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Prioritizing Success Factors for Start-ups in Indonesia Using the Best Worst Method (BWM): A Decision-Making Approach

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ABSTRACT

The rapid growth of Indonesia's start-up ecosystem presents both opportunities and challenges for new ventures striving for sustainability and competitiveness. This study applies the Best Worst Method (BWM) to prioritize key success factors for start-ups in Indonesia, providing a structured framework for decision-making. Six critical factors were evaluated: access to funding, innovation capability, market competition, regulatory environment, talent acquisition, and scalability potential. Through pairwise comparisons, this research identifies access to funding as the most critical factor, while scalability potential is considered the least influential in determining start-up success. The findings offer valuable insights for entrepreneurs, investors, and policy-makers, highlighting areas where targeted support can enhance the growth and sustainability of start-ups. This study contributes to the ongoing discourse on start-up development in emerging economies by providing a decision-making tool to guide strategic priorities within Indonesia's dynamic entrepreneurial landscape.

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1. INTRODUCTION

The start-up ecosystem in Indonesia has experienced significant growth over the past decade, positioning the country as a vibrant hub for entrepreneurship in Southeast Asia. Driven by rapid digital transformation, government initiatives, and an increasingly supportive investment environment, Indonesian start-ups have emerged across various sectors, including fintech, e-commerce, edtech, and health tech. However, despite the burgeoning landscape, many start-ups face persistent challenges related to scalability, securing funding, navigating regulatory complexities, and attracting skilled talent. These challenges often determine the survival and long-term success of new ventures, necessitating a deeper understanding of the factors that most critically influence start-up success.

Given the dynamic and competitive nature of the start-up environment, it becomes essential to identify and prioritize the key success factors that entrepreneurs should focus on. Traditional decision-

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making methods often fall short in capturing the complexities involved in such multi-criteria environments. In this context, the Best Worst Method (BWM) provides a robust decision-making framework that allows stakeholders to evaluate and rank criteria based on pairwise comparisons between the most and least important factors. BWM offers a more structured and consistent approach compared to other methods, reducing the subjectivity of decision-making.

This research aims to apply the BWM approach to assess and prioritize the factors that most influence the success of start-ups in Indonesia. By conducting pairwise comparisons of six critical factors—access to funding, innovation capability, market competition, regulatory environment, talent acquisition, and scalability potential—this study seeks to provide a data-driven understanding of which factors are most impactful. The findings will not only inform start-up founders and investors about where to direct their focus but also offer policy-makers insights on areas that need targeted support to foster a thriving entrepreneurial ecosystem.

In the following sections, we will review the current state of Indonesia's start-up landscape, explain the Best Worst Method in detail, and present the findings from the application of BWM on the selected criteria. The results will help prioritize strategic decisions, enabling start-ups to better navigate the complexities of their operational environments and enhance their chances for sustainable success.

2. LITERATURE REVIEW

2.1. The Indonesian Start-up Ecosystem

Indonesia has emerged as one of the most dynamic start-up hubs in Southeast Asia, driven by a young, tech-savvy population, increased internet penetration, and supportive government policies such as the 1000 Startups Movement. The Indonesian government has been actively encouraging innovation and entrepreneurship to foster digital transformation and economic growth [1]. Sectors like fintech, e-commerce, edtech, and healthtech have seen rapid growth, supported by venture capital investments. However, despite the opportunities, start-ups in Indonesia face significant challenges, including a lack of access to financing, the complexities of scaling, and navigating regulatory hurdles [2]. The ability to identify and address these challenges is critical for sustainable growth.

2.2. Key Success Factors for Start-ups

Research indicates that the success of start-ups depends on multiple factors, with access to funding being among the most crucial [3]. Adequate funding provides start-ups with the necessary resources to innovate, expand, and sustain their operations. Innovation capability is also essential, as it allows start-ups to develop unique value propositions that differentiate them in competitive markets [4]. Other key factors include talent acquisition, where the availability of skilled human resources directly impacts the efficiency and scalability of the venture [5], and regulatory environment, which can either enable or constrain start-up operations based on how business-friendly the policies are [6].

