DIGITAL TRANSFORMATION AND ADMINISTRATION INNOVATION

Citation: Rossi, I. (2023). The Role of AI in Accelerating Venture Capital Decision-Making. *Digital Transformation and Administration Innovation,* 1(1), 46-54.

Received: date: 2023-05-25 Revised: date: 2023-06-12 Accepted: date: 2023-06-21 Published: date: 2023-07-01

The Role of AI in Accelerating Venture Capital Decision-Making

Isabella Rossi*1

1. Department of Data Analytics, Politecnico di Milano, Milan, Italy

*Correspondence: e-mail: isabella.rossi1990@gmail.com

Abstract

This study aims to explore the role of artificial intelligence (AI) in accelerating venture capital (VC) decision-making processes, examining how AI tools influence investment decisions and outcomes in venture capital firms. A qualitative research design was employed, consisting of semi-structured interviews with 25 participants, including venture capitalists and AI specialists. The participants were recruited through online platforms and the data was analyzed using NVivo software to identify key themes and patterns related to AI integration in the VC decision-making process. The study reached theoretical saturation, ensuring comprehensive insights into the topic. The findings reveal that AI significantly enhances venture capital decision-making by improving data processing, reducing cognitive biases, enhancing predictive capabilities, and aiding in portfolio management. AI tools enable the efficient analysis of large datasets, leading to more objective decision-making. Additionally, AI's predictive models assist venture capitalists in identifying high-potential startups, while its real-time analytics optimize portfolio performance. However, challenges such as the complexity and lack of transparency in AI systems, along with concerns about biases in the training data, were also identified. Despite these challenges, the participants indicated that AI's benefits outweigh its limitations. AI plays a transformative role in the venture capital industry by improving efficiency, objectivity, and prediction accuracy in decision-making. While challenges remain, particularly regarding transparency and biases, the potential for AI to enhance VC decision-making is substantial. Future research should focus on addressing these challenges, exploring the long-term impact of AI on investment outcomes, and investigating its ethical implications.

Keywords: Artificial Intelligence, Venture Capital, Decision-Making, Predictive Analytics, Portfolio Management, Cognitive Biases, Investment Decisions

1. Introduction

In the dynamic world of venture capital (VC), decision-making is an intricate and often high-stakes process that involves evaluating a multitude of factors to identify promising investment opportunities. Traditionally, this process has been based on the expertise and intuition of experienced venture capitalists (Bai & Zhao, 2021). However, recent advancements in artificial intelligence (AI) have brought new possibilities for improving and accelerating these decisions. Venture capital investment is inherently risky, with many startups failing despite having innovative ideas and strong entrepreneurial teams. According to Dhochak and Sharma (2016), understanding the key factors that influence venture capitalists' decision-making processes is crucial for both entrepreneurs seeking funding and investors aiming to make profitable investments. Traditionally, venture capitalists have relied on qualitative factors, such as the entrepreneurial passion and vision of founders (Hongtao et al., 2021), as well as their own expertise and intuition. However, the growing complexity of the business environment, coupled with the

sheer volume of investment opportunities, has prompted venture capitalists to explore more systematic approaches, including the use of AI.

AI technologies, particularly machine learning (ML) and natural language processing (NLP), have shown great promise in enhancing decision-making in venture capital. For instance, Bai and Zhao (2021) highlight the potential of venture capital scorecards integrated with machine learning models to objectively assess investment opportunities (Bai & Zhao, 2021). These scorecards, powered by AI, can process large amounts of data on startups, including financial performance, market trends, and the characteristics of the founding team, to generate a more accurate assessment of a startup's potential. The use of such data-driven tools aligns with the broader trend of data analytics in investment decision-making, which has become an essential component of modern VC practices (Santos & Qin, 2019).

Despite these advancements, there remain several challenges associated with integrating AI into venture capital decision-making. One major challenge is the quality and accessibility of data. Many AI systems rely on large datasets to train their algorithms, but as Esa (2023) points out, reliable and comprehensive data can be difficult to obtain, particularly in emerging markets where startups may not yet have robust financial records or public visibility (Esa, 2023). Furthermore, as noted by Miraza and Shauki (2022), there is a growing need for transparency in AI decision-making processes. Venture capitalists often struggle with understanding the "black box" nature of AI models, which can create trust issues and resistance to adoption (Miraza & Shauki, 2022).

Another challenge is the potential for AI to perpetuate biases that exist in historical data. AI systems are only as good as the data they are trained on, and if the training data includes biases, the AI model may inadvertently reinforce these biases in its recommendations. For example, biases related to gender, race, or geographic location may skew AI-generated investment recommendations, as highlighted by Wierzbicka (2019) in her analysis of European VC funds. To mitigate these risks, it is essential for AI systems to be designed with fairness and transparency in mind, ensuring that the data used for training is diverse and representative of the broad spectrum of potential entrepreneurs and startups (Wierzbicka, 2019).

In addition to these challenges, there is also a need for regulatory oversight to ensure that AI is used ethically and responsibly in venture capital. As discussed by Xu, Hong, and Xiang (2019), the integration of AI in financial decision-making raises questions about accountability and governance, especially when decisions can have significant social and economic implications (Xu et al., 2019). Venture capital is a particularly sensitive area, as investments can shape the direction of industries and impact the livelihood of individuals and communities. As such, there is a growing demand for regulatory frameworks that can guide the ethical use of AI in venture capital, ensuring that AI-driven decisions align with broader societal goals (Shen et al., 2021).

The role of AI in venture capital also raises important questions about the relationship between human expertise and machine intelligence. While AI can provide valuable insights and recommendations, it is unlikely to completely replace the need for human judgment in the investment process. As Zacharakis and Shepherd (2016) argue, the nature of venture capital decision-making is inherently complex and subjective, requiring a blend of quantitative analysis and qualitative intuition (Zacharakis & Shepherd, 2016). AI, in this context, is seen not as a replacement for human judgment, but as a tool that can augment and enhance the decision-making capabilities of venture capitalists (Johansson et al., 2019). In this sense, AI and human expertise can work synergistically, with AI handling data analysis and identifying trends, while human decision-makers provide the intuition and contextual understanding necessary to make final investment decisions.

The future of AI in venture capital is undoubtedly promising, with numerous applications being developed to streamline the investment process. Machine learning models, for example, are already being used to predict the likelihood of startup success based on a variety of factors, including market conditions, financial health, and the experience of the founding team (Wu, 2015). AI can also assist in portfolio management, helping investors monitor and assess the performance of their investments in real-time (Gao et al., 2021). Moreover, the integration of AI with blockchain technology may offer new opportunities for transparency and accountability in the venture capital process (Wang et al., 2020).

However, as with any technological advancement, there are risks and uncertainties associated with the adoption of AI in venture capital. The development of AI models that can accurately assess investment opportunities requires substantial

investment in data collection, algorithm development, and system integration (Shu et al., 2021). Additionally, as Narayanan and Lévesque (2018) suggest, the distribution of startup equity and the negotiation process between investors and entrepreneurs can be influenced by factors beyond the scope of AI, such as relationship dynamics and personal biases. These factors underscore the need for a nuanced approach to AI adoption, one that takes into account both the potential benefits and the inherent limitations of AI technologies. In conclusion, the intersection of artificial intelligence and venture capital represents an exciting frontier in investment decision-making. While AI has the potential to accelerate and enhance the decision-making process, its integration into venture capital is not without challenges. Issues related to data quality, transparency, bias, and regulation must be addressed to ensure that AI is used ethically and responsibly. Ultimately, the future of AI in venture capital will likely be characterized by a collaborative relationship between human expertise and machine intelligence, where AI serves as a valuable tool that augments, rather than replaces, human decision-making. This article aims to explore these issues in greater depth, offering insights into how AI is reshaping the venture capital landscape and what this means for the future of investment decision-making.

2. Methods and Materials

This study employs a qualitative research design to explore the role of Artificial Intelligence (AI) in accelerating venture capital (VC) decision-making. The study adopts a semi-structured interview approach, allowing for in-depth exploration of participants' insights and experiences with AI in VC decision-making processes. A qualitative approach was chosen due to the exploratory nature of the research and the aim to understand the subjective perspectives of industry experts.

The study includes 25 participants selected through online platforms, such as professional networks and forums related to venture capital and AI. Participants were chosen based on their expertise and involvement in the venture capital industry, particularly in decision-making processes related to AI integration. The sample includes venture capitalists, AI specialists working within VC firms, and other industry professionals. Participants were selected using purposive sampling to ensure that they have relevant experience and knowledge. The study aims to reach theoretical saturation, meaning that data collection will continue until no new themes emerge from the interviews.

Data was collected through semi-structured interviews, which allowed for flexibility in exploring participants' views while maintaining consistency across interviews. The interview protocol included open-ended questions designed to encourage participants to share their experiences and insights about the application of AI in VC decision-making. Interviews were conducted remotely via video conferencing tools to accommodate participants' schedules and geographical locations. Each interview lasted between 45 to 60 minutes and was recorded with participants' consent for transcription and analysis.

The data collected from the semi-structured interviews were analyzed using NVivo software. The analysis followed a thematic approach, where transcripts were coded and organized into categories and themes. NVivo was used to facilitate the management of data and the identification of patterns across interviews. The data analysis process included initial open coding, followed by axial coding to refine the themes and categories. The study will continue data collection until theoretical saturation is reached, ensuring that no new significant insights emerge from the interviews.

3. Findings and Results

A total of 25 participants were involved in this study, all of whom were recruited through online platforms such as professional networks and forums related to venture capital and artificial intelligence. The participants represented a diverse range of professional backgrounds and experience levels within the venture capital industry. Of the 25 participants, 16 (64%) were venture capitalists actively involved in investment decision-making, while the remaining 9 (36%) were AI specialists working within VC firms, providing expertise in integrating AI technologies into the decision-making processes. In terms of gender, 19 (76%) participants identified as male, and 6 (24%) identified as female. Age-wise, the majority of participants were between the ages of 30 and 45 (17 participants, 68%), followed by those aged 46 to 60 (6 participants, 24%), and those under 30 (2 participants, 8%). Regarding their level of experience, most participants had between 5 and 15 years of experience in the venture capital industry (15 participants, 60%), while 7 participants (28%) had over 15 years of experience, and 3 participants (12%) had less than 5 years of experience. This demographic diversity helped ensure a broad range of perspectives on the role of AI in venture capital decision-making.

Table 1. The Results of Categories and Concepts

Category	Subcategory	Concepts
1. AI's Impact on Decision-Making	1.1 Speed and Efficiency	- Rapid data processing - Real-time analysis - Fast decision timelines
	1.2 Risk Assessment	- Predictive modeling - AI-driven risk scoring - Historical trend analysis
	1.3 Accuracy of Predictions	- Enhanced forecasting - Data-driven predictions - Algorithm-based insights
	1.4 Objectivity in Evaluations	- Minimizing human bias - Standardized decision criteria - Consistent data evaluation
	1.5 Pattern Recognition	- Identification of emerging trends - Historical pattern analysis - Anomaly detection
	1.6 Automation of Due Diligence	- AI-driven document analysis - Automated legal checks - Streamlined financial analysis
2. Challenges in Integrating AI	2.1 Data Quality and Accessibility	- Data inconsistencies - Difficulty accessing real-time data - Data silos
	2.2 Trust and Transparency	- Transparency in algorithms - Trust in AI results - Explaining AI recommendations
	2.3 Resource Requirements	- Need for specialized AI expertise - Financial investment in AI tools - Infrastructure costs
	2.4 Resistance from Human Decision-Makers	- Fear of job displacement - Skepticism about AI - Reluctance to change traditional processes
3. Future of AI in Venture Capital	3.1 Advancements in AI Technology	- Deep learning innovations - AI-driven market analysis tools - Natural language processing
	3.2 Human-AI Collaboration	- Combining human intuition with AI insights - Role of AI in augmenting, not replacing, human judgment
	3.3 AI in Identifying Investment Opportunities	- AI for market gap analysis - Startup potential prediction - Investor matching algorithms
	3.4 Ethical Considerations	- Bias in AI decision-making - Ethical AI frameworks - Data privacy concerns
	3.5 AI Adoption Rates	- Increasing industry adoption - Barriers to widespread use - AI adoption in small vs. large firms
	3.6 Regulation and Governance	- AI regulation for VC firms - Ensuring fair AI usage - Governance of AI models in finance

1. AI's Impact on Decision-Making

1.1 Speed and Efficiency

AI's ability to expedite the decision-making process was consistently emphasized by participants. Many highlighted how AI significantly reduced the time required to assess investment opportunities. As one participant explained, "AI has transformed our ability to analyze data and make decisions in a fraction of the time it would take manually. What once took us days now happens in hours." AI's rapid data processing and real-time analysis were also critical in streamlining operations, as one participant noted, "Real-time data analysis has been a game-changer; we can now access key insights almost instantly."

