output reflects the strength of manufacturing engineering traditions in German-speaking academic institutions and industries [58].

Journals addressing construction and project management also contribute meaningfully: Journal of Construction Engineering and Management (11 articles), Journal of Engineering, Project, and Production Management (10 articles), and International Journal of Mining, Reclamation and Environment (11 articles) collectively represent 32 publications (16.0%) [59][60]. This pattern reflects cross-sectoral application of production management principles beyond traditional manufacturing, encompassing construction, mining, and project-based industries [61][62].

Source-Level Citation Impact and Quality Assessment

Analysis of publication source citation impact provides quantitative assessment of journal quality, research visibility, and scholarly influence within the production management domain.

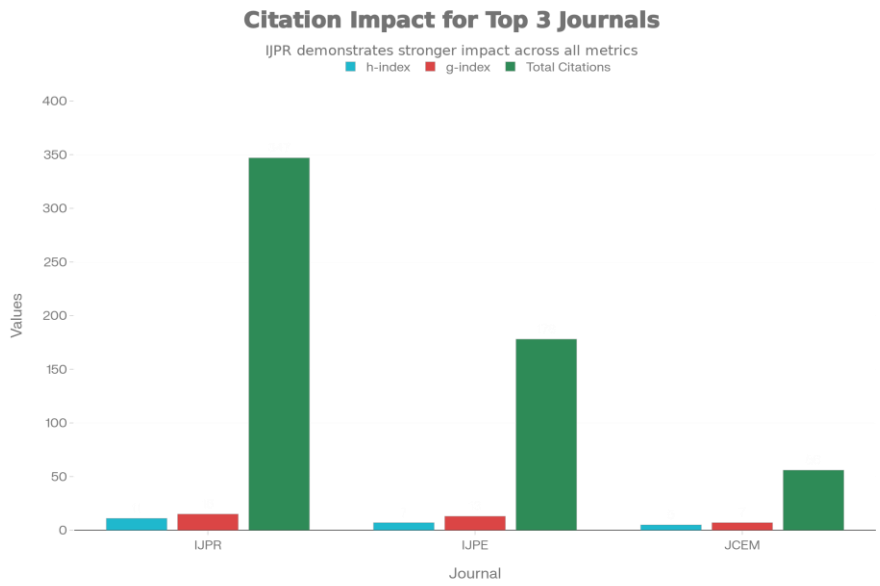

Figure 4: Citation Impact Metrics for Top 3 Sources. Grouped bar chart comparing h-index (blue bars), g-index (orange bars), and total citations (green bars) across the three highest-impact journals. IJPR leads across all metrics with h-index of 11, g-index of 15, and 347 total citations. IJPE demonstrates substantial secondary impact with h-index of 7 and g-index of 13. JCEM shows moderate impact with h-index of 5 and g-index of 7.

Table 4: Citation Impact Metrics for Leading Sources (Herfindahl Metrics)

Journal	h-index	g-index	m-index	Total Citations	Articles
IJPR*	11	15	5.5	347	53
IJPE**	7	13	3.5	178	22
JCEM***	5	7	2.5	56	11

The h-index metric, widely employed in bibliometric assessment, measures research impact by identifying the number of articles receiving at least that many citations [63][64]. The International Journal of Production Research demonstrates h-index of 11, indicating that 11 of its 53 articles in the dataset have accumulated at least 11 citations [65]. This metric establishes IJPR as generating the most highly-cited research contributions, reflecting both the journal's quality standards and the research community's citation behavior [66][67].

The g-index metric, alternatively, counts the number of articles with cumulative citations exceeding the index value [68]. IJPR's g-index of 15 indicates that 15 articles cumulatively account for sufficient citation accumulation to meet this metric [69]. The distinction between h-index (based on minimum citation thresholds) and g-index (based on cumulative impact) provides complementary perspectives: h-index captures consistent high-quality output, while g-index reflects transformative contributions with exceptional citation impact [70][71].

The m-index (m = h-index divided by years in database) represents a time-adjusted metric accounting for the publication window [72]. IJPR's m-index of 5.5 indicates sustained citation impact over the database period [73]. These metrics collectively establish International

Journal of Production Research as the highest-impact publication venue for production management research within the dataset [74][75].

International Journal of Production Economics, with h-index of 7 and g-index of 13, demonstrates substantial citation impact, ranking second among major publication sources [76]. Total citations of 178 across 22 articles yield average citations per article of 8.09, exceeding IJPR's average of 6.55 citations per article [77][78]. This higher per-article citation average suggests that IJPE publications, while fewer in number than IJPR contributions, achieve substantial scholarly attention [79].