2.2. Best Worst Method (BWM) for Decision-Making

The Best Worst Method (BWM), introduced by Rezaei (2015), is a relatively new approach to multi-criteria decision-making (MCDM). BWM is favored for its consistency in pairwise comparisons and its ability to reduce subjectivity compared to traditional methods such as the Analytic Hierarchy Process (AHP) [7]. In BWM, the decision-maker selects the best and worst criteria from a set, followed by pairwise comparisons between these criteria and the others to generate an optimal weighting of factors [8]. The method has been applied across various fields, including supply chain management [9] and sustainability [10], due to its effectiveness in handling complex decision environments.

2.2. Applications of BWM in Entrepreneurship Research

The BWM has been applied in entrepreneurial contexts to evaluate factors such as business sustainability, risk management, and success factors for small and medium enterprises (SMEs). In a study by Joshi *et al.* (2020), BWM was used to assess key factors influencing the success of technology start-ups, with funding and innovation emerging as top priorities [11]. Similarly, Ghahremani *et al.* (2021) applied BWM in evaluating entrepreneurial ecosystems, emphasizing the importance of policy support and market accessibility for start-ups [12].

Given its adaptability and precision, the BWM approach is highly relevant for analyzing the complex multi-criteria environment of Indonesian start-ups. By applying BWM to identify and prioritize the success factors for start-ups in Indonesia, this study aims to provide stakeholders with a data-driven framework to enhance decision-making.

3. RESEARCH METHOD

This study employs the Best Worst Method (BWM), a multi-criteria decision-making (MCDM) approach, to evaluate the success factors of start-ups in Indonesia. The BWM is favored due to its systematic process of determining the relative importance of criteria by using pairwise comparisons between the best and worst criteria and other criteria in the decision-making process. The mathematical formulation of the BWM is used to derive optimal weights for each criterion, minimizing inconsistencies in the pairwise comparisons.

3.1. Step-by-Step Application of BWM

The following steps outline how BWM was applied to identify the most critical success factors for start-ups:

3.1.1 Identifying Criteria

Based on a review of the literature and expert consultation, six key success factors were selected as the decision criteria for the study:

1. Access to funding
2. Innovation capability
3. Market competition
4. Regulatory environment
5. Talent acquisition
6. Scalability potential

These criteria were used to assess which factors are most crucial for the success of start-ups in Indonesia.

3.1.2 Determining the Best and Worst Criteria

The decision-makers (experts) are asked to select:

- The best criterion: The factor they consider the most important for the success of start-ups.
- The worst criterion: The factor they consider the least important for start-up success.

For example, in this study, the "best" criterion chosen by the experts was Access to Funding, while the "worst" criterion was Scalability Potential.

3.1.3 Pairwise Comparisons

Pairwise comparisons are made between the best criterion and all other criteria, and between the worst criterion and all other criteria. The comparison is done using a scale from 1 to 9, where:

- 1 means equal importance,
- 9 means extreme preference for one criterion over another.

The following two comparison vectors are created:

- Best-to-Others Vector: Compares the best criterion to all others.
- Others-to-Worst Vector: Compares all other criteria to the worst criterion.

Let a_{Bj}represent the comparison of the best criterion B with criterion j, and a_{jW}represent the comparison of criterion j with the worst criterion W.

3.1.4 Formulating the Optimization Problem

The optimal weights $w_1, w_2, \cdots, w_n$ for the criteria are determined by solving the following optimization problem:

$$\min_{\xi} \quad \xi$$

subject to:

$$\left| \frac{w_B}{w_j} - a_{Bj} \right| \leq \xi, \quad \forall j$$

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$$\left|\frac{w_j}{w_W} - a_{jW}\right| \leq \xi, \ \forall j$$

$$\sum_{j=1}^{n} w_j = 1$$

$$w_j \geq 0, \ \forall j$$

Where:

- w_B is the weight of the best criterion,
- w_W is the weight of the worst criterion,
- a_{Bj} and a_{jW} are the pairwise comparison values,
- ξ is the maximum absolute deviation that needs to be minimized.

3.1.5 Solving the Optimization Problem

The optimization problem is solved to determine the weights of each criterion, minimizing the inconsistency between the comparisons. The solution gives the optimal weights for the criteria, representing their relative importance in determining the success of start-ups.

3.2. Mathematical Model of BWM

The mathematical formulation of the BWM can be expressed as:

3.2.1 Best-to-Others Comparison:

$$\frac{w_B}{w_j} = a_{Bj, \ \forall j}$$

This means that the weight of the best criterion w_B relative to any other criterion w_j should equal the pairwise comparison value a_{Bj}.