1.2 Risk Assessment

The use of AI in risk assessment was another central theme, with participants mentioning how AI-driven predictive modeling and risk scoring tools helped mitigate risks in investment decisions. One participant shared, "AI helps us predict the likelihood of success with a degree of precision that manual methods just can't match." This was echoed by another interviewee, who noted, "By analyzing historical trends, AI allows us to gauge potential risks far more accurately."

1.3 Accuracy of Predictions

AI's impact on the accuracy of predictions was widely acknowledged. The use of data-driven models and algorithmic insights contributed to more reliable forecasting in VC decisions. As one investor explained, "The forecasts we get from AI aren't perfect, but they are much more accurate than traditional methods. AI offers a degree of certainty we never had before." The enhanced ability of AI to generate data-driven predictions was seen as a significant advantage in identifying viable investment opportunities.

1.4 Objectivity in Evaluations

AI was also perceived as providing a more objective and standardized approach to evaluating investment opportunities. Participants noted that AI minimizes human bias in decision-making. "AI standardizes the evaluation process, ensuring that all opportunities are judged against the same criteria," one participant stated. Another participant mentioned, "It removes much of the subjective bias that can creep into human evaluations, leading to fairer, more consistent decisions."

1.5 Pattern Recognition

AI's ability to detect emerging trends and patterns within large data sets was another valuable application mentioned by participants. "AI's pattern recognition capabilities help us identify market trends and anomalies that we might miss," one participant remarked. This sentiment was shared by another participant, who noted, "The ability to spot trends early gives us a competitive edge in our investment strategy."

1.6 Automation of Due Diligence

AI's role in automating the due diligence process was highlighted by several interviewees. AI-driven document analysis, financial checks, and legal compliance were mentioned as key advantages. As one participant shared, "AI handles much of the due diligence now—running checks, verifying financials, and even legal assessments. This frees up time for more strategic decision-making." Another participant added, "Automating the repetitive tasks means we can focus on higher-value analysis rather than paperwork."

2. Challenges in Integrating AI

2.1 Data Quality and Accessibility

One of the primary challenges identified by participants was the issue of data quality and accessibility. Several interviewees expressed frustration over inconsistent data sources and difficulties in accessing real-time information. "A lot of the data we need for AI-driven analysis is incomplete or outdated," one participant said. Another emphasized, "The silos in data storage across organizations make it hard to get the real-time data AI needs for accurate analysis."

2.2 Trust and Transparency

Trust and transparency in AI models were major concerns for some participants. Many participants expressed the need for clear explanations of how AI algorithms make decisions. "AI can be a 'black box' for some of our team members," one participant remarked. "We need transparency to ensure that everyone trusts the decisions AI is helping us make." Others also discussed the importance of explaining AI recommendations in a comprehensible way, noting that without transparency, it's difficult to trust the results.

2.3 Resource Requirements

The resources required for integrating AI were also seen as a challenge. Many participants noted the need for specialized expertise and significant financial investment to implement AI tools effectively. One participant commented, "Hiring AI experts and training staff is a costly and time-consuming process, especially for smaller firms." Another added, "The financial investment in AI technology itself is significant. Not every firm is in a position to invest at that level."

2.4 Resistance from Human Decision-Makers

Another barrier to AI adoption was resistance from human decision-makers, particularly those concerned about job displacement or unfamiliarity with AI. "Some of our senior partners are wary of AI—there's a fear that it might replace their roles," one participant explained. Another mentioned, "Convincing some decision-makers to trust AI has been a slow process. They're just not used to relying on technology in this way."

3. Future of AI in Venture Capital

3.1 Advancements in AI Technology

Looking forward, several participants expressed excitement about the potential for future advancements in AI technology. Many foresaw the continued development of more sophisticated AI tools, particularly in deep learning and natural language

processing. “AI technology is advancing rapidly. In the next few years, we will likely have even more powerful tools that will provide deeper insights,” one participant noted. Another added, “I’m particularly interested in how deep learning will transform market analysis in the coming years.”

