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AI-Driven Ideation: Evaluating the Role of Generative Artificial Intelligence in Enhancing Solo Entrepreneurship

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Abstract

Solo entrepreneurs, who start and run a business without co-founders or employees, face intense resource limitations in generating, screening and developing business ideas. Since 2018, artificial intelligence has advanced rapidly, and large transformer-based generative models (for example GPT-3, Codex and DALL-E) now offer these founders an on-demand "cognitive partner". This conceptual paper develops an integrative framework to explain how the adoption of generative AI (GenAI) influences the quality of solo entrepreneurs' ideation and, through ideation, their opportunity development and venture readiness. Drawing on literature published between 2018 and 2022, grounded in the resource-based view, effectuation and the technology acceptance and social cognitive traditions, the paper argues that (i) GenAI adoption positively influences ideation performance, and (ii) the link between ideation and venture readiness is mediated by entrepreneurial self-efficacy and moderated by the founder's AI literacy. Two hypotheses and two research questions are proposed, a research agenda is presented, and implications for solo founders, educators, platform providers and policymakers are discussed. The contribution of the paper is to direct attention to AI as a substitute for missing team resources in single-founder ventures, rather than as a firm-level tool. The purpose of the study is to identify the barriers faced by aspiring solo entrepreneurs and to examine how generative AI can help overcome them.

1. Introduction

Solo entrepreneurship is a growing and significant form of business ownership. A large proportion of new ventures today are driven by freelancers, digital-product builders, creators, consultants and micro-sellers around the world, especially in emerging markets such as India, where digital platforms have lowered start-up costs (Nambisan, Wright & Feldman, 2019). Unlike founding teams, a solo founder must handle ideation, market sensing, validation, branding and operations alone. This is cognitively demanding, offers few alternative worldviews, and leaves only one person to absorb the cost of testing an idea that turns out to be weak.

Generative AI changes this picture. Large language models and multimodal systems such as GPT-3 (Brown et al., 2020), Codex (Chen et al., 2021) and

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DALL-E (Ramesh et al., 2021) can propose and refine ideas, draft text, write code and generate images within seconds. Early evidence on AI in innovation and creative work is promising (Cockburn, Henderson & Stern, 2018; Kakatkar, Bilgram & Füller, 2020; Haefner et al., 2021). At the same time, scholars warn that such models can reproduce bias, produce fluent but unreliable text, and push outputs towards sameness (Bender et al., 2021; Bommasani et al., 2021; Floridi & Chiriatti, 2020). Entrepreneurship researchers have therefore called for theory that predicts when and why AI will complement, substitute for or mislead entrepreneurs (Shepherd & Majchrzak, 2022; Lévesque, Obschonka & Nambisan, 2022).

Although the literature on AI and entrepreneurship is growing, three gaps remain. First, most studies focus on established firms, team-based start-ups or the aggregate economy, and the individual founder, for whom AI may replace a missing human workforce, is under-theorised. Second, the ideation phase, where the risk of failure is greatest and much entrepreneurial value is created, receives less attention than later-stage functions such as marketing or finance. Third, boundary conditions (user capabilities) and psychological processes that shape the benefits and risks of GenAI during ideation are seldom integrated in one framework.

This paper addresses these gaps by proposing a conceptual framework of AI-driven ideation for solo entrepreneurs. The remainder of the paper reviews the literature (2018–2022), states the objectives, research questions and hypotheses, describes the conceptual methodology, provides an analytical interpretation, presents the findings as propositions, and ends with suggestions, a conclusion, future scope and limitations.

2. Literature Review (2018–2022)

2.1 Artificial intelligence and entrepreneurship

Obschonka and Audretsch (2020) argued that AI and big data mark a new era in entrepreneurship, changing how opportunities are discovered, evaluated and exploited. Chalmers, MacKenzie and Carter (2021) showed that AI is reshaping venture creation in the fourth industrial revolution by altering the information available to founders and the speed of decision cycles. Shepherd and Majchrzak (2022) described AI as a set of "machines augmenting entrepreneurs", bringing both opportunities and threats. Lévesque et al. (2022) further argued that AI changes not only how entrepreneurs act but also how entrepreneurship can be studied. Von Krogh (2018) and Jarrahi (2018) emphasised that AI works best in partnership with human judgment, especially where problems are uncertain and ambiguous, which is the typical condition of early-stage ventures. Overall, the work of this period shows that AI is an enabler along the entrepreneurial journey, but research remains scattered and largely technology-centric rather than founder-centric.

2.2 Artificial intelligence, creativity and innovation

Verganti, Vendraminelli and Iansiti (2020) argued that AI would reshape how innovation is designed and generated, by automating parts of problem solving and widening the range of possible solutions. Kakatkar et al. (2020) showed how AI-based analytics can support the innovation process, including the discovery and screening of ideas. Haefner et al. (2021) offered a review and framework of AI in innovation management, noting that AI can both extend and constrain human creativity. Bianchini, Müller and Pelletier (2022) described AI as an emerging general method of invention. Mikalef and Gupta (2021) found that organisational AI capability is associated with greater creativity and performance, but depends on complementary human and organisational resources. Amabile (2020) cautioned that creativity involves surprise, intrinsic motivation and domain judgment, which AI systems can support but not simply replace.

The evidence on creativity is therefore mixed. Large language models can produce fluent and varied text from a few prompts (Brown et al., 2020) and can help with code and images (Chen et al., 2021; Ramesh et al., 2021). Yet Bender et al. (2021) warn of bias, environmental cost and fluent output without understanding, Bommasani et al. (2021) point to "homogenisation" and shared failure modes when many users rely on the same foundation models, and Floridi and Chiriatti (2020) highlight the limits and consequences of GPT-3-type systems. Together, these studies suggest that the benefits of AI for ideation are real but conditional.

2.3 Human–AI collaboration and the creative process

Research from 2018 to 2022 emphasises that outcomes depend on how humans and AI are combined. Jarrahi (2018) proposed a human–AI symbiosis in which AI handles complexity while humans handle uncertainty

and equivocality. Dellermann, Ebel, Söllner and Leimeister (2019) described hybrid intelligence, in which people and machines jointly achieve results neither could reach alone. Raisch and Krakowski (2021) showed that automation and augmentation are in tension and must be managed together. Cockburn et al. (2018) argued that AI can act as a new "method of invention" that is especially valuable where data and search are costly. Logg, Minson and Moore (2019) found that people often rely strongly on algorithmic advice, which creates a risk of over-reliance when the advice is wrong. Taken together, these studies suggest that AI can compress skill gaps and extend individual capacity, which is particularly relevant for solo founders who lack complementary skills, provided they evaluate AI output critically.

2.4 Generative AI and business model innovation

Sjödin, Parida, Palmié and Wincent (2021) showed how AI capabilities enable business model innovation through co-evolutionary processes and feedback loops. Nambisan et al. (2019) explained how digital technologies lower the cost and speed of experimentation in innovation and entrepreneurship. For a solo entrepreneur, this means business models can be prototyped quickly and cheaply without hiring a team, so that competitive advantage shifts from owning large resources to asking good questions and applying judgment and critical thinking to AI outputs.

2.5 Problem and research gap

The literature indicates that AI can enhance individual and organisational performance, especially where resources are scarce, but that outcomes depend on the fit between task and technology, the capability of the user, and the diversity of outputs. What is missing is a founder-level theory of GenAI use by solo entrepreneurs that links use to ideation performance and downstream venture readiness, and that identifies capability-based moderators and psychological mediators. This paper presents such a framework.

3. Theoretical Foundation

The framework rests on three lenses. First, the resource-based view (Barney, Ketchen & Wright, 2021) treats GenAI as an accessible, largely external resource that can complement the human and social capital constraints of the solo founder. Second, effectuation (Mansoori & Lackéus, 2020) explains how founders start from available means and co-create ideas through interaction; GenAI acts as an interactive partner in this means-driven process. Third, social cognitive theory and technology acceptance research (Newman, Obschonka, Schwarz, Cohen & Nielsen, 2019; Scherer, Siddiq & Tondeur, 2019) explain that perceived usefulness and competence drive successful technology use, and that mastery builds entrepreneurial self-efficacy. AI literacy (Long & Magerko, 2020; Ng et al., 2021) is the competence that determines whether such use is critical and effective. Together, these lenses show why GenAI should enhance ideation, why confidence is a mechanism, and why AI literacy is a boundary condition.

4. Research Questions

RQ1: How does the use of tools powered by generative AI affect the ideation process of solo entrepreneurs?

RQ2: Under what conditions of founder AI literacy and self-efficacy does GenAI-assisted ideation lead to better opportunity development and venture readiness outcomes?

5. Objectives

1. To examine and assess how generative AI can improve the ideation process of individual entrepreneurs.
2. To explore the psychological process (entrepreneurial self-efficacy) and the boundary condition (AI literacy) that shape how ideas generated with GenAI are transformed into opportunity development and venture readiness.

6. Hypotheses

Based on the literature above, the following hypotheses are formulated for further empirical testing.

H1: Solo entrepreneurs' use of generative AI is positively related to their ideation performance (fluency, novelty and feasibility of ideas).

H2: The positive relationship between ideation performance and venture readiness is mediated by entrepreneurial self-efficacy, and is stronger for solo entrepreneurs with higher AI literacy.

7. Research Methodology

This is a conceptual (theory-building) study following the guidelines for conceptual papers in management and entrepreneurship research.

The method was a structured literature analysis and theoretical synthesis of peer-reviewed articles, working papers and reputable reports published between 2018 and 2022. Relevant material was identified through Scopus, Web of Science, ABI/INFORM and Google Scholar using keywords such as "generative AI", "language models", "GPT-3", "artificial intelligence", "entrepreneurship", "ideation", "creativity", "opportunity recognition" and "solo/self-employed". Technical studies unrelated to individual decision-making were excluded, and the remaining studies were screened for relevance to AI and generative AI in entrepreneurship, innovation, creativity and individual performance. Thematic synthesis produced four major themes: capability augmentation, creativity effects, contextual boundary conditions and risks. These themes were linked theoretically to the resource-based view, effectuation theory and social cognitive theory to develop the conceptual framework, identify key constructs and relationships, and derive propositions and hypotheses. No primary data were collected, because the study focuses on theoretical integration and proposition building rather than empirical verification.

8. Analysis and Interpretation

8.1 Proposed conceptual framework

The framework places GenAI adoption (the extent and level of use, including brainstorming, market simulation, critique and prototyping) as the independent construct. It affects ideation performance (fluency, originality, feasibility), which leads to venture readiness (validated opportunity, business-model clarity and launch preparedness). AI literacy (prompting skill, critical evaluation, understanding of limitations) is the moderator, and entrepreneurial self-efficacy is the mediator between ideation and readiness.

Construct	Role	Core Theoretical Logic	Supporting Literature
GenAI Adoption	Independent Variable	Substitutes for missing team resources and perspectives, supporting individual entrepreneurs in the venture development process.	Shepherd & Majchrzak (2022); Chalmers et al. (2021)
Ideation Performance	Mediating Outcome	Expands the solution space, supports idea generation, and helps bridge skill gaps.	Verganti et al. (2020); Kakatkar et al. (2020); Haefner et al. (2021)
Entrepreneurial Self-Efficacy	Mediator	Successful ideation is a mastery experience that strengthens confidence in the ability to take entrepreneurial action.	Newman et al. (2019); Mansoori & Lackéus (2020)
AI Literacy	Moderator	Determines an entrepreneur's ability to evaluate, interpret and refine AI-generated outputs effectively.	Long & Magerko (2020); Ng et al. (2021); Bender et al. (2021)
Venture Readiness	Dependent Variable	Reflects the extent to which an entrepreneurial opportunity has been validated and the venture is prepared for launch.	Chalmers et al. (2021); Sjödin et al. (2021)

8.2 Interpretation of H1

Evidence from 2018–2022 indicates that AI can raise the quality and speed of innovation-related work, especially where search and experimentation are costly (Cockburn et al., 2018; Kakatkar et al., 2020; Haefner et al., 2021). A founding team brings a range of perspectives that a solo entrepreneur lacks, and GenAI can supply rapid options and structured feedback. From a resource-based perspective, GenAI can be treated as a low-cost, accessible resource that is used rather than owned to create value (Barney et al., 2021). A positive adoption–ideation relationship is therefore theoretically expected. This is qualified, however, by concerns about homogenisation (Bommasani et al., 2021) and bias (Bender et al., 2021): ideas may be individually stronger but less distinctive, so originality should be assessed separately from fluency and feasibility.

8.3 Interpretation of H2

In social cognitive theory, successful ideation is a mastery experience, one of the main sources of self-efficacy (Newman et al., 2019). Self-assured entrepreneurs turn ideas into readiness by committing to activities that validate them. Yet research on human AI collaboration shows that users who rely too heavily on algorithmic advice may suffer when tasks fall outside what the system does well (Logg et al., 2019; Raisch & Krakowski, 2021). The ideation-to-readiness pathway should therefore be stronger for founders with higher AI literacy (Long & Magerko, 2020; Ng et al., 2021), because they can detect unreliable output, challenge generic suggestions and prompt effectively, whereas low-literacy founders may accept faulty ideas and become overconfident.

8.4 Interpretation of the research questions

H1 and the creativity literature answer RQ1: the effect of GenAI on ideation is expected to be beneficial but with a diversity trade-off.

H2 addresses RQ2: translating ideas into venture readiness depends on psychological confidence and on the literacy that governs critical use. The framework therefore treats GenAI as an augmentation tool that must be used deliberately, rather than relied on by default.

9. Findings

As this is a conceptual study, the findings are theoretical propositions based on synthesised evidence, not empirical results.

1. GenAI can act as a substitute resource for team-based ideation. It provides the breadth, challenge and structure that solo founders lack, supporting H1.
2. Benefits are likely to be larger for less experienced and less resourced founders. This reflects the skill compression suggested by earlier studies and points to a possible democratising effect on entrepreneurship.
3. Confidence is important in the transmission. The effect of ideation on venture outcomes depends largely on strengthening the founder's belief that they can act (H2, mediation).
4. AI literacy is the key boundary condition. Without critical evaluation skills, GenAI can lead to overconfidence, generic ideas and error propagation (H2, moderation).
5. There is a fluency–originality tension. Widespread use of the same models can improve the quality of individual ideas but reduce diversity across the market, eroding differentiation for entrepreneurs who implement similar ideas using similar methods.
6. Ideas are necessary but not sufficient. Validation with real customers remains crucial and cannot be replaced by AI-generated feedback.

10. Suggestions

1. For solo entrepreneurs: Treat GenAI as a sparring partner, not an oracle; prompt for failure cases and arguments against a suggestion; use several tools and prompts to preserve originality; and test all AI-derived assumptions with real customers before committing resources.
2. For educators and incubators: Integrate AI literacy, prompt design and critical verification into entrepreneurship courses and acceleration programmes, and teach founders which tasks fall inside and outside the competence of AI.
3. For platform and tool developers: To prevent homogenisation, develop features for assumption tracking, bias warnings, source transparency and diversity-enhancing idea generation.
4. For policymakers and support agencies (including in India): Promote affordable access to GenAI and vernacular-language and digital-skills programmes for micro-entrepreneurs, women founders and first-generation entrepreneurs, and provide guidance on data privacy, intellectual property and responsible use.

11. Conclusion

This paper developed a conceptual model of how generative AI can support solo entrepreneurship by strengthening ideation. Synthesising research from 2018 to 2022, it concludes that GenAI can compensate for missing team members, narrow skill gaps and broaden the solution space, but that its value depends on entrepreneurial self-efficacy and, importantly, on the founder's AI literacy. A testable agenda is provided through two hypotheses and two research questions. GenAI is a powerful but conditional form of augmentation: the competitive edge for solo founders will come not from the technology itself but from the quality of the human judgment applied to it. The paper moves AI–entrepreneurship scholarship beyond the firm and team level towards the individual founder.

12. Future Scope of the Study

1. Empirical testing: Survey-based structural equation modelling or PLS-SEM to test H1 and H2 with solo entrepreneurs across industries.
2. Experimental designs: Randomised experiments comparing expert ratings of novelty, feasibility and value for AI-assisted and unassisted ideation.
3. Longitudinal studies: Follow-up studies to see whether AI-generated ideas are associated with survival, revenue and growth.
4. Cross-cultural and cross-economy comparisons: Differences between developed and emerging

markets, between men and women, and between experienced and inexperienced founders.

5. Other constructs: Trust in AI, ethical issues, cognitive offloading, creativity self-efficacy and platform dependence.
6. Collective effects: Market-level homogenisation of ideas and its implications for differentiation and competition within segments.
7. Qualitative inquiry: In-depth interviews to understand how solo founders co-create with GenAI in practice.

13. Limitations

The study offers no empirical validation, so the hypotheses must be tested before causal claims can be made. The review is restricted to 2018–2022; because GenAI is evolving quickly, later developments (including widely available conversational tools released at the end of 2022) are not covered and results may soon become dated. Many of the sources are not specific to solo entrepreneurship and come mainly from developed economies, which limits generalisability. The review is not a full systematic review and may omit relevant work. Finally, the framework includes only a few constructs; others may matter depending on industry, prior experience, access costs and the regulatory environment.

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