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RESEARCH ARTICLE

Evaluating Entrepreneurship through a Resource-Based Multi-Criteria Decision-Making Model

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ABSTRACT
Nowadays, it has become increasingly important for businesses that want to have a sustainable competitive advantage to engage in entrepreneurial activities by using business resources because of changing environmental conditions and increasing competition intensity. This research develops a decision-making model by analyzing the factors influencing entrepreneurial success through a resource-based approach. The resource-based approach to entrepreneurship of Alvarez and Busenitz (2001) is based on financial, social, and human capital factors. According to this approach, financial capital includes initial investments and access to financial resources; social capital includes networks, trust, and shared vision; and human capital includes education and experience. The SWARA method, a multi-criteria decision-making method, was used. Financial, social, and human capital criteria, which are effective for entrepreneurial success, were prioritized because of the answers given by experts using the SWARA method. As a result of the research, it was found that the most important criteria affecting entrepreneurial success with a resource-based approach is experience, followed by shared vision, networks, access to finance, education, initial investment, and trust.

Keywords: Entrepreneurship, Multi-Criteria Decision Making, SWARA Method, Resource-Based Approach
JEL Code: M13, M21

INTRODUCTION

Entrepreneurship is recognized as a driver of economic growth and development (Farayibi, 2015), job creation (Sunday and Miriam, 2015), innovation (Keskin, 2018; Tekin, 2018), and social change (Martin and Osberg, 2007). To mobilize all these driving forces and achieve sustainable success, organizations must evaluate their capital resources. From the resource-based approach to entrepreneurship developed by Alvarez and Busenitz (2001), entrepreneurial success criteria consist of financial, social, and human capital. Accordingly, financial capital, initial investment, and access to finance are critical factors for the sustainable success of a new business venture. Social capital is a multidimensional concept because it has relational and cognitive value (Kwon and Adler, 2014). Social capital consists of three dimensions: cognitive (shared vision), structural (networks), and relational (trust). Human capital, which consists of education and experience, is an important factor in the success of entrepreneurs. Education provides individuals with the knowledge and skills to identify and capitalize on entrepreneurial opportunities, while experience provides individuals with the knowledge and skills to overcome the challenges of starting and growing a business.

It is worth noting that the relationship between organizations' capital resources and entrepreneurial success is complex, and more research is needed to fully understand the factors that contribute to entrepreneurial success. For example, Unger et al. (2010), who examined the relationship between human capital and entrepreneurial success through a meta-analysis method, stated that there is a significant but low relationship between human capital and entrepreneurial success and that future research should examine the mediating effects of human capital on entrepreneurial success.

In this research, the resource-based approach to entrepreneurship is first examined in the theoretical framework section. Then, in the methodology section, the success criteria, which are initial investment, access to finance, networks, trust, shared vision, education, and experience, were prioritized using SWARA, a multi-criteria decision-making method. Lastly, the findings were discussed and suggestions for future research were offered in the conclusion section.

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THEORETICAL FRAMEWORK

Resource-Based Entrepreneurship: A Study

Entrepreneurship is the process of establishing a business or venture by taking advantage of opportunities from a creative perspective. Entrepreneurship is a multidisciplinary concept in which economics, management, psychology, and sociology are of interest, and theories are developed in various fields. Entrepreneurship theories and approaches are important for developing entrepreneurship. It is also possible to say that the approaches developed on entrepreneurship have become a noteworthy research area in the field of strategic management. Businesses or individuals, who will engage in a new business venture, using a strategic management approach, decide on entrepreneurial activities in line with the resources they have or the power to access potential resources. Access to resources increases the capacity to explore opportunities. Moreover, the sustainability of a new venture is directly proportional to its access to resources (Aldrich and Martinez, 2001). The resource-based approach developed by Alvarez and Busenitz (2001) examines entrepreneurial activities in terms of the resources that businesses possess. