

Cognitive Extensions in Entrepreneurship: A Systematic Review of Artificial Intelligence as a Support System for Entrepreneurial Thinking[†]

Aristidis Bitzenis , Nikos Koutsoupas  and Marios Nosios 

Department of International and European Studies, School of Social Sciences, Humanities and Arts, University of Macedonia, 54636 Thessaloniki, Greece; bitzenis@uom.edu.gr (A.B.); nk@uom.edu.gr (N.K.)

* Correspondence: mnosios@uom.edu.gr

[†] Presented at the 1st International Online Conference on Administrative Sciences (IOCAS 2026), 4–5 February 2026; Available online: <https://sciforum.net/event/IOCAS2026>.

Abstract

As entrepreneurial environments become increasingly data-intensive, this study examines the literature on artificial intelligence in entrepreneurship through the perspective of cognitive extension. Positioned at the intersection of entrepreneurship and intelligent systems, it investigates the thematic structure and intellectual evolution of this research domain through a systematic bibliometric approach based on Scopus data (1990–2026), incorporating descriptive analysis, keyword co-occurrence mapping, and citation-based techniques. The findings suggest that the literature is organized around artificial intelligence, machine learning, and entrepreneurship, with a pronounced emphasis on decision-making in early-stage venture contexts. Highly cited contributions consistently frame artificial intelligence as a decision-support mechanism that enhances predictive capacity and information processing while remaining contingent upon human judgment. The results further indicate a field characterized by rapid expansion, increasing collaboration, and substantial conceptual diversity. Overall, the study interprets these developments through the cognitive extension perspective, suggesting that the literature increasingly conceptualizes artificial intelligence as a complementary resource that supports, rather than substitutes for, entrepreneurial reasoning.

Keywords: artificial intelligence; entrepreneurship; entrepreneurial cognition; machine learning; decision-making; decision systems; scientometrics

1. Introduction

Artificial intelligence (AI) is becoming increasingly embedded in the ways new ventures search for information, interpret markets, and make early commitments, particularly as entrepreneurial activity grows more data-intensive and time-sensitive [1]. Entrepreneurship research has long held that opportunities are not simply “found” in stable environments; rather, they are identified, evaluated, and pursued under conditions of uncertainty, resource constraints, and incomplete information [2]. In parallel, cognitive approaches to entrepreneurship have examined variation among individuals in their capacity to notice, process, and act upon signals in dynamic contexts [3]. The expansion of digital infrastructures has further intensified these conditions by increasing the volume, variety, and velocity of available information, while simultaneously enabling more fluid boundaries around products, processes, and entrepreneurial agency. Within this evolving environment,



Academic Editor: Matteo Cristofaro

Published: 10 August 2026

Copyright: © 2026 by the authors.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

AI systems are introduced as decision-support mechanisms that extend analytical capacity but also generate new dependencies and coordination challenges in entrepreneurial work [4]. More recently, the emergence of Generative Artificial Intelligence (GenAI) and Large Language Models (LLMs), particularly after the widespread diffusion of ChatGPT, has further transformed the role of AI in entrepreneurship by strengthening opportunity recognition, business model development, market analysis, and strategic decision-making, thereby expanding scholarly attention from AI's computational support functions toward its potential role in entrepreneurial cognition [5–7].

A productive perspective on interpreting these developments is provided by the cognitive extension framework, which posits that cognition may be partially constituted by external resources that are reliably integrated into cognitive processes, rather than being confined to internal mental states [8]. From this standpoint, tools and socio-technical systems can become components of a cognitive system when they are functionally embedded in tasks such as memory, inference, and problem representation [9]. This position aligns with broader accounts of distributed cognition, in which cognitive processes are understood to span individuals, artifacts, and environments [10]. Applied to AI, this perspective suggests that computational systems may serve as external cognitive supports for attention, search, representation, and evaluation, provided that their integration is stable, interpretable, and aligned with task requirements [11]. Conceptualizing AI in this manner shifts analytical attention away from adoption as a binary condition and toward the quality and structure of interaction between human reasoning and computational support.

Research connecting AI to entrepreneurial cognition can be organized into three interrelated strands. First, studies of opportunity recognition conceptualize entrepreneurial activity as a process of pattern detection and recombination across technological, market, and institutional domains [12]. Within this strand, AI and data-driven tools are associated with expanded search capabilities and enhanced pattern identification, while also raising questions concerning how structured algorithms engage with novelty and uncertainty [13]. Second, work on problem-solving and analytical reasoning has examined the role of generative systems, including large language models, in supporting ideation, explanation-building, and the development of entrepreneurial narratives. Early findings indicate that both input structure and domain expertise significantly shape the resulting outputs [14]. Third, research on decision support explores how AI can structure evaluation processes under uncertainty, including evidence that contemporary models can generate and assess strategic alternatives in constrained decision-making contexts, at times approaching human-level performance on specific tasks [15,16]. Taken together, these strands indicate that the literature increasingly examines AI in relation to multiple dimensions of entrepreneurial cognition, including opportunity recognition, analytical reasoning, and decision-making under conditions of uncertainty.

Recent bibliometric studies have helped map the expanding body of research at the intersection of artificial intelligence and entrepreneurship by examining publication trends, intellectual structures, and thematic developments across the field [17]. These studies consistently highlight the growing importance of AI-driven innovation, digital entrepreneurship, entrepreneurial ecosystems, and emerging technologies such as machine learning and generative AI. While these contributions provide valuable insights into the evolution of the broader research landscape, they primarily emphasize technological developments and research performance indicators. Comparatively limited attention has been devoted to examining the literature from the perspective of entrepreneurial cognition or the concept of cognitive extension, particularly regarding how AI supports opportunity recognition, analytical reasoning, and decision-making under conditions of uncertainty. This gap provides the principal motivation for the present study, which extends the existing

bibliometric literature by employing the cognitive extension perspective as an interpretive framework to examine the thematic evolution, intellectual structure, and conceptual organization of research on AI-supported entrepreneurial thinking. In doing so, it offers a cognition-oriented interpretation of a field that has previously been examined primarily from technological and bibliometric perspectives.

Despite these developments, the literature remains fragmented across conceptual domains, levels of analysis, and methodological approaches [18]. The three strands outlined above often rest on differing assumptions regarding the nature of cognitive support and the relationship between human judgment and computational inference [19]. Consequently, a coherent framework that systematically conceptualizes AI as a form of cognitive extension in entrepreneurship remains underdeveloped. Methodological inconsistencies further complicate comparison and synthesis, particularly regarding model transparency and interpretability, which vary substantially across contexts and applications [20]. In addition, limited attention has been devoted to aligning specific entrepreneurial tasks with the affordances of AI systems, despite longstanding discussions of task–technology fit [21]. The dynamics of human–AI reasoning, specifically how entrepreneurs calibrate trust, interpret outputs, and integrate machine-generated insights into decision processes, also remain insufficiently specified and empirically examined [22]. These limitations underscore the need for integrative approaches that combine conceptual precision with methodological rigor.

This study addresses these limitations by conducting a systematic bibliometric review of research at the intersection of artificial intelligence, entrepreneurship, and entrepreneurial cognition. Its primary objective is to consolidate and organize the existing body of knowledge by examining how the literature conceptualizes the relationship between AI and core dimensions of entrepreneurial cognition, including opportunity recognition, analytical reasoning, and decision-making under conditions of uncertainty. Through the combined application of systematic screening of the literature and bibliometric techniques, the study delineates the intellectual structure, thematic evolution, thematic configurations, and conceptual interrelationships that define this emerging domain. On this basis, the study develops an integrative conceptual framework for interpreting how the literature positions AI in relation to entrepreneurial cognition.