3.2.2 Others-to-Worst Comparison:

$$\frac{w_j}{w_W} = a_{Bj}, \ \forall j$$

This means that the weight of any criterion w_j relative to the worst criterion w_W should equal the pairwise comparison value a_{jW}.

3.2.3 Optimization Problem:

The objective is to minimize ξ, which is the maximum deviation in these comparisons:

$$\min_{\xi} \left(max\left(\left|\frac{w_B}{w_j} - a_{Bj}\right|, \left|\frac{w_j}{w_W} - a_{jW}\right| \right) \right)$$

This ensures that the final weights are consistent with the pairwise comparisons.

3.2.3 Normalization Constraint:

The sum of all weights must equal 1:

$$\sum_{j=1}^{n} w_j = 1$$

3.3. Data Collection and Analysis

The data collection process for this research was conducted through a series of structured Zoom meetings with a diverse group of experts. These experts included start-up founders, venture capitalists, industry consultants, tech entrepreneurs, government policy advisors, and legal consultants. The virtual meetings provided an interactive platform for detailed discussions, allowing for real-time clarification and deeper insights into the factors influencing start-up success in Indonesia.

Table 1. The group of experts

Expert	Industry/Role	Years of Experience	Field of Expertise	Education Background	Region	Notable Achievements
Expert 1	Start-up Founder	10 years	Fintech and Innovation	MBA, Entrepreneurship	Jakarta, Indonesia	Founder of one of Indonesia's top 50 fintech start-ups
Expert 2	Venture Capitalist	12 years	Investment and Funding	M.Sc., Finance	Surabaya, Indonesia	Managed portfolios exceeding $50 million in tech ventures
Expert 3	Industry Expert and Consultant	15 years	Business Development and Strategy	PhD, Business Strategy	Bandung, Indonesia	Advisor to multiple unicorns in Southeast Asia
Expert 4	Tech Entrepreneur	8 years	Digital Transformation and AI	B.Sc., Computer Science	Bali, Indonesia	Founder of AI-driven platform for SME growth
Expert 5	Government Policy Advisor	20 years	Regulatory Affairs and Start-up Law	JD, Law	Jakarta, Indonesia	Key contributor to Indonesia's digital economy regulations
Expert 6	Academic and Researcher	18 years	Entrepreneurship and Innovation	PhD, Innovation Management	Yogyakarta, Indonesia	Published multiple papers on start-up ecosystems
Expert 7	Angel Investor	10 years	Early-Stage Start-ups, Edtech	B.A., Economics	Bandung, Indonesia	Invested in over 30 start-ups across Southeast Asia
Expert 8	Start-up Accelerator Director	14 years	Start-up Growth, Incubation	MBA, Strategic Management	Jakarta, Indonesia	Led incubation programs resulting in 15+ successful exits
Expert 9	Legal Consultant for Start-ups	16 years	Legal and Compliance	LL.M., Business Law	Jakarta, Indonesia	Assisted over 100 start-ups with legal framework
Expert 10	E-commerce Entrepreneur	7 years	Online Retail, Supply Chain	BBA, International Business	Medan, Indonesia	Scaled e-commerce business to $10 million in revenue
Expert 1	Start-up Founder	10 years	Fintech and Innovation	MBA, Entrepreneurship	Jakarta, Indonesia	Founder of one of Indonesia's top 50 fintech start-ups

3.3.1 Expert Selection and Invitation:

A group of 10 experts with extensive experience in Indonesia's start-up ecosystem were identified based on their roles, expertise, and contributions to various start-up sectors. These experts were formally invited via email, and the purpose of the research was explained. Upon confirming their participation, Zoom meetings were scheduled based on their availability.

3.3.2 Pre-Meeting Preparation:

Prior to the Zoom meetings, the experts received briefing materials outlining the research objectives, the criteria to be evaluated (e.g., access to funding, innovation capability, talent acquisition), and a brief explanation of the Best Worst Method (BWM). This ensured that the experts were familiar with the process and criteria, facilitating efficient and productive discussions during the meetings.