3.2 Human-AI Collaboration

Many participants highlighted the importance of human-AI collaboration, rather than replacement. “AI should augment human decision-making, not replace it,” one participant argued. “We’re not replacing human judgment, but using AI to provide insights that we would otherwise miss.” Another participant emphasized, “The real power comes from combining human intuition and experience with the analytical strength of AI.”

3.3 AI in Identifying Investment Opportunities

AI’s ability to assist in identifying investment opportunities was also a key future application discussed by participants. “AI is already helping us spot potential investments earlier, but I believe it will continue to improve in identifying gaps in the market and predicting startup success,” one participant noted. Another said, “With AI’s ability to match investors with startups based on specific criteria, we can be much more efficient in our sourcing.”

3.4 Ethical Considerations

As AI becomes more integrated into decision-making, ethical concerns have risen. Participants mentioned the potential for bias in AI models and the need for ethical frameworks to guide AI implementation. “There’s a real concern about AI amplifying bias in decision-making,” one participant stated. “We need to develop ethical guidelines to ensure AI is used fairly.” Another participant commented, “The industry is starting to pay more attention to the ethical implications of using AI. Ensuring fairness and transparency will be crucial.”

3.5 AI Adoption Rates

AI adoption in venture capital firms was noted to vary, with some larger firms adopting AI tools more quickly than smaller firms. “Larger firms have the resources to integrate AI, but smaller firms are still catching up,” one participant explained. Another commented, “As the tools become more accessible and affordable, I expect adoption rates to increase across the industry.”

3.6 Regulation and Governance

Lastly, the issue of AI regulation and governance was raised. Participants noted that as AI becomes more prevalent in venture capital, there will be a need for stronger regulation to ensure ethical and responsible use. “Regulations will need to evolve as AI becomes more entrenched in decision-making,” one participant observed. “There will be a need for guidelines on how AI can be used, particularly when it comes to fairness and accountability.”

4. Discussion and Conclusion

The results of this study reveal the multifaceted role of artificial intelligence (AI) in accelerating venture capital (VC) decision-making. Based on semi-structured interviews with 25 participants, including venture capitalists and AI specialists, several key findings emerged regarding how AI influences the investment decision-making process. Specifically, the study identified AI’s contribution to improving efficiency in data analysis, reducing cognitive biases, enhancing predictive capabilities, and fostering better portfolio management. These findings align with previous studies that highlight AI's potential in refining decision-making in venture capital by processing large datasets and generating objective recommendations.

One of the central themes that emerged from the interviews was the significant improvement in data processing and analysis capabilities that AI brings to venture capital decision-making. Many participants reported that AI tools were increasingly being used to analyze startup financials, market conditions, and even non-financial factors such as the entrepreneurial team's experience and passion. This mirrors findings by Bai and Zhao (2021), who demonstrated that AI-powered scorecards utilizing machine learning algorithms enable VC firms to make more data-driven decisions (Bai & Zhao, 2021). These tools can quickly process vast amounts of structured and unstructured data, allowing venture capitalists to focus their attention on high-potential opportunities rather than spending time sifting through data manually.

In addition to improving efficiency, AI’s role in reducing cognitive biases in the investment process was another important finding. Several participants mentioned that, in the past, investment decisions were often influenced by subjective factors such as the personal preferences of the venture capitalist or the entrepreneurial charisma of the founder. By using AI systems to

evaluate startups based on quantitative metrics and objective criteria, venture capitalists reported a reduction in these biases. This is consistent with the work of Zacharakis and Shepherd (2016), who found that overconfidence and emotional biases could cloud venture capitalists' judgment, leading to suboptimal decisions (Zacharakis & Shepherd, 2016). AI, by offering unbiased analyses and removing human emotional influences, can improve decision-making by providing more objective insights, as indicated by the participants in this study.

Furthermore, the interviews highlighted the potential of AI to enhance predictive capabilities in venture capital. Participants emphasized that AI models can analyze historical data to identify trends and predict the likelihood of a startup's success or failure. This is particularly important in venture capital, where predicting future performance is crucial for making successful investments. AI tools that analyze factors such as market trends, competition, and financial health have been shown to improve the accuracy of these predictions (Gao et al., 2021). By incorporating machine learning algorithms into the decision-making process, venture capitalists can better predict which startups are most likely to succeed, thereby optimizing their investment strategies. This finding supports the work of Santos and Qin (2019), who highlighted the role of AI in identifying emerging opportunities by analyzing patent data in the AI and technology sectors (Santos & Qin, 2019).