Building on this framework, the study offers a cognitive extension perspective for interpreting the evolution of AI research within entrepreneurship. Rather than positioning AI solely as an exogenous computational tool, this study interprets the emerging literature through the perspective of cognitive extension, which conceptualizes AI as a potential cognitive scaffold operating alongside entrepreneurial processes. From this perspective, the literature increasingly examines AI not only as a means of enhancing information processing but also as supporting entrepreneurial activities such as opportunity recognition, evaluation, and decision-making under conditions of uncertainty. Accordingly, this perspective redirects analytical attention from the adoption of AI technologies toward how the literature conceptualizes their role in supporting entrepreneurial cognition. In doing so, the study contributes by interpreting the evolution of the literature through the cognitive extension perspective, thereby complementing previous bibliometric reviews with a cognition-oriented interpretation of the field, and by highlighting future research opportunities concerning methodological consistency, task–technology alignment, and human–AI reasoning dynamics.

2. Methodology

This study employs a systematic bibliometric analysis design to investigate the role of AI as a cognitive extension in entrepreneurship. Its primary objective is to identify the structural patterns, thematic configurations, and intellectual organization of a research field

located at the intersection of technological systems and entrepreneurial cognition. In light of the conceptual dispersion and inherently interdisciplinary nature of this domain, bibliometric techniques are employed to trace the evolution of scholarly production, delineate dominant research streams, and identify emerging trajectories in AI-supported opportunity recognition, problem-solving, and decision-making.

The selection of Scopus is further justified by its comprehensive coverage of the disciplines relevant to the present study, particularly business, management, computer science, economics, and the social sciences, as well as its standardized bibliographic metadata and indexing structure, which are well suited to systematic bibliometric analyses [23]. Furthermore, the use of a single bibliographic database ensures methodological consistency by avoiding potential discrepancies arising from differences in indexing practices, metadata structures, and source coverage across multiple databases. The search was conducted across titles, abstracts, and author keywords using a structured query that integrates three principal conceptual domains: artificial intelligence (including machine learning, generative models, and related computational approaches), entrepreneurship (encompassing startups, venture creation, and entrepreneurial cognition), and decision-making or cognitive processes. To ensure both conceptual precision and sufficient sensitivity to terminological variation, the query incorporated relevant lexical variants and closely associated terms. The dataset was further restricted to publications within the subject areas of Business, Management and Accounting, Computer Science, Economics, and the Social Sciences, and limited to English-language documents classified as journal articles, conference papers, or book chapters. The inclusion of these document types was intended to capture both established scholarly contributions and emerging research disseminated through conference proceedings and book chapters, which constitute important publication outlets in the rapidly evolving field of AI. The full Scopus query used to curate the dataset is the following:

TITLE-ABS-KEY (("artificial intelligence" OR "AI" OR "machine learning" OR "ML" OR "deep learning" OR "generative ai" OR "large language model*" OR "neural network*" OR "predictive model*" OR "algorithmic decision*") AND (entrepreneur* OR "new venture*" OR startup* OR "venture creation") AND (cognition OR "entrepreneurial cognition" OR "opportunity recognition" OR "opportunity identification" OR "decision making" OR "judgment" OR "problem solving" OR reasoning OR "cognitive process*" OR "cognitive bias*" OR "decision support")) AND (LIMIT-TO (SUBJAREA,"COMP") OR LIMIT-TO (SUBJAREA,"BUSI") OR LIMIT-TO (SUBJAREA,"ECON") OR LIMIT-TO (SUBJAREA,"DECI")) AND (LIMIT-TO (LANGUAGE,"English")) AND (LIMIT-TO (DOCTYPE,"ch") OR LIMIT-TO (DOCTYPE,"cp") OR LIMIT-TO (DOCTYPE,"ar")).

Eligibility criteria required that all included publications explicitly address the intersection of AI and entrepreneurship, with particular emphasis on cognitive, analytical, or decision-support functions. Records not aligned with the defined thematic scope, as well as those failing to meet subject area, language, or document type requirements, were excluded. Following data retrieval, duplicate records that were identified were removed to ensure the integrity of the dataset. The remaining publications were subsequently screened at the title level to exclude records that were clearly unrelated to the study's objectives. A second-stage assessment was then conducted through abstract screening to evaluate each publication against the predefined eligibility criteria, with particular emphasis on its substantive focus on the intersection of artificial intelligence and entrepreneurship and its relevance to cognitive, analytical, or decision-support processes. Publications that did not satisfy these criteria were excluded from further consideration, and only those meeting all eligibility requirements were retained for the final bibliometric analysis. The screening and selection process adhered to a structured protocol aligned with PRISMA guidelines,

encompassing the sequential stages of identification, screening, eligibility assessment, and final inclusion [24], thereby ensuring high transparency and methodological reproducibility (see Figure 1).

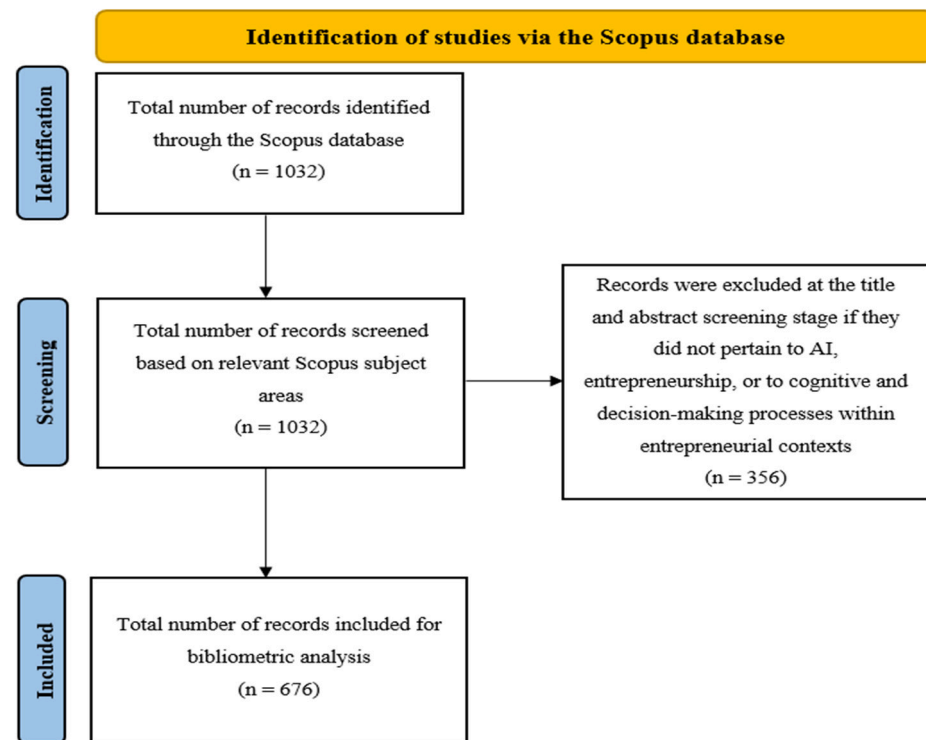


Figure 1. PRISMA 2020 flow diagram of the selection process.

The bibliometric analysis was conducted using the R statistical environment (version 4.5.2; R Foundation for Statistical Computing, Vienna, Austria) and the Bibliometrix package (version 5.2.1) [25]. The analytical framework integrates both descriptive and relational techniques. Descriptive indicators were employed to assess publication output, citation dynamics, and authorship patterns, thereby providing a comprehensive overview of the field's development. In parallel, relational analyses focused on keyword co-occurrence networks and thematic evolution analysis to identify dominant thematic clusters and examine their temporal development, while citation-based analysis was used to identify the most influential publications that shaped the field's intellectual development. Network construction and visualization followed established bibliometric procedures as implemented within the Bibliometrix environment [26]. Collectively, this methodological approach enables a systematic, transparent, and replicable mapping of the literature, thereby informing the interpretation of its intellectual structure and thematic development.

3. Results

3.1. Dataset Overview

The descriptive statistics in Table 1 provide a comprehensive overview of both the dataset's structural characteristics and its temporal evolution. Covering the period from 1990 to 2026, the analysis encompasses 676 documents drawn from 452 distinct sources, thereby indicating a broad and heterogeneous publication base. The annual growth rate of 12.61 percent reflects the steadily expanding body of literature, while the relatively low average document age of 2.92 years points to a pronounced concentration of recent scholarly contributions. This temporal dynamic is further corroborated by an average of 7.27 citations per document, suggesting a moderate yet progressively consolidating level of academic

impact. In aggregate, the corpus comprises 62,684 references, underscoring the cumulative, iterative, and integrative nature of knowledge production in this research domain.

Table 1. Bibliometric summary of the dataset.

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	1990:2026
Sources (Journals, Books, etc.)	452
Documents	676
Annual Growth Rate %	12.61
Document Average Age	2.92
Average citations per doc	7.266
References	62,684
DOCUMENT CONTENTS	
Keywords Plus (ID)	3350
Author's Keywords (DE)	2066
AUTHORS	
Authors	1963
Authors of single-authored docs	108
AUTHOR COLLABORATION	
Single-authored docs	111
Co-Authors per Doc	3.23
International co-authorships %	27.22
DOCUMENT TYPES	
Article	313
Book chapter	121
Conference paper	242

With respect to content descriptors, the dataset comprises 3350 Keywords Plus entries and 2066 author-provided keywords, indicating substantial thematic diversity and a certain degree of terminological dispersion. The authorship structure includes 1963 distinct contributors, of whom only 111 are associated with single-authored documents, while 108 authors publish independently. This configuration reflects a predominantly collaborative research environment, a pattern further substantiated by an average of 3.23 co-authors per document and an international co-authorship rate of 27.22 percent. Taken together, these indicators point to a mode of knowledge production that is both distributed and internationally interconnected, characterized by sustained cross-border scholarly interaction.

In terms of document typology, the dataset comprises 313 journal articles, 242 conference papers, and 121 book chapters, thereby revealing a relatively balanced distribution between established archival outputs and more emergent forms of scholarly dissemination. The significant proportion of conference proceedings is particularly indicative of the field's dynamic, rapidly evolving nature, especially in domains related to AI and computational methodologies, where accelerated knowledge exchange is both necessary and expected. Overall, the descriptive findings portray a research landscape that is expanding, collaborative, and inherently interdisciplinary, with a marked emphasis on recent developments

and a diversification of publication channels, an interpretation aligned with established conventions of academic synthesis and reporting.

3.2. Author Keyword Analysis

The most relevant author keywords in Figure 2 provide a concise yet analytically nuanced indication of the thematic structure underpinning the dataset. The terms artificial intelligence ($n = 204$), entrepreneurship ($n = 93$), and machine learning ($n = 85$) clearly constitute the dominant conceptual anchors, thereby empirically substantiating the literature's positioning at the intersection of computational technologies and entrepreneurial processes. The markedly higher frequency of artificial intelligence, more than twice that of entrepreneurship, is particularly noteworthy, as it underscores the extent to which the technological dimension has come to frame and, to some degree, drive scholarly inquiry in this domain. Collectively, these frequencies reflect a sustained and intensifying focus on integrating algorithmic capabilities into entrepreneurial contexts, particularly in information processing, pattern recognition, and opportunity evaluation.

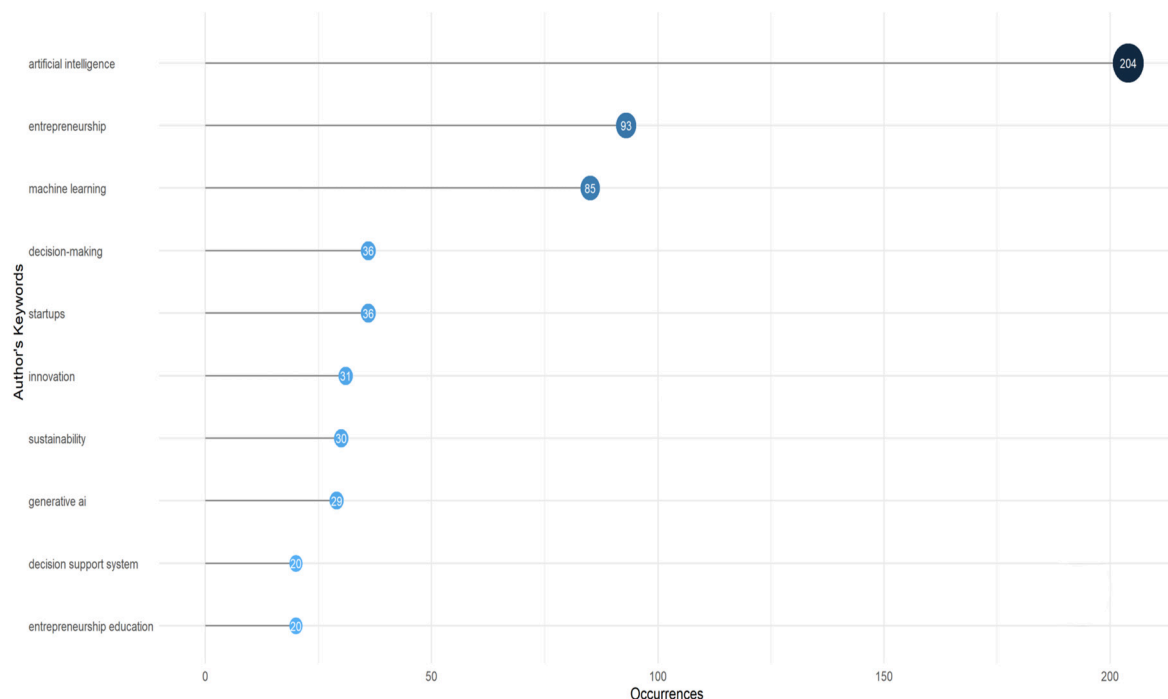


Figure 2. Most relevant author keywords in the dataset.

Beyond these core constructs, the recurrence of decision-making and startups ($n = 36$ each) suggests that a substantial segment of the literature is situated in early-stage venture environments, where uncertainty is both pervasive and constitutive of entrepreneurial action. While these terms occur less frequently than the primary anchors, their comparable prevalence indicates a stable secondary focus on the micro-level processes through which entrepreneurial judgments are formed and enacted. The emergence of generative AI ($n = 29$) is particularly indicative of a recent thematic shift, as its relatively high frequency, despite its conceptual novelty, signals rapid uptake of advanced language-based systems within scholarly discourse. This development points to an expanding research frontier focused on tools that support ideation, content generation, and complex reasoning tasks. In parallel, the presence of a decision support system ($n = 20$), though comparatively infrequent, reinforces the interpretation of artificial intelligence as an enabling infrastructure for structured analytical processes rather than a substitute for entrepreneurial cognition.

Additional terms, such as innovation ($n = 31$) and sustainability ($n = 30$), further broaden the analytical scope, indicating that AI-driven entrepreneurship is increasingly embedded within broader strategic and societal considerations. Their near-equal frequency suggests a balanced and converging interest in both value creation and responsible development trajectories. The occurrence of entrepreneurship education ($n = 20$), while less prominent, nevertheless signals an emergent and growing line of inquiry concerned with the pedagogical integration of AI technologies. This strand of research appears to address questions about the transformation of entrepreneurial skill formation, learning processes, and cognitive adaptability in technology-mediated environments.

Ultimately, the distribution and relative weighting of keywords delineate a research landscape organized around the convergence of AI, entrepreneurial activity, and decision-support mechanisms, while the observed variation in terminology, particularly across AI-related constructs, reveals a degree of conceptual fragmentation that reflects both the field's interdisciplinary character and its ongoing evolution. Such a configuration reflects a field that is concurrently consolidating its theoretical foundations and expanding into new technology- and application-oriented directions, with increasing scholarly attention to cognitively intensive stages of entrepreneurship, particularly opportunity evaluation and decision-making under conditions of uncertainty.

3.3. Thematic Map Comparison

Figures 3 and 4 illustrate the thematic evolution of research on artificial intelligence in entrepreneurship by comparing the conceptual structure of the literature before and after 2020. The year 2020 was selected as the temporal dividing point as it marks the beginning of a period of accelerated scholarly interest in AI within entrepreneurship, accompanied by the emergence of new research themes related to generative AI and digitally enabled entrepreneurial activity. The two thematic maps reveal a pronounced chronological reconfiguration of the field's intellectual landscape, capturing both the consolidation of established lines of inquiry and the emergence of novel application-oriented domains.

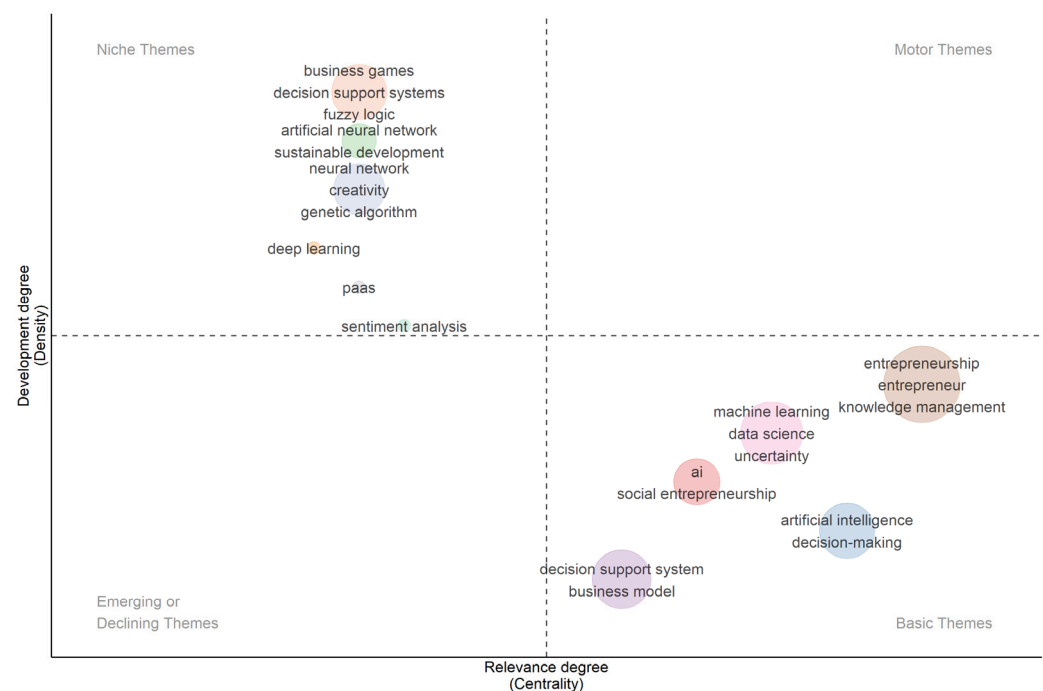


Figure 3. Thematic Map of AI and Entrepreneurship Research (1990–2019).

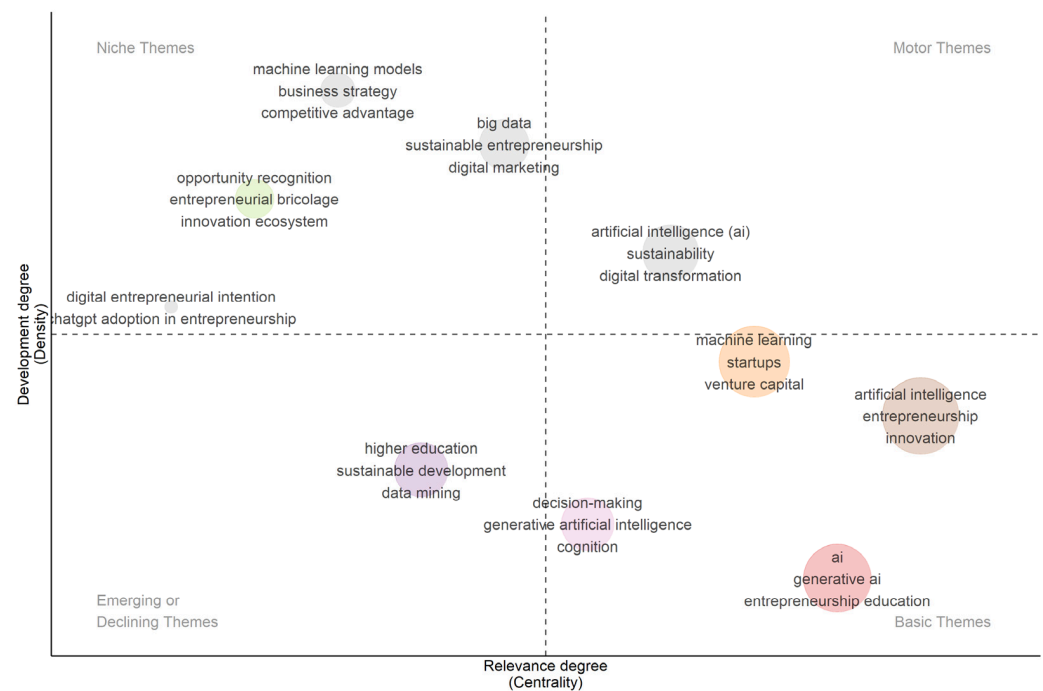


Figure 4. Thematic Map of AI and Entrepreneurship Research (2020–2026).

Based on the thematic configurations, six overarching thematic clusters can be distinguished (Table 2): Algorithmic AI and Decision Support, Computational Intelligence and Machine Learning, AI for Entrepreneurial Decision-Making, AI for Venture Development and Innovation, Generative AI and Entrepreneurial Cognition, and AI for Digital Transformation and Entrepreneurial Ecosystems. These cluster labels were developed by synthesizing the themes identified through the thematic evolution analysis to facilitate interpretation of the conceptual structure of the literature. Collectively, these clusters provide a framework for interpreting the conceptual evolution observed across the two periods. Overall, the comparison indicates a shift in the thematic orientation of the literature, from an emphasis on AI as a computational technology toward increasing scholarly attention to its relationship with entrepreneurial cognition, strategic judgment, and organizational adaptation.

Table 2. Thematic clusters identified from the thematic evolution analysis.