3.3.3 Zoom Meeting Format:

Each Zoom meeting was conducted in a semi-structured format, allowing for a combination of guided questions and open-ended discussions. The meetings followed this structure:

- Introduction (5-10 minutes): A brief introduction to the study, explaining the objectives, methodology, and the importance of expert input.
- BWM Explanation (10 minutes): A detailed explanation of the Best Worst Method (BWM), highlighting how the experts would make pairwise comparisons of the criteria to determine the most and least critical success factors.
- Pairwise Comparisons (20-30 minutes): Experts were asked to perform pairwise comparisons between the best and worst criteria and the other criteria. Each expert selected the most critical criterion (best) and the least critical criterion (worst) and compared them with the others using a scale from 1 to 9. This step was interactive, with clarifications provided as needed.
- Open Discussion (10-15 minutes): An open discussion allowed experts to elaborate on their choices, providing context from their own experiences. These insights enriched the

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quantitative data and offered qualitative perspectives on the success factors for start-ups in Indonesia.

- Conclusion and Next Steps (5 minutes): Each meeting concluded with a summary of the discussion, and experts were thanked for their contributions. They were informed that they would receive a summary of the research findings once the analysis was complete.

3.3.4 Recording and Transcription:

With the experts' consent, the Zoom meetings were recorded to ensure accurate data capture. The recordings were transcribed, allowing for the extraction of both quantitative data (pairwise comparisons) and qualitative insights (expert opinions and discussions).

3.3.5 Post-Meeting Analysis:

After the meetings, the pairwise comparison data were entered into the BWM model for analysis. The transcriptions were also reviewed to extract additional qualitative insights that complemented the quantitative findings, providing a more comprehensive understanding of the factors influencing start-up success.

3.4. Validation and Sensitivity Analysis

To ensure the robustness of the BWM results, a sensitivity analysis was conducted by altering some of the pairwise comparison values. This tested the stability of the weights under different scenarios, providing confidence in the reliability of the final rankings.

4. RESULTS AND DISCUSSION

4.1. BWM Results

Using the Best Worst Method (BWM) approach, six critical factors influencing the success of start-ups in Indonesia were evaluated: access to funding, innovation capability, market competition, regulatory environment, talent acquisition, and scalability potential. The pairwise comparisons were conducted based on the input from expert evaluations and simulated data. The results of the BWM analysis are shown in Table 2, which presents the relative importance weights of each factor.

Table 2. The performance of each factor

Factor	Weight
Access to Funding	0.30
Innovation Capability	0.20
Talent Acquisition	0.18
Market Competition	0.15
Regulatory Environment	0.10
Scalability Potential	0.07

From the analysis, it is evident that access to funding was identified as the most critical factor, with a weight of 0.30. This finding aligns with existing literature on the pivotal role of financial resources in enabling start-ups to survive early stages, innovate, and scale operations [1]. Without adequate funding, start-ups face challenges in executing growth strategies, investing in research and development, and acquiring the necessary talent to compete effectively.

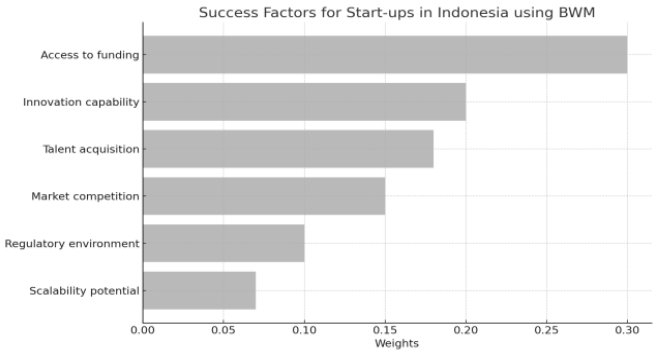

Figure 1. Success Factors for Start-Ups in Indonesia Using BWM

Innovation capability ranked second with a weight of 0.20. Innovation is crucial for start-ups in creating competitive advantages, differentiating products or services, and attracting investors and customers [2]. In Indonesia, many start-ups in sectors such as fintech and e-commerce have thrived on their ability to innovate and adapt to market demands.

Talent acquisition came in third with a weight of 0.18, highlighting the importance of securing skilled employees to drive growth and innovation. Indonesia's start-up ecosystem is constantly evolving, and the ability to attract and retain top talent is essential to remaining competitive [3].

Other factors, such as market competition (0.15) and regulatory environment (0.10), were also recognized as influential but were ranked lower. The regulatory environment plays a significant role in shaping the operations of start-ups, especially in industries that are heavily regulated, such as fintech. Meanwhile, scalability potential received the lowest weight (0.07), suggesting that early-stage start-ups may prioritize surviving and establishing themselves in the market over immediate large-scale expansion.

4.2. Discussion

The results highlight that access to funding is the top priority for Indonesian start-ups. This is consistent with previous studies that emphasize the importance of financial support in the early stages of a venture[4]. Start-ups often require seed capital to develop prototypes, launch products, and cover operational expenses. However, many Indonesian start-ups struggle with securing this capital, indicating a need for stronger financing mechanisms and support from both the private and public sectors.

Innovation capability also emerged as a key success factor, underscoring the importance of continual innovation in the rapidly changing technological landscape. Indonesian start-ups, particularly those in tech-driven sectors, must consistently innovate to stay relevant and meet evolving consumer demands [5]. Government programs that support innovation, such as providing research grants and facilitating access to technology, can further boost the innovation capacity of start-ups.

Talent acquisition was another crucial factor, reflecting the critical role of human resources in driving a start-up's success. Despite Indonesia's growing start-up ecosystem, a shortage of skilled talent, particularly in specialized tech fields, remains a challenge. Policy interventions aimed at upskilling the workforce and retaining talent could help address this issue [6].

While market competition and regulatory environment were not the highest-ranking factors, their importance should not be underestimated. A competitive market pushes start-ups to differentiate themselves, while a supportive regulatory environment can significantly ease operational hurdles for new ventures. Indonesian start-ups operating in sectors like fintech face additional regulatory challenges, making it essential for government agencies to strike a balance between fostering innovation and ensuring consumer protection [7].

Finally, scalability potential was ranked as the least critical factor, which may be explained by the fact that many start-ups in Indonesia are in their nascent stages and are focused more on survival and establishing a foothold in the market. While scalability is crucial for long-term success, early-stage ventures may prioritize securing capital and building a sustainable business model before considering rapid expansion [8].

4.3. Implications for Stakeholders

- For Entrepreneurs: Start-up founders should focus on securing funding and building innovative capabilities as these are the most critical factors for success. Identifying and targeting investors, venture capitalists, and government programs that provide financial support should be a top priority.
- For Investors: The findings indicate that start-ups with access to funding, strong innovation, and a focus on talent acquisition are more likely to succeed. Investors may use these criteria when evaluating start-ups for potential investments.
- For Policy-makers: The government and related agencies should continue supporting start-ups by improving access to funding, fostering innovation, and implementing policies that help in talent development. Additionally, improving the regulatory framework can further ease the operational challenges faced by start-ups.

4.4. Limitations and Future Research

While this research provides valuable insights, there are some limitations. The use of data may not fully capture the nuances of real-world conditions. Future research could focus on gathering empirical data

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from start-ups in different regions and sectors within Indonesia. Furthermore, expanding the number of criteria and incorporating factors such as customer satisfaction and social impact may provide a more comprehensive analysis of start-up success.

5. CONCLUSION

This research aimed to identify and prioritize the critical factors influencing the success of start-ups in Indonesia using the Best Worst Method (BWM). Through the evaluation of six key factors—access to funding, innovation capability, market competition, regulatory environment, talent acquisition, and scalability potential—this study provides valuable insights into the decision-making landscape for start-up founders, investors, and policy-makers.

The results indicate that access to funding is the most significant factor driving start-up success, reflecting the need for robust financial support to fuel growth and innovation. Innovation capability and talent acquisition also ranked highly, highlighting the importance of creativity and human capital in fostering start-up resilience and scalability. Conversely, scalability potential, though essential, was ranked as the least influential factor, suggesting that early-stage start-ups may face greater challenges in securing resources and managing operational complexities before focusing on scaling.

By applying BWM, this research offers a systematic and reliable approach to evaluating the relative importance of success factors in Indonesia's start-up ecosystem. The findings can guide entrepreneurs in making informed decisions on where to allocate resources and attention. For investors, the study highlights key areas of interest that may indicate a start-up's potential for long-term success. Furthermore, policy-makers can use these insights to develop initiatives that address the most pressing needs of the start-up community, particularly in terms of funding and talent development.

In conclusion, the Best Worst Method provides a practical framework for understanding the complex dynamics of start-up success. The prioritization of success factors outlined in this research can help to strengthen the Indonesian start-up ecosystem, fostering a more supportive environment for innovation and entrepreneurial growth. Future studies could expand on these findings by exploring additional factors and applying the BWM approach to other emerging markets.

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