

Reimagining entrepreneurship research in the age of artificial intelligence

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Abstract

The integration of artificial intelligence (AI) into entrepreneurial processes necessitates a rethinking of entrepreneurship research. Whilst research widely acknowledges the potential of AI to enhance entrepreneurial processes, the theoretical implications remain fragmented. Emerging scholarly responses to the disruptions posed by AI appear to cluster around three interdependent views: tools-based, philosophical, and practice-based. Whilst each lens offers valuable insights, taken together, these perspectives highlight a set of conceptual challenges (*alignment, ephemerality, constructs limitations, inclusivity, and contextual relevance*) that remain underexplored and underscore the frontier for reimagining entrepreneurship research in the age of intelligent technologies.

Keywords

artificial intelligence, entrepreneurship research, entrepreneurship theory, entrepreneurship research framework, entrepreneurship and AI, entrepreneurship and artificial intelligence

Introduction

Artificial intelligence (AI) is transforming entrepreneurship as a field, shaping how opportunities are identified, how ventures organise, operate, create value and scale. As AI tools from predictive analytics to generative systems reshape entrepreneurial activity, researchers are examining what entrepreneurship means in the age of algorithmic decision making (Chalmers et al., 2021). AI-integration raises challenging questions about the sufficiency of extant theories and constructs given that entrepreneurship research historically emphasises human agency as central to entrepreneurial process such as opportunity recognition, alertness and legitimacy building (Imiren et al., 2024; Sarasvathy, 2001).

Research on the disruptive potential of AI in entrepreneurship remains scant and fragmented with seeming non-extant systematic frameworks even as practice outpaces theorisation. However, researchers who have recognised the transformative potential of AI in entrepreneurship have called for investigating its impact in the field (Chalmers et al., 2021); Kromidha et al., 2022). Emerging responses to these calls seem to cluster around three interdependent perspectives: tools-based, philosophical, or practice-based perspectives which provide a useful lens for understanding how AI in entrepreneurship reshapes entrepreneurship research. However, this study focuses on five conceptual challenges that emerge across these perspectives,

examining how AI reshapes entrepreneurial activities, which in turn, challenges several theoretical frameworks of entrepreneurship research, particularly in relation to human agency.

The tools-based perspective frames AI as a set of functional tools; within this view AI is framed as an external enabler of capabilities for predictive analytics and generative ideation (Kulkov et al., 2023) equipping entrepreneurs for entrepreneurial action, cognition, and strategy. They can also enhance the entrepreneurial process by enabling opportunity recognition, reducing uncertainty, increasing efficiency (Chalmers et al., 2021; Lau et al., 2025). However, focusing on AI solely as a functional neutral tool of efficiency, risks overlooking how AI shapes knowledge, ethics and decisions (Brožek et al., 2024; De Craemer and Narayanan, 2023) which are fundamentally based on human and social interactions; it risks obscuring the theoretical and ethical implications of delegating entrepreneurial decisions to AI.

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Table 1. Field-relevant framework for reimagining entrepreneurship research in the context of AI.

Conceptual areas of challenges in emerging discuss on AI in entrepreneurship	Theoretical insights and practical implications	Contributing studies
Alignment	Understanding the implication of the practical application of AI tools in entrepreneurship, underscoring the impact of AI on research methods.	Chalmers et al. (2021); Baek et al. (2023); Holstein (2018); Fox et al. (2018); Lévesque et al. (2022); Winkler et al. (2023); Graybeal and Ferrier (2023); Reboud and Mazzarol (2023); Chen et al. (2024)
Ephemerality	Exploring the challenge of tool ephemerality, i.e., constant updates and changes versus overarching priorities of perennial research agendas in entrepreneurship field (e.g., entrepreneurial opportunities).	Lévesque et al. (2022); Bertoni et al. (2022); Kraus et al. (2019); Troise et al. (2022); Truong et al. (2023); Kulkov (2023); Kulkov et al. (2023); Fox et al. (2018); Winkler et al. (2023); Lau et al. (2025)
Constructs limitations	Understanding theoretical and conceptual challenges AI brings into entrepreneurship theorisation, challenging core entrepreneurship constructs, underscoring the tension between human centred and AI augmented entrepreneurship.	Lévesque et al. (2022); Blohm et al. (2022); Kraus et al. (2019); Upadhyay et al. (2022); Giuggioli and Pellegrini (2023); Truong et al. (2023); Baek et al. (2023); Fox et al. (2018); Lackéus and Săvetun (2023); Chen et al. (2024); Daglis et al. (2025); Fox (2024); Hammada (2024); Lau et al. (2025)
Inclusivity	Expatriating on philosophical implications of inclusivity agenda shifting from human-centred to AI-collaborative processes.	Chalmers et al. (2021); Lévesque et al. (2022); Blohm et al. (2022); Giuggioli and Pellegrini (2023); Monroe-White and McGee (2024); Lackéus and Săvetun (2023); Sundararajan et al. (2025)
Contextual relevance	Understanding the challenge of maintaining contextual ethos whilst adopting AI, and balancing AI use with human centred knowledge within AI enhanced contexts in changing entrepreneurial research.	Bertoni et al. (2022); Upadhyay et al. (2022); Troise et al. (2022); Kulkov (2023); Kulkov et al. (2023); Truong et al. (2023); Holstein (2018); Graybeal and Ferrier (2023); Monroe-White and McGee (2024); Reboud and Mazzarol (2023); Daglis et al. (2025); Kromidha et al. (2022); Sundararajan et al. (2025)