Cluster Label	Themes from the Analysis	Emergence Period
Algorithmic AI and Decision Support	decision support systems, fuzzy logic, artificial neural networks, business games	Pre-2020
Computational Intelligence and Machine Learning	deep learning, genetic algorithms, neural networks, machine learning	Pre-2020 and continues post-2020
AI for Entrepreneurial Decision-Making	entrepreneurship, decision-making, uncertainty, business models, AI	Both pre- and post-2020 periods
AI for Venture Development and Innovation	startups, venture capital, innovation, machine learning	Post-2020
Generative AI and Entrepreneurial Cognition	generative AI, cognition, entrepreneurship education, ChatGPT adoption	Post-2020
AI for Digital Transformation and Entrepreneurial Ecosystems	sustainability, digital transformation, innovation ecosystems, competitive advantage	Post-2020

Before 2020, the field's intellectual structure was characterized primarily by two highly developed niche themes. The first, Algorithmic AI and Decision Support, encompassed decision support systems, fuzzy logic, business games, and artificial neural networks, highlighting the application of computational approaches to structured managerial decision processes. The second, Computational Intelligence and Machine Learning, brought together neural networks, genetic algorithms, and deep learning, emphasizing methodological advances in intelligent computational techniques relevant to entrepreneurial and managerial contexts. By contrast, entrepreneurship was a central theme, closely connected to knowledge management, machine learning, uncertainty, artificial intelligence, and decision-making. This configuration suggests that early scholarship focused predominantly on leveraging established AI techniques to strengthen analytical capabilities, optimize business processes, and improve decisions under conditions of entrepreneurial uncertainty. Likewise, the prominence of decision support systems and business models within the basic themes quadrant indicates that the literature primarily conceptualized AI as an analytical and predictive instrument rather than as a broader cognitive capability supporting entrepreneurial activity.

Following 2020, the conceptual landscape underwent substantial diversification, reflecting the accelerating diffusion of AI technologies and the rapid emergence of generative AI. Entrepreneurship, artificial intelligence, innovation, machine learning, startups, and venture capital became the principal basic themes, underscoring their pivotal role within the contemporary knowledge structure. Simultaneously, several new thematic domains gained prominence. Generative AI and Entrepreneurial Cognition developed around the interconnections among generative artificial intelligence, cognition, decision-making, and entrepreneurship education, signaling growing scholarly interest in AI-assisted reasoning, entrepreneurial learning, and cognitive augmentation. A second cluster, AI for Digital Transformation and Entrepreneurial Ecosystems, integrated artificial intelligence, sustainability, and digital transformation, illustrating the growing importance of AI in organizational renewal, strategic adaptation, and ecosystem development. Within the niche themes quadrant, opportunity recognition, entrepreneurial bricolage, innovation ecosystems, machine learning models, business strategy, and competitive advantage formed specialized yet mature streams of inquiry, demonstrating increasing conceptual sophistication. In contrast, the emergence of ChatGPT adoption in entrepreneurship within the emerging themes quadrant highlights the recent incorporation of large language models into entrepreneurship scholarship, while also indicating that this area remains at an early stage of theoretical and empirical development.

Collectively, the comparison between the two periods reveals a marked transformation in the literature's thematic orientation. Earlier investigations concentrated primarily on algorithmic techniques and decision-support technologies, whereas more recent contributions increasingly examine the interaction between AI and entrepreneurial cognition, opportunity identification, digital transformation, and generative AI-enabled practices. Rather than displacing earlier lines of inquiry, these newly established themes broaden the intellectual boundaries of the field by integrating technological innovation with entrepreneurial behavior and organizational processes. This progression is consistent with an emerging interpretation in the literature of AI not only as a computational mechanism for prediction and analysis, but also as a complementary resource associated with entrepreneurial reasoning, learning, and decision-making.

3.4. Analysis of the Top Ten Most Cited Documents in the Dataset

Table 3 presents the ten most highly cited publications within the dataset, thereby offering a structured overview of the intellectual foundations underpinning research at the

intersection of AI and entrepreneurship. The most highly cited study, Popkova et al. [27], examines the relationship between human capital and AI within the context of social entrepreneurship in Industry 4.0. The findings demonstrate that full automation is neither feasible nor desirable; rather, optimal outcomes emerge from hybrid configurations in which AI supports human decision-making processes. In this regard, AI is positioned primarily as a complementary resource that enhances, rather than substitutes for, human intellectual capital in entrepreneurial activity.

Table 3. Top ten most cited documents in the dataset.

Document	Total Citations
POPKOVA EG, [27], J INTELLECT CAP	324
SHEPHERD DA, [28], J BUS VENTURING	177
TOWNSEND DM, [29], J BUS VENTUR INSIGHTS	141
BOKHARI SAA, [30], SUSTAINABILITY	125
RAJAGOPAL NK, [31], COMPLEXITY	113
BOGACHOV S, [32], ENTREP SUSTAIN ISSUES	110
SHULUS AA, [33], LECT NOTES NETWORKS SYST	107
WANG Z, [34], RESOUR POLICY	103
ŻBIKOWSKI K, [35], INF PROCESS MANAGE	99
BATTISTI S, [36], TECHNOL FORECAST SOC CHANGE	98

A closely related line of inquiry is advanced by Shepherd and Majchrzak [28], who conceptualize the integration of AI and entrepreneurship as a highly enabling mechanism for entrepreneurial practice. Their analysis underscores AI's capacity to augment decision-making through data-driven learning and predictive analytics, while emphasizing the need for human oversight to mitigate bias and unintended consequences. In a similar vein, Townsend and Hunt [29] examine entrepreneurial action under conditions of uncertainty, arguing that AI reshapes the very nature of uncertainty by improving predictive capabilities and altering the decision-making environment. This perspective challenges traditional entrepreneurship theory, historically grounded in uncertainty, by suggesting that AI reconfigures opportunity recognition and decision-making processes without obviating the need for human judgment.

Another cluster of highly cited contributions focuses on AI-enabled decision-making and organizational processes. Rajagopal et al. [31] develop a comparative framework contrasting human and AI-based decision systems, demonstrating that AI enhances speed, precision, and scalability, while human cognition remains indispensable for addressing strategic and ethical dimensions. In a related context, Bokhari and Myeong [30] investigate smart decision-making in urban environments, showing that AI improves decision quality through structured data processing; however, its effectiveness is mediated by social innovation and stakeholder engagement. Taken together, these studies underscore the emergence of hybrid decision systems that integrate algorithmic capabilities with human judgment.

A further body of research concentrates on data-driven optimization and predictive modeling in entrepreneurial settings. Wang et al. [34] propose a neural network-based recommendation system for entrepreneurial resource allocation, demonstrating increased accuracy and reduced prediction error in project selection. Similarly, Żbikowski and Antosiuk [35] develop a machine-learning model to predict startup success using large-scale datasets and explicitly address methodological concerns, such as look-ahead bias. More recent scholarship extends this analytical focus to entrepreneurial ecosystems and business

models. Battisti et al. [36] examine AI-driven entrepreneurship within retail ecosystems, highlighting the role of meta-organizations in coordinating stakeholders and enabling data-driven innovation. Their findings suggest that AI-based platforms facilitate novel forms of value creation and contribute to the evolution of digital business models. Collectively, these studies position AI as a decision-support instrument that enhances efficiency and strengthens the reliability of predictive outcomes in entrepreneurial environments.

Overall, the citation profile reveals a multidimensional intellectual structure. One central stream of research conceptualizes AI as an augmentative tool in entrepreneurial decision-making, particularly in enhancing predictive capacity and transforming the management of uncertainty. A second stream investigates hybrid human–AI decision systems, emphasizing the complementarity between algorithmic processing and human judgment. A third perspective addresses data-driven optimization and predictive modeling for entrepreneurial success and resource allocation. Finally, an emerging line of inquiry explores AI-enabled entrepreneurial ecosystems and the development of new business models. These patterns collectively indicate that the influential literature generally frames AI not as a substitute for human agency, but as an enabling technology whose role depends on its integration within broader socio-technical and organizational contexts.

4. Discussion

The findings of this study provide a structured overview of how the literature on AI and entrepreneurship conceptualizes the relationship between artificial intelligence and entrepreneurial cognition. Interpreted through the cognitive extension perspective, the bibliometric patterns suggest an increasing scholarly emphasis on AI as a complementary rather than substitutive resource in entrepreneurial thinking. More specifically, the reviewed literature increasingly examines AI in relation to multiple stages of entrepreneurial activity, particularly opportunity recognition, decision-making, and information processing, reflecting growing scholarly interest in its potential role in supporting entrepreneurial cognition. Overall, the results suggest that this research domain remains both emergent and inherently interdisciplinary, characterized by rapid expansion, collaborative authorship patterns, and a notable degree of conceptual dispersion. The relatively high annual growth rate, combined with the low average age of publications, points to a field evolving in close alignment with recent technological advancements, particularly in machine learning and generative models. At the same time, the diversity of keywords and the coexistence of multiple publication formats underscore the absence of full conceptual consolidation, suggesting that the domain is currently in an active phase of theoretical refinement and methodological diversification.

Building upon the bibliometric findings, Figure 5 presents the conceptual framework proposed in this study. The framework synthesizes the principal themes identified throughout the review and interprets them through the cognitive extension perspective introduced in the conceptual background. From this perspective, the literature increasingly examines AI in relation to cognitive functions such as pattern recognition, information processing, reasoning, and prediction and their potential role in supporting entrepreneurial activities including opportunity recognition, opportunity evaluation, decision-making, and resource allocation. As such, the framework provides an interpretive synthesis of the reviewed literature, illustrating how the cognitive extension perspective can be used to conceptualize the relationship between AI and entrepreneurial cognition while identifying directions for future research.

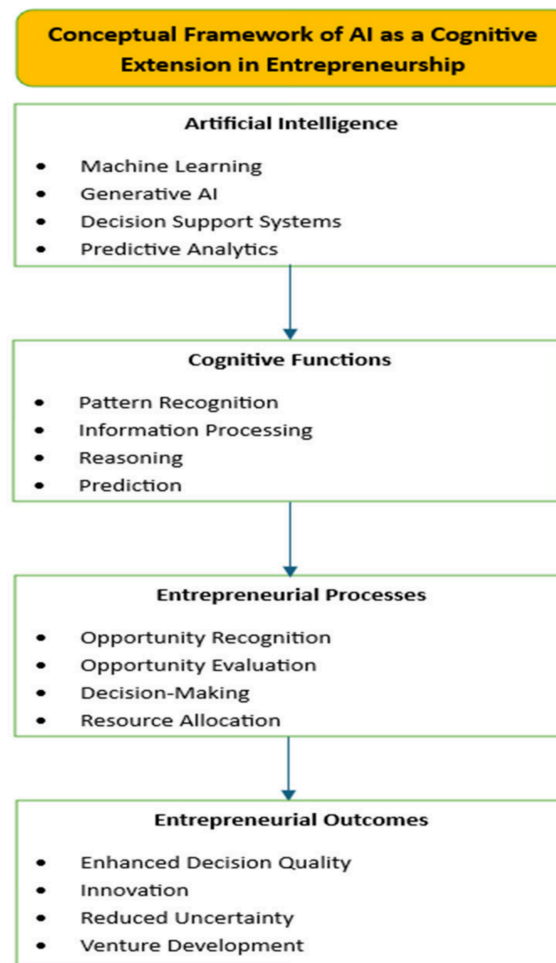


Figure 5. Conceptual framework of AI as a cognitive extension in entrepreneurial thinking.

The convergence of keyword frequencies and citation patterns indicates that AI, entrepreneurship, and machine learning constitute the primary conceptual pillars of the literature. However, the prominence of decision-making, startups, and decision support systems suggests that the empirical and theoretical focus is not evenly distributed across entrepreneurial phenomena, but is instead concentrated on early-stage venture contexts and cognitively intensive processes [1]. This configuration is consistent with prior research that emphasizes opportunity recognition and judgment under conditions of uncertainty as central elements of entrepreneurship [37]. The increasing presence of generative AI further signals a shift toward systems capable of supporting ideation, reasoning, and content generation, thereby extending the scope of AI from purely analytical functions to more deeply cognitively embedded roles [14]. In this respect, the findings suggest that AI is increasingly integrated into the cognitive architecture of entrepreneurial activity, particularly in domains that require pattern detection, scenario evaluation, and structured problem-solving [38].

The analysis of highly cited studies reinforces this interpretation by revealing a multi-dimensional intellectual structure centered on augmentation rather than substitution. A dominant stream of research conceptualizes AI as a decision-support mechanism that enhances predictive accuracy and analytical efficiency, particularly in forecasting and resource allocation tasks [39]. A second stream emphasizes hybrid human–AI systems, highlighting the complementary relationship between algorithmic processing and human judgment, particularly in contexts that involve strategic reasoning and ethical considerations [40]. A third line of inquiry focuses on data-driven optimization and the application of machine learning

in entrepreneurial settings, including predicting startup success and coordinating at the ecosystem level [41]. More recent contributions extend this perspective to platform-based and digitally mediated business models, suggesting that AI not only supports decision-making processes but also reshapes the structural conditions under which entrepreneurial activity occurs [42]. Collectively, these patterns indicate that AI is consistently framed as an enabling technology whose effectiveness is contingent upon its integration within broader socio-technical systems [43].

Building upon the bibliometric findings, the present study makes three principal contributions. First, it interprets the intellectual development of research on artificial intelligence and entrepreneurship through the cognitive extension perspective, highlighting how the literature increasingly positions AI as a complementary resource in relation to entrepreneurial reasoning and judgment. Second, by integrating bibliometric evidence with the cognitive extension perspective, the study provides an interpretive account of the thematic evolution and conceptual organization of scholarship at the intersection of artificial intelligence and entrepreneurship. Third, the conceptual framework presented in Figure 5 synthesizes these insights by illustrating how the reviewed literature relates AI capabilities to entrepreneurial cognition and entrepreneurial processes through the cognitive extension perspective. Collectively, these contributions provide a conceptual basis for future theoretical refinement and empirical investigation.

These findings have several conceptual implications when interpreted through the cognitive extension perspective. The reviewed literature increasingly examines AI as a complementary resource that supports analytical and inferential aspects of entrepreneurial activity, while interpretive and evaluative judgment remains primarily associated with human decision-makers. From this perspective, entrepreneurial cognition can be viewed as increasingly supported by hybrid human–AI decision processes, in which the value of AI lies in the interplay between computational capabilities and human strategic judgment. The cognitive extension perspective provides a useful conceptual lens for interpreting these developments and understanding the evolving relationship between AI and entrepreneurial cognition [11]. Methodologically, the observed heterogeneity in terminology highlights the need for greater standardization in keyword usage and construct definition, particularly in the context of bibliometric and computational analyses [44]. From a practical standpoint, the results indicate that effective entrepreneurial engagement with AI increasingly depends not merely on its utilization but on the capacity to interpret, contextualize, and critically assess AI-generated outputs [45].

Despite these opportunities, the findings also highlight several challenges associated with integrating AI into entrepreneurial decision-making. As AI becomes increasingly embedded in cognitively intensive entrepreneurial tasks, concerns about algorithmic bias and model transparency grow more pronounced, particularly when decision-support systems rely on incomplete, biased, or non-representative data. Moreover, the limited explainability of advanced AI models may reduce entrepreneurs' ability to critically interpret and justify AI-assisted recommendations, thereby influencing human trust–AI collaboration. These challenges are further accentuated by the growing adoption of generative AI and large language models, whose outputs may occasionally contain inaccurate or fabricated information despite their strong generative capabilities. Consequently, overreliance on AI-generated recommendations without appropriate verification may adversely affect entrepreneurial judgment, particularly in contexts characterized by high uncertainty and limited information. These considerations reinforce the importance of maintaining human oversight throughout entrepreneurial decision-making, ensuring that AI serves as a complementary cognitive support system rather than an autonomous substitute for human reasoning and strategic judgment.