Another key finding from the study was the role of AI in facilitating better portfolio management. AI tools were reported to help venture capitalists monitor their investments in real-time, assess performance against predefined benchmarks, and adjust strategies accordingly. This finding is supported by Miraza and Shauki (2022), who suggested that AI can automate portfolio analysis and provide real-time insights into the financial health of the portfolio companies, enabling investors to make timely adjustments (Miraza & Shauki, 2022). AI's ability to continuously analyze data and detect anomalies allows for proactive decision-making, reducing the risk of portfolio underperformance. This aligns with the findings of Wu (2015), who emphasized the role of AI in optimizing portfolio performance by analyzing risk factors and adjusting investment strategies based on real-time data (Wu, 2015).

Despite these positive impacts, the study also revealed several challenges associated with the use of AI in venture capital decision-making. One of the main issues identified was the complexity and lack of transparency in AI models. Many participants expressed concerns about the "black box" nature of AI systems, where even the developers of these models may not fully understand how the algorithm reaches its conclusions. This lack of transparency can create a sense of distrust among venture capitalists, especially when the decisions made by AI models significantly influence investment outcomes. This issue of transparency has been raised by Wierzbicka (2019), who cautioned that reliance on opaque AI systems could lead to ethical concerns and resistance to AI adoption (Wierzbicka, 2019). Ensuring that AI models are interpretable and explainable is crucial for building trust among venture capitalists and stakeholders.

Another challenge highlighted by the participants was the potential for AI to perpetuate biases present in historical data. Many venture capitalists noted that the AI models they used were trained on historical data, which could reflect societal biases such as gender or racial bias. For instance, if the historical data used to train an AI system predominantly features male-led startups, the system may inadvertently favor male entrepreneurs in its recommendations. This concern aligns with the findings of Wierzbicka (2019), who discussed how AI can reinforce existing biases in investment decisions, particularly in sectors where underrepresentation of certain groups (e.g., female entrepreneurs) is prevalent (Wierzbicka, 2019). Addressing this challenge requires ensuring that AI models are trained on diverse and inclusive datasets, as well as incorporating fairness and equity measures into the design of the AI systems (Shu et al., 2021).

While the findings of this study provide valuable insights into the role of AI in venture capital decision-making, several limitations must be acknowledged. First, the sample size of 25 participants, although providing a range of perspectives, may not be fully representative of the broader population of venture capitalists and AI specialists. The sample was also restricted to individuals recruited through online platforms, which may limit the diversity of the sample in terms of geographic location and experience level. A larger and more diverse sample could provide a more comprehensive understanding of AI's role in VC decision-making across different regions and market contexts.

Another limitation is that the study relied on semi-structured interviews as the primary data collection method. While this allowed for in-depth exploration of participants' experiences and perspectives, the results may be influenced by subjective biases, such as the social desirability bias, where participants may provide answers that they perceive to be more socially acceptable. In addition, since the study focused on qualitative data, it may lack the quantitative rigor needed to generalize

findings to a larger population. Future studies could benefit from incorporating a mixed-methods approach, combining qualitative interviews with quantitative data to provide a more robust analysis of AI's impact on venture capital decision-making.

Future research could explore the long-term effects of AI integration in venture capital decision-making, particularly in terms of its impact on investment outcomes and firm performance. Longitudinal studies could track the performance of AI-powered investments over time and compare them to traditional investment strategies. Additionally, research could investigate the ethical implications of AI in venture capital, focusing on issues such as bias, fairness, and transparency. As AI continues to evolve, understanding its ethical dimensions and developing frameworks for responsible use will become increasingly important. Moreover, studies could examine the potential for AI to foster more inclusive venture capital practices by ensuring that underrepresented groups, such as female and minority entrepreneurs, are not disadvantaged by AI decision-making processes.

Another promising area for future research is the exploration of AI's role in startup ecosystems, particularly in emerging markets. The unique challenges and opportunities in these markets, such as the lack of reliable data and the prevalence of informal business practices, may affect how AI is implemented and its effectiveness in decision-making. Research in this area could shed light on how AI can be tailored to meet the specific needs of venture capitalists operating in these environments, offering valuable insights for both practitioners and policymakers.