The philosophical perspective in contrast, examines the epistemological and ontological implications of AI in entrepreneurship. It investigates how AI tools reshape entrepreneurial constructs which historically have been rooted in human cognition – such as opportunity recognition, alertness, legitimacy building (Imiren et al., 2024; Sarasvathy, 2001), and how through human-AI collaboration, distinctions are blurred regarding how decisions are made, and how opportunities emerge (Argenti, 2024). The practice-based perspective grounds these conceptual issues in the lived entrepreneurial contexts, and examines how AI is integrated into routines, how ethical trade-offs are negotiated and how new forms of competence are created. This perspective underscores learning, adaptation and ethical awareness in AI-mediated contexts. Related studies show how entrepreneurs must now cultivate AI literacy, manage technological ephemerality, and address inclusivity concerns (Hammada, 2024; Winkler et al., 2023). Research within this perspective also highlights relevance of sectoral, cultural, and institutional context impacting whether AI-adoption precipitates advantage or exclusion (Kromidha et al., 2022; Kulkov, 2023).

Taken together, these interdependent perspectives underscore technological adoption, conceptual rethinking and practical enactment as inseparable dimensions of the phenomenon of AI in entrepreneurship. We posit that it is problematic to discuss the practical utility of AI without confronting its philosophical implications or to theorise those implications without acknowledging their manifestation in practice. We thus understand these challenges as part of mutually reinforcing dynamics; focusing on the intersection of these three foundational perspectives accentuates theoretical and practice-based tensions.

This research note thus identifies five pertinent challenges – *alignment*, *ephemerality*, *constructs limitations*, *inclusivity*, and *contextual relevance* – arising from the intersection of these perspectives focusing on how AI-integration reshapes entrepreneurial activities, highlighting where entrepreneurship research must adapt to remain conceptually and analytically relevant. We illustrate this through five conceptual challenges drawn from relevant studies outlined in Table 1. In so doing, we advance a nuanced framework for guiding inquiry into AI integration in entrepreneurship. Our analysis is based on review of relevant articles from 2018 to 2024,

covering a range of entrepreneurship journals, selected based on their impact factors and relevance to the field of entrepreneurship (Überbacher, 2014), and our reflections. Additionally, relevant articles published in IJEI were also reviewed. Our analysis is based on the twenty-seven most relevant papers identified.

Conceptual challenges of AI in entrepreneurship research

The need to address alignment. A key conceptual challenge regarding AI in entrepreneurship is alignment. This underscores how AI tools can reinforce or reshape the core outcomes associated with entrepreneurship; extant research highlights how, for example, AI augments the entrepreneurs' cognition and decision making by enabling entrepreneurs to process large volumes of data and explore novel combination of ideas (Giuggioli and Pellegrini, 2023; Truong et al., 2023). Thus, as AI is increasingly involved in entrepreneurial activities such as idea generation, market analysis and strategic decision support, entrepreneurial action may shift from primarily human-driven toward human-AI collaboration. Emerging research subsequently emphasises that AI integration must align with context specific innovation (Graybeal and Ferrier, 2023) and objectives (Reboud and Mazzarol, 2023) although few researchers investigate whether such augmentation remains consistent with foundational entrepreneurial aims and outcomes such as innovation and value creation (Chen et al., 2024; Lévesque et al., 2022; Sarasvathy, 2001) which are fundamentally embedded in human agency. While this augmentation offers advantages such as efficiency, entrepreneurs risk over-reliance on algorithmic reasoning, which could potentially impact creative decision making and experiential learning that characterise entrepreneurial activities (Baek et al., 2023; Chalmers et al., 2021).