Several limitations, however, warrant careful consideration. The reliance on a single bibliographic database (Scopus) may constrain the dataset's breadth by excluding publications indexed in alternative sources, such as Web of Science. While this approach provided methodological consistency and a standardized bibliographic framework, future bibliometric studies could integrate complementary databases to broaden source coverage and further enhance the robustness of cross-database comparisons. Furthermore, bibliometric approaches primarily capture structural relationships within the literature and thus provide limited insight into underlying causal mechanisms or context-specific dynamics. The inclusion of multiple document types may also introduce variability in terms of quality and citation practices. In addition, the literature's reliance on rapidly evolving technological constructs raises the possibility of temporal bias, whereby recent developments, particularly in generative AI, may be overrepresented relative to more established research streams. Future research would therefore benefit from complementing bibliometric analyses with qualitative and mixed-methods approaches that examine the micro-level dynamics of AI-supported entrepreneurial cognition, with particular emphasis on interpretability, trust, and cognitive reliance in human–AI interaction, as well as the evolving role of generative systems in ideation and decision-making processes. Longitudinal and context-sensitive investigations would further enhance understanding of how these dynamics unfold over time and across diverse entrepreneurial environments.

5. Conclusions

This study provides a structured synthesis of research on AI within entrepreneurship, demonstrating that the literature is predominantly centered on its role in supporting decision-making and analytical processes. The findings indicate that AI is most frequently examined in relation to early-stage entrepreneurial activities, particularly for evaluating opportunities and making predictions under conditions of uncertainty. At the same time, the field remains heterogeneous, marked by variation in terminology and a pronounced reliance on recent, collaboratively produced research outputs.

Overall, the findings suggest that the literature increasingly conceptualizes AI as a supportive mechanism that augments, rather than replaces, entrepreneurial cognition. Within the reviewed literature, AI is primarily associated with enhancing information-processing and predictive capacities, while interpretive and strategic functions remain centered on human agency. Interpreted through the cognitive extension perspective, these patterns indicate an evolving research domain that is progressively framing AI as a complementary resource in entrepreneurial cognition while continuing to develop greater conceptual coherence in response to ongoing technological advancements.

Author Contributions: Conceptualization: A.B., N.K. and M.N.; Methodology: A.B., N.K. and M.N.; Software: M.N.; Validation: A.B. and N.K.; Formal Analysis: M.N.; Investigation: A.B., N.K. and M.N.; Resources: A.B., N.K. and M.N.; Data Curation: N.K. and M.N.; Writing—Original Draft Preparation: A.B., N.K. and M.N.; Writing—Review and Editing: A.B. and N.K.; Visualization: M.N.; Supervision: N.K. and A.B.; Project Administration: N.K. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

AI	Artificial Intelligence
LLMs	Large Language Models
ChatGPT	Generative Pre-trained Transformer
GenAI	Generative Artificial Intelligence
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
R	R Statistical Software

References

1. Nambisan, S. Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship. *Entrep. Theory Pract.* **2017**, *41*, 1029–1055. [\[CrossRef\]](#)
2. Shane, S.; Venkataraman, S. The Promise of Entrepreneurship as a Field of Research. *Acad. Manag. Rev.* **2000**, *25*, 217–226. [\[CrossRef\]](#)
3. Baron, R.A. Opportunity Recognition as Pattern Recognition: How Entrepreneurs “Connect the Dots” to Identify New Business Opportunities. *Acad. Manag. Perspect.* **2006**, *20*, 104–119. [\[CrossRef\]](#)
4. Raisch, S.; Krakowski, S. Artificial Intelligence and Management: The Automation–Augmentation Paradox. *Acad. Manag. Rev.* **2021**, *46*, 192–210. [\[CrossRef\]](#)
5. López-Solís, O.; Luzuriaga-Jaramillo, A.; Bedoya-Jara, M.; Naranjo-Santamaría, J.; Bonilla-Jurado, D.; Acosta-Vargas, P. Effect of Generative Artificial Intelligence on Strategic Decision-Making in Entrepreneurial Business Initiatives: A Systematic Literature Review. *Adm. Sci.* **2025**, *15*, 66. [\[CrossRef\]](#)
6. Siddiqui, D.; Mumtaz, U.; Ahmad, N. Artificial Intelligence in Entrepreneurship: A Bibliometric Analysis of the Literature. *J. Glob. Entrep. Res.* **2024**, *14*, 13. [\[CrossRef\]](#)
7. Redondo-Rodríguez, M.D.; Díaz-Garrido, E.; Yábar, D.C.P.-B.; Ramón-Jerónimo, M.Á. Entrepreneurship and Artificial Intelligence: A Bibliometric Analysis. *J. Technol. Transf.* **2024**, *50*, 1840–1872. [\[CrossRef\]](#)
8. Menary, R. Introduction to the Special Issue on 4E Cognition. *Phenomenol. Cogn. Sci.* **2010**, *9*, 459–463. [\[CrossRef\]](#)
9. Smart, P.; Heersmink, R.; Clowes, R.W. The Cognitive Ecology of the Internet. In *Cognition Beyond the Brain: Computation, Interactivity and Human Artifice*; Springer: Berlin/Heidelberg, Germany, 2017; pp. 251–282.
10. Hollan, J.; Hutchins, E.; Kirsh, D. Distributed Cognition. *ACM Trans. Comput.-Hum. Interact.* **2000**, *7*, 174–196. [\[CrossRef\]](#)
11. Jarrahi, M.H. Artificial Intelligence and the Future of Work: Human-AI Symbiosis in Organizational Decision Making. *Bus. Horiz.* **2018**, *61*, 577–586. [\[CrossRef\]](#)
12. Grégoire, D.A.; Barr, P.S.; Shepherd, D.A. Cognitive Processes of Opportunity Recognition: The Role of Structural Alignment. *Organ. Sci.* **2010**, *21*, 413–431. [\[CrossRef\]](#)
13. Von Krogh, G. Artificial Intelligence in Organizations: New Opportunities for Phenomenon-Based Theorizing. *Acad. Manag. Discov.* **2018**, *4*, 404–409. [\[CrossRef\]](#)
14. Dwivedi, Y.K.; Kshetri, N.; Hughes, L.; Slade, E.L.; Jeyaraj, A.; Kar, A.K.; Baabdullah, A.M.; Koohang, A.; Raghavan, V.; Ahuja, M.; et al. Opinion Paper: “So What If ChatGPT Wrote It?” Multidisciplinary Perspectives on Opportunities, Challenges and Implications of Generative Conversational AI for Research, Practice and Policy. *Int. J. Inf. Manag.* **2023**, *71*, 102642. [\[CrossRef\]](#)
15. Bertsimas, D.; Kallus, N. From Predictive to Prescriptive Analytics. *Manag. Sci.* **2019**, *66*, 1025–1044. [\[CrossRef\]](#)
16. Logg, J.M.; Minson, J.A.; Moore, D.A. Algorithm Appreciation: People Prefer Algorithmic to Human Judgment. *Organ. Behav. Hum. Decis. Process.* **2019**, *151*, 90–103. [\[CrossRef\]](#)
17. Boateng, S.L.; Penu, O.K.A.; Budu, J.; Boateng, R.; Marfo, J.S.; Anning-Dorson, T.; Broni, F.E.J. Mapping the Research on Artificial Intelligence and Entrepreneurship. *Int. J. E-Entrep. Innov.* **2024**, *14*, 1–24. [\[CrossRef\]](#)
18. Kellogg, K.C.; Valentine, M.A.; Christin, A. Algorithms at Work: The New Contested Terrain of Control. *Acad. Manag. Ann.* **2019**, *14*, 366–410. [\[CrossRef\]](#)
19. Jarrahi, M.H.; Askay, D.; Eshraghi, A.; Smith, P. Artificial Intelligence and Knowledge Management: A Partnership between Human and AI. *Bus. Horiz.* **2023**, *66*, 87–99. [\[CrossRef\]](#)
20. Arrieta, A.B.; Díaz-Rodríguez, N.; Del Ser, J.; Bannetot, A.; Tabik, S.; Barbado, A.; Garcia, S.; Gil-Lopez, S.; Molina, D.; Benjamins, R.; et al. Explainable Artificial Intelligence (XAI): Concepts, Taxonomies, Opportunities and Challenges toward Responsible AI. *Inf. Fusion* **2020**, *58*, 82–115. [\[CrossRef\]](#)
21. Goodhue, D.L.; Thompson, R.L. Task-Technology Fit and Individual Performance. *MIS Q.* **1995**, *19*, 213–236. [\[CrossRef\]](#) [\[PubMed\]](#)
22. Glikson, E.; Woolley, A.W. Human Trust in Artificial Intelligence: Review of Empirical Research. *Acad. Manag. Ann.* **2020**, *14*, 627–660. [\[CrossRef\]](#)