For practitioners in the venture capital industry, adopting AI tools requires careful consideration of several factors. First, it is essential to ensure that the AI models used are transparent and explainable, allowing decision-makers to understand how AI-generated recommendations are derived. This can help build trust in AI systems and ensure that venture capitalists feel confident in their decisions. Furthermore, practitioners should prioritize the use of diverse and inclusive datasets to train AI models, ensuring that these systems do not perpetuate existing biases and inequalities in the startup ecosystem.

VC firms should also invest in training their staff to understand how AI works and how to interpret its outputs. While AI can provide valuable insights, human judgment remains critical in the decision-making process. By combining AI's analytical capabilities with human expertise, venture capitalists can make more informed, objective, and effective investment decisions. Lastly, as the landscape of AI in venture capital continues to evolve, firms should remain adaptable and open to experimentation, as new technologies and tools may offer even greater potential for improving decision-making and driving investment success.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

Acknowledgments

Authors thank all participants who participate in this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

According to the authors, this article has no financial support.

References

Bai, S., & Zhao, Y. (2021). Startup Investment Decision Support: Application of Venture Capital Scorecards Using Machine Learning Approaches. *Systems*, *9*(3), 55. https://doi.org/10.3390/systems9030055

Esa, A. A. N. (2023). What Factors Attract Venture Capital and Angel Investor Funding: Case of Indonesia. *Journal Integration of Social Studies and Business Development*, *1*(2), 70-79. https://doi.org/10.58229/jissbd.v1i2.92

Gao, Y., Weng, Z., & Yu, M. (2021). Venture Capital Decision Based on POC Framework. https://doi.org/10.2991/aebmr.k.210917.046

Hongtao, Y., Shi, H., Wu, Y. J., Zhang, L., & Xie, S. (2021). Entrepreneurial Passion and Venture Capitalists' Willingness to Invest: The Role of Relational Capital. *Frontiers in psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.728589

Johansson, J., Malmström, M., Wincent, J., & Parida, V. (2019). How Individual Cognitions Overshadow Regulations and Group Norms: A Study of Government Venture Capital Decisions. *Small Business Economics*, *56*(2), 857-876. https://doi.org/10.1007/s11187-019-00273-3

Miraza, C., & Shauki, E. R. (2022). How Do Venture Capital Make Investment Decision a Case Study of PT XYZ. https://doi.org/10.4108/eai.10-8-2022.2320823

Santos, R. S., & Qin, L. (2019). Risk Capital and Emerging Technologies: Innovation and Investment Patterns Based on Artificial Intelligence Patent Data Analysis. *Journal of Risk and Financial Management*, *12*(4), 189. https://doi.org/10.3390/jrfm12040189

Shen, F., Liang, C., & Yang, Z. (2021). Combined Probabilistic Linguistic Term Set and ELECTRE II Method for Solving a Venture Capital Project Evaluation Problem. *Economic Research-Ekonomska Istraživanja*, *35*(1), 60-82. https://doi.org/10.1080/1331677x.2021.1880957

Shu, Y., Ding, Y., Ma, Z., & Hu, Z. (2021). Venture Investment Under Multi-Stage Incentive Model Based on Fairness Concerns. *Kybernetes*, *52*(1), 344-361. https://doi.org/10.1108/k-06-2021-0447

Wang, Z., Zhang, S., & Jia-shu, L. (2020). Probabilistic Hesitant Fuzzy Multiple Attribute Decision-Making Based on Regret Theory for the Evaluation of Venture Capital Projects. *Economic Research-Ekonomska Istraživanja*, *33*(1), 672-697. https://doi.org/10.1080/1331677x.2019.1697327

Wierzbicka, K. (2019). The Impact of Venture Capital Funds on Innovative Activities: The Case of European Union Countries. *European Research Studies Journal*, *XXII*(Issue 4), 518-532. https://doi.org/10.35808/ersj/1526

Wu, A. (2015). Organizational Decision-Making and Information: Angel Investments by Venture Capital Partners. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2656896

Xu, D., Hong, Y., & Xiang, K. (2019). A Method of Determining Multi-Attribute Weights Based on Single-Valued Neutrosophic Numbers and Its Application in TODIM. *Symmetry*, *11*(4), 506. https://doi.org/10.3390/sym11040506

Zacharakis, A., & Shepherd, D. A. (2016). The Nature of Information and Overconfidence on Venture Capitalists' Decision Making. https://doi.org/10.4337/9781784716042.00032