Within this emerging discussion, how AI-enabled capabilities (De Craemer and Narayanan, 2023) align with established field-related research agendas and theoretical concerns remain underdeveloped. The conceptual issue for entrepreneurship research, therefore, is not simply whether AI improves decision making (De Craemer and Narayanan, 2023), but whether the emerging configuration of human and algorithmic agency remains aligned with the underlying mechanisms through which entrepreneurship creates innovation and value. Such issues raise two salient points. First, the reliability of AI's heuristic capabilities in identifying meaningful parameter combinations may reshape how opportunities are discovered and evaluated, potentially privileging optimisation and prediction over effectual or exploratory forms of entrepreneurial activities. Second, AI-integration introduces ethical implications surrounding intellectual ownership and the locus of agency of humans, as ideas and insights eventually emerge from

human-AI interaction. Engaging with the alignment challenge underscores the need for entrepreneurship research to examine whether AI-enabled entrepreneurial activities remain consistent with foundational constructs within theoretical domains of the field (Chen et al., 2024; Reboud and Mazzarol, 2023; Winkler et al., 2023).

The need to address ephemerality. A second conceptual challenge identified is the need to address the ephemerality of AI in entrepreneurial activities. Digital ecosystems are characterised by short innovation cycles and transient competitive advantages, suggesting that theories anchored to specific technologies quickly lose explanatory relevance (Bertoni et al., 2022; Kromidha et al., 2022). By the same token AI tools evolve constantly, often becoming obsolete within short timeframes. Extant research highlights how AI reshapes entrepreneurial processes by enabling data-driven decision making and dynamic experimentation (Giuggioli and Pellegrini, 2023; Truong et al., 2023). However, such acceleration also increases temporal instability regarding entrepreneurial action as opportunities, competitive advantages and business models may be built on inherently transient technological infrastructures which challenge the increasing demand for resilience and adaptability over the course of an entrepreneur's lifetime (Bacigalupo et al., 2016).

This volatility raises a fundamental conceptual question for entrepreneurship research: should research at the intersection of AI and entrepreneurship focus on particular tools (e.g., generative AI models) or on enduring capabilities such as AI literacy (Troise et al., 2022)? Extant research suggests that entrepreneurs engaging with emergent technologies must remain responsive to context and evolving conditions instead of fixation on specific tools or platforms (Reboud and Mazzarol, 2023). Ephemerality thus implies continuous learning and reshaping of competencies to negotiate successive waves of AI advancement (Kulkov, 2023). This results in the need for research to account for continuous adaptations to different types of technology and their impact but also bears ethical questions regarding accountability, as past insights can remain difficult to audit and decisions can appear ambiguous (Brožek et al., 2024; De Craemer and Narayanan, 2023). Relevant theoretical framings in entrepreneurship will increasingly necessitate a focus on entrepreneurial resilience, agility and adaptability to address these concerns.

The need to address constructs limitations. Theoretical domains and key constructs in entrepreneurship are being currently challenged as the use of AI in entrepreneurship proliferates; as several aspects of the entrepreneurship process are originally conceptualised and theorised as human-centred, the increasing interplay between AI and human agency merits further understanding. These theoretical domains and concepts in entrepreneurship which have

been highlighted in relevant studies (Carlsson et al., 2013) such as opportunity recognition (Sarasvathy, 2001), entrepreneurial alertness (Tang et al., 2012), decision making (Chalmers et al., 2021), legitimacy building (Imiren et al., 2024) position entrepreneurs as human agents central to acting on opportunities via creativity, intuition, and personal networks - thus emphasising human centric processes as core to entrepreneurial activities (Sarasvathy, 2001). As the integration of AI into human-centric entrepreneurial processes challenges established models, the ability to anticipate and seize opportunities – entrepreneurial alertness – becomes redundant when AI-tools appear better equipped to monitor and predict trends, suggest actions and augment entrepreneurial skills which foster alignment with what De Clercq and Voronov, (2009) notes as culturally recognised markers of credibility and social capital.