23. Baas, J.; Schotten, M.; Plume, A.; Côté, G.; Karimi, R. Scopus as a Curated, High-Quality Bibliometric Data Source for Academic Research in Quantitative Science Studies. *Quant. Sci. Stud.* **2020**, *1*, 377–386. [\[CrossRef\]](#)
24. Page, M.J.; McKenzie, J.E.; Bossuyt, P.M.; Boutron, I.; Hoffmann, T.C.; Mulrow, C.D.; Shamseer, L.; Tetzlaff, J.M.; Akl, E.A.; Brennan, S.E.; et al. The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. *BMJ* **2021**, *372*, n71. [\[CrossRef\]](#) [\[PubMed\]](#)
25. Aria, M.; Cuccurullo, C. Bibliometrix: An R-Tool for Comprehensive Science Mapping Analysis. *J. Informetr.* **2017**, *11*, 959–975. [\[CrossRef\]](#)
26. Bitzenis, A.; Koutsoupias, N.; Nosios, M. Artificial Intelligence and Machine Learning in Production Efficiency Enhancement and Sustainable Development: A Comprehensive Bibliometric Review. *Front. Sustain.* **2025**, *5*, 1508647. [\[CrossRef\]](#)
27. Popkova, E.G.; Sergi, B.S. Human Capital and AI in Industry 4.0. Convergence and Divergence in Social Entrepreneurship in Russia. *J. Intellect. Cap.* **2020**, *21*, 565–581. [\[CrossRef\]](#)
28. Shepherd, D.A.; Majchrzak, A. Machines Augmenting Entrepreneurs: Opportunities (and Threats) at the Nexus of Artificial Intelligence and Entrepreneurship. *J. Bus. Ventur.* **2022**, *37*, 106227. [\[CrossRef\]](#)
29. Townsend, D.M.; Hunt, R.A. Entrepreneurial Action, Creativity, & Judgment in the Age of Artificial Intelligence. *J. Bus. Ventur. Insights* **2019**, *11*, e00126. [\[CrossRef\]](#)
30. Bokhari, S.A.A.; Myeong, S. Use of Artificial Intelligence in Smart Cities for Smart Decision-Making: A Social Innovation Perspective. *Sustainability* **2022**, *14*, 620. [\[CrossRef\]](#)
31. Rajagopal, N.K.; Qureshi, N.I.; Durga, S.; Asis, E.H.R.; Soto, R.M.H.; Gupta, S.K.; Deepak, S. Future of Business Culture: An Artificial Intelligence-Driven Digital Framework for Organization Decision-Making Process. *Complexity* **2022**, *2022*, 7796507. [\[CrossRef\]](#)
32. Bogachov, S.; Kwilinski, A.; Miethlich, B.; Bartosova, V.; Gurnak, A. Artificial Intelligence Components and Fuzzy Regulators in Entrepreneurship Development. *Entrep. Sustain. Issues* **2020**, *8*, 487–499. [\[CrossRef\]](#)
33. Shulus, A.A.; Akopova, E.S.; Przhedetskaya, N.V.; Borzenko, K.V. Intellectual Production and Consumption: A New Reality of the 21st Century. In *The 21st Century from the Positions of Modern Science: Intellectual, Digital and Innovative Aspects*; Lecture Notes in Networks and Systems; Springer: Berlin/Heidelberg, Germany, 2020; pp. 353–359.
34. Wang, Z.; Deng, Y.; Zhou, S.; Wu, Z. Achieving Sustainable Development Goal 9: A Study of Enterprise Resource Optimization Based on Artificial Intelligence Algorithms. *Resour. Policy* **2023**, *80*, 103212. [\[CrossRef\]](#)
35. Żbikowski, K.; Antosiuk, P. A Machine Learning, Bias-Free Approach for Predicting Business Success Using Crunchbase Data. *Inf. Process. Manag.* **2021**, *58*, 102555. [\[CrossRef\]](#)
36. Battisti, S.; Agarwal, N.; Brem, A. Creating New Tech Entrepreneurs with Digital Platforms: Meta-Organizations for Shared Value in Data-Driven Retail Ecosystems. *Technol. Forecast. Soc. Change* **2022**, *175*, 121392. [\[CrossRef\]](#)
37. McMullen, J.S.; Shepherd, D.A. Entrepreneurial Action and the Role of Uncertainty in the Theory of the Entrepreneur. *Acad. Manag. Rev.* **2006**, *31*, 132–152. [\[CrossRef\]](#)
38. Huang, M.-H.; Rust, R.T. A Strategic Framework for Artificial Intelligence in Marketing. *J. Acad. Mark. Sci.* **2021**, *49*, 30–50. [\[CrossRef\]](#)
39. Shrestha, Y.R.; Ben-Menahem, S.M.; Von Krogh, G. Organizational Decision-Making Structures in the Age of Artificial Intelligence. *Calif. Manag. Rev.* **2019**, *61*, 66–83. [\[CrossRef\]](#)
40. Dellermann, D.; Ebel, P.; Söllner, M.; Leimeister, J.M. Hybrid Intelligence. *Bus. Inf. Syst. Eng.* **2019**, *61*, 637–643. [\[CrossRef\]](#)
41. Block, J.H.; Fisch, C.O.; Van Praag, M. The Schumpeterian Entrepreneur: A Review of the Empirical Evidence on the Antecedents, Behaviour and Consequences of Innovative Entrepreneurship. *Ind. Innov.* **2016**, *24*, 61–95. [\[CrossRef\]](#)
42. Cennamo, C.; Ozalp, H.; Kretschmer, T. Platform Architecture and Quality Trade-Offs of Multihoming Complements. *Inf. Syst. Res.* **2018**, *29*, 461–478. [\[CrossRef\]](#)
43. Baiyere, A.; Salmela, H.; Tapanainen, T. Digital Transformation and the New Logics of Business Process Management. *Eur. J. Inf. Syst.* **2020**, *29*, 238–259. [\[CrossRef\]](#)
44. Zupic, I.; Čater, T. Bibliometric Methods in Management and Organization. *Organ. Res. Methods* **2015**, *18*, 429–472. [\[CrossRef\]](#)
45. Brynjolfsson, E.; McElheran, K. The Rapid Adoption of Data-Driven Decision-Making. *Am. Econ. Rev.* **2016**, *106*, 133–139. [\[CrossRef\]](#)

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.