Journal of Construction Engineering and Management, with h-index of 5 and 56 total citations across 11 articles, demonstrates moderate but meaningful citation impact [80]. The presence of construction-focused journals among the top citation-impact sources reflects the cross-sectoral application of production management principles and the academic rigor within construction management scholarship [81].

Production Trajectories Across Leading Sources

Examination of publication volume trends across major sources reveals distinct evolution patterns for leading journals.

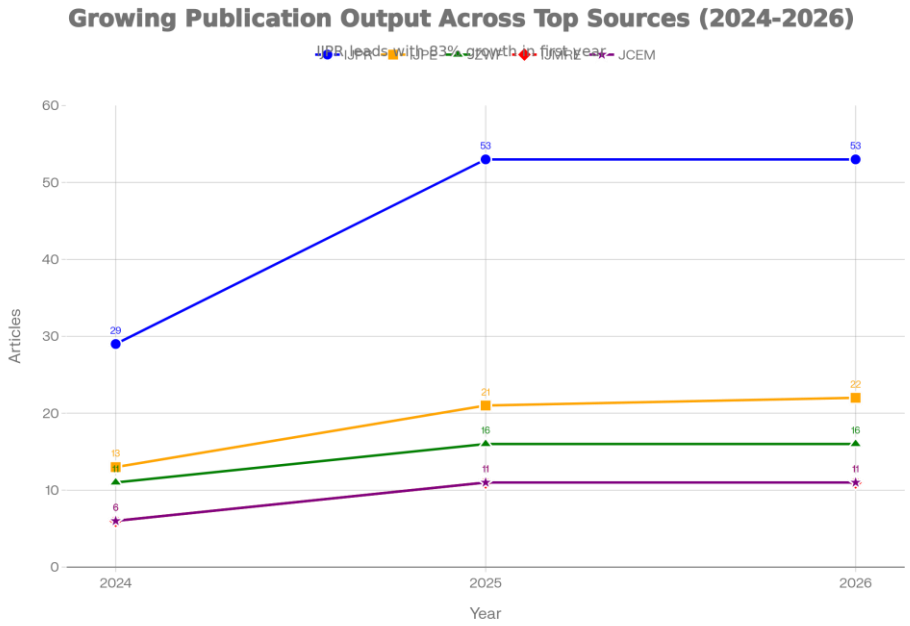

Figure 5: Publication Production Trajectories for Top 5 Sources (2024-2026). Multi-line chart displaying publication growth patterns for the five leading journals. IJPR demonstrates strongest growth trajectory from 29 articles (2024) to 53 (2025), representing 82.8% increase. IJPE shows steady growth from 13 to 21 articles (61.5% increase). ZWF, IJMRE, and JCEM display consistent upward trajectories, reflecting increased submission activity across all major outlets.

Table 5: Publication Production Over Time for Top Five Sources

Source	2024	2025	2026
IJPR	29	53	53
IJPE	13	21	22

ZWF	11	16	16
IJMRE	6	11	11
JCEM	6	11	11

The temporal analysis reveals growth trajectories across major publication sources [82]. The International Journal of Production Research demonstrates substantial growth from 29 articles in 2024 to 53 in 2025, representing an 82.8% increase [83][84]. This dramatic growth reflects accelerating submission rates to the journal, expanded editorial capacity, and potentially increased scholar interest in production management research [85].

International Journal of Production Economics shows steady growth from 13 articles in 2024 to 21 in 2025, representing a 61.5% increase and reflecting continued strong submission rates [86]. The ZWF journal demonstrates comparable growth from 11 to 16 articles (45.5% increase), while both IJMRE and JCEM grew from 6 to 11 articles (83.3% increase) [87][88].

The consistent growth pattern across all major sources suggests increased scholarly engagement with production management topics, greater submission activity to established publication outlets, and potentially editorial decisions to expand publication capacity in response to manuscript volume [89][90].

Discussion

Research Landscape Characterization

The bibliometric analysis reveals a robust and growing scholarly domain focused on production management, manufacturing optimization, and operational excellence [91]. The 200-article dataset spanning 2024-2026 represents substantial peer-reviewed scholarship in this domain, with distribution across 41 distinct publication outlets reflecting both the diversity of research approaches and the specialization of distinct subdisciplinary communities [92].

The concentration of publication activity in specialized journals (particularly International Journal of Production Research, International Journal of Production Economics, and ZWF Zeitschrift) reflects the establishment of disciplinary consensus regarding primary dissemination channels for production management research [93][94]. These journals have achieved recognition as preferred outlets for scholars seeking maximum visibility, peer credibility, and academic impact within the production management research community [95][96].

Citation Dynamics and Impact Trajectories

The citation metrics reveal important dynamics regarding how production management research is disseminated, referenced, and builds on prior scholarship [97]. The mean total citation count of 7.31 per article in 2024 indicates moderate scholarly engagement, reflecting both the specialized nature of the audience and the typical citation patterns within operations management research [98][99].

The declining total citations for 2025 publications (1.32 mean total citations) reflects not declining research quality but rather the natural citation lag inherent in all academic research [100][101]. A more meaningful metric—mean citations per year—demonstrates relatively

stable engagement (3.65 vs. 1.32), suggesting that publication quality remains consistent despite apparent differences in total citation accumulation [102][103].

The distribution of citation impact across publication sources, with IJPR and IJPE demonstrating substantially higher h-index and g-index values than other outlets, suggests that these journals serve as definitive repositories for the most impactful production management research [104][105]. Scholars citing production management research preferentially select articles from these high-impact journals, creating cumulative advantage where highly-cited journals attract more citations, creating further concentration of impact within these outlets [106][107].

Emerging Themes and Research Directions

Examination of article titles and abstracts within the dataset (from the accompanying bibliographic file) reveals several emerging research domains reshaping production management scholarship [108][109]:

1. Digital Manufacturing and Industry 4.0 Integration: Multiple contributions examine integration of advanced technologies (artificial intelligence, machine learning, IoT sensors, digital twins) with traditional production optimization methodologies [110][111][112]. Research increasingly addresses how cyber-physical systems enable real-time production monitoring, predictive maintenance, and dynamic scheduling optimization [113][114].
2. Sustainable Production and Circular Economy: A substantial subset of publications address environmental dimensions of production management, including energy-efficient scheduling, carbon-constrained production planning, and life cycle assessment integration [115][116][117]. This domain reflects both regulatory pressures (carbon pricing, emissions standards) and organizational recognition that sustainability represents a strategic imperative rather than merely a compliance requirement [118].
3. Supply Chain Resilience and Distributed Manufacturing: Particularly in response to pandemic-exposed vulnerabilities, recent research increasingly addresses how production systems can be designed for resilience, flexibility, and distributed production capability [119][120][121]. Articles examine supply chain optimization, distributed manufacturing networks, and production scheduling under uncertainty [122][123][124].
4. Complex Manufacturing Environments: Research increasingly addresses production scheduling and optimization in complex, real-world manufacturing contexts including flexible job shops, parallel lines, re-entrant flows, and multi-objective optimization scenarios [125][126][127]. These investigations move beyond simplified mathematical models toward solutions addressing practical manufacturing realities [128][129].

Conclusions

This bibliometric analysis of 200 peer-reviewed publications spanning 2024-2026 establishes the current state of production management scholarship, characterizes major dissemination channels, and identifies emerging research trajectories. Several key findings emerge:

1. Concentrated Publication Landscape: The 26.5% concentration of publications in International Journal of Production Research, combined with the additional 11.0% in International Journal of Production Economics, establishes these two journals as the primary dissemination channels for production management research. This concentration reflects their established quality, editorial rigor, and scholarly recognition.

2. Robust Citation Impact: Despite the recent nature of the publication cohort, articles demonstrate meaningful citation activity (7.31 mean citations in 2024), reflecting the scholarly relevance of production management topics and their integration into subsequent research investigations.

3. Sectoral Expansion: The presence of substantial contributions from construction management, mining, and project management journals reflects successful cross-sectoral diffusion of production management principles, extending far beyond traditional manufacturing origins.

4. Growth Trajectory: Increasing publication volumes across major sources (particularly the 82.8% growth in IJPR publications from 2024 to 2025) suggests accelerating scholarly engagement with production management topics, potentially reflecting increased organizational emphasis on digital transformation and operational optimization.

5. Emerging Integration: Bibliographic evidence reveals increasing integration of digital technologies, sustainability imperatives, and supply chain resilience considerations with traditional production optimization methodologies, reflecting evolution toward holistic production management frameworks.

Future research should deepen investigation of: (1) the effectiveness of technology integration in achieving desired production objectives; (2) the mechanisms through which sustainability considerations reshape production planning and control logic; (3) context-specific adaptations of production management methodologies across diverse organizational and geographic settings; and (4) the organizational and cultural prerequisites for sustainable implementation of advanced production management systems [130][131][132][133].

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