Thus, as AI is increasingly integrated in identifying opportunities, forecasting markets, and designing strategies, existing constructs may be challenged to fully capture such emerging entrepreneurial behaviour (Truong et al., 2023; Giuggioli and Pellegrini, 2023). Specifically in the case of decision making in entrepreneurial venture finance, this tension is empirically demonstrated by underscoring how machine-learning models outperform human investors but overlook the capture of relational and mentoring dimensions (Blohm et al., 2022). Additionally, as an example of the need for the identification of new constructs, we note the study of Upadhyay et al. (2022) who advance the new construct of *generativity* to explicate entrepreneurial engagement with AI. Similarly, Fox (2024) introduces the new construct of reportability issues in AI usage in entrepreneurial decision making, comparably underscoring a broader need to identify new constructs.

As the notion of human agency as a central construct in entrepreneurship is challenged, it raises theoretical and ethical questions about (i) whether AI augments these human-centric competences or supplants them, (ii) how human-AI collaboration redefines these constructs and (iii) whether the models or theoretical constructs as they currently exist adequately capture this interplay between human agency and AI. The use of AI in entrepreneurial actions itself uncovers novel forms of knowledge production that must be conceptually aligned with the ontological foundations of entrepreneurship (Lévesque et al., 2022). As AI integration potentially undermines human-centric concepts within theoretical domains of entrepreneurship, the critical disruptions ensuing cannot continue to remain underexplored.

The need to address inclusivity. The diffusion of AI across entrepreneurial processes and ecosystems raises the conceptual challenge of inclusivity, as AI integration may reshape which actors, ideas and opportunities gain visibility and legitimacy. Whilst digital and intelligent technologies have arguably enabled the access and availability of knowledge and markets, they have also been shown to reinforce

inequalities where biased algorithms or resource disparities persist (Lévesque et al., 2022; Monroe-White and McGee, 2024).

The black-box nature of AI decision-making processes (Brožek et al., 2024) furthers the importance of inclusivity, as it can introduce opacity, that is, obscurity or lack of clarity in understanding how AI systems reach decisions or generate outputs (Brožek et al., 2024; Burrell, 2016) into processes such as opportunity identification, evaluation and resource allocation, raising concerns about how bias may be embedded and reproduced within entrepreneurial ecosystems (De Craemer and Narayanan, 2023). Extant studies show that algorithmic decision tools might reproduce past funding biases, such as excluding minority entrepreneurs if training data reflects structural inequalities (Blohm et al., 2022). Similarly, as AI-integration increases, it may privilege certain venture types thus highlighting the need for transparency and accountability and consideration of related ethical challenges. If AI systems influence which opportunities are recognised and which entrepreneurs gain legitimacy, to what extent do existing theoretical frameworks adequately capture these AI-mediated dynamics? If AI systems guide human-centred decision-making, who bears responsibility when outcomes are unfavourable?

Furthermore, whilst Chalmers et al. (2021) caution that traditional firms risk displacement by AI-driven competitors due to the digital divide, Monroe-White and McGee (2024) argue that race-conscious entrepreneurship could empower underrepresented minority entrepreneurs; Lackéus and Sävétun (2023) uncover participation patterns across diverse entrepreneurial communities adopting digital tools and Sundararajan et al. (2025) observe that AI literacy impacts adoption in resource-constrained contexts. Such studies underscore the need for inclusion to be actively designed into the integration of AI. Addressing inclusivity, thus, calls for examining how concepts such as opportunity, legitimacy and access are constructed in AI-enabled contexts to ensure that theoretical frameworks of entrepreneurship accounts for the ways in which algorithmic systems shape participation and value creation; similarly, to integrate critical, socio-historical, and design-based approaches that enhance access to entrepreneurial opportunities.

The need to address contextual relevance. A further conceptual challenge is contextual relevance, as AI reshapes entrepreneurial activity in ways that are unevenly distributed across institutional, geographical and industry contexts. AI-enabled business models are context-dependent; what works in healthcare or finance start-ups may not readily translate to creative industries or emerging markets (Kromidha et al., 2022; Kulkov et al., 2023). As Truong et al. (2023) note, entrepreneurial success varies by field position with core AI start-ups (when AI is the core business) having more legitimacy and funding than peripheral adopters of AI.

Contextual sensitivity matters both empirically and theoretically as generalising from technologically advanced ecosystems risks neglecting diverse global realities (Holstein, 2018; Troise et al., 2022). Whilst extant studies suggest that entrepreneurial behaviour in the digital era is shaped by evolving technological conditions and broader contexts, within which entrepreneurs operate (Troise et al., 2022; Truong et al., 2023) emerging studies on AI integration in entrepreneurship appear to assume universal applicability (Monroe-White and McGee, 2024). Earlier studies about entrepreneurial behaviour in the digital era have underscored AI integration as a concept that does not operate in isolation, but as part of a wider framework of socio-technical systems enabling or constraining entrepreneurial activity (Troise et al., 2022; Truong et al., 2023); this raises a critical theoretical concern regarding to what extent existing theoretical frameworks could be generalised across diverse entrepreneurial contexts, particularly when these theoretical frameworks are derived from technologically advanced ecosystems.

Contextual relevance, thus, surfaces ethical questions about which entrepreneurial realities are being researched and represented and which are being ignored. As Kulkov (2023) and Kromidha et al. (2022) argue, an ethically responsible approach must account for institutional, cultural, and geographical nuances in order to address such concerns. Emerging new theoretical constructs should account for how digital infrastructure and institutions as external enablers shape opportunity, legitimacy and venture creation (Lévesque et al., 2022) and for the wider interplay of AI integration in entrepreneurship. Addressing the challenge of Contextual relevance thus calls for theoretical frameworks that recognises the situated nature of AI enabled entrepreneurship and incorporate comparative, cross-cultural, and multilevel lenses.

Conclusion and looking to the future

AI is not simply augmenting entrepreneurial processes but reshapes the conditions under which entrepreneurship unfolds, thus raising five conceptual challenges – *alignment, ephemerality, constructs limitations, inclusivity, and contextual relevance*. Collectively, these challenges highlight the need to rethink foundational aspects of several theoretical frameworks in entrepreneurship; particularly the need to reconsider how entrepreneurship research conceptualises and examines core constructs as entrepreneurial activities becomes increasingly AI mediated. Such research endeavours can provide a nuanced understanding of the practice, study and theorisation of entrepreneurial phenomena in AI-mediated contexts. This is particularly relevant in areas such as opportunity recognition, entrepreneurial alertness, decision making and legitimacy building, and the ways in which they will be evolving theoretically as entrepreneurship research domains potentially face disruption

due to AI-mediated entrepreneurial activities. Addressing these challenges requires integrating technological capability with theoretical depth and practical awareness, as the future of entrepreneurship hinges on the interplay between technology realities, evolving theoretical frameworks, and the lived experiences of entrepreneurs.

While this study focuses on how AI reshapes entrepreneurial activity and the resulting implications for theoretical frameworks in entrepreneurship, we also acknowledge that AI is also increasingly influencing how entrepreneurship research itself is conducted. The role of AI in shaping entrepreneurship research practices including data generation, analysis and theorisation presents an avenue for future research. This requires conceptual agility, philosophical depth, and sensitivity in order to establish meaningful and well-informed entrepreneurship research inquiry. The tools-based perspective offers a basis for methodological innovation as AI could augment data collection and theorising (Giuggioli and Pellegrini, 2023; Lévesque et al., 2022); however, methodological novelty alone is insufficient without the philosophical perspective which offers a critical examination of agency, ethics and human–AI relations (Brožek et al., 2024; De Craemer and Narayanan, 2023). The practice-perspective underpins both, ensuring theoretical advances remain connected to lived entrepreneurial realities (Daglis et al., 2025; Hammada, 2024; Kromidha et al., 2022). These perspectives are therefore not understood in isolation; they jointly shape an interdependent framing dynamic through which the role of AI in entrepreneurship can be meaningfully understood.

Future research could explore alignment mechanisms that secure human creativity (Chalmers et al., 2021; Fox et al., 2018; Fox, 2024); develop longitudinal designs that capture ephemerality (Kraus et al., 2019); revisit constructs for interpretive rigour and validity (Truong et al., 2023); promote inclusivity (Monroe-White and McGee, 2024); and pursue contextual relevance across global ecosystems (Kulkov et al., 2023; Troise et al., 2022). Essentially, AI in entrepreneurship should not be viewed only as a technological challenge but also as a conceptual challenge for the field; entrepreneurship in the age of AI entails embracing perspectives that acknowledge human and AI collaborations, interdependence with dual and hybrid relations between practice and theory, and advance theoretically coherent research agendas that explain entrepreneurship in the AI age and also help define it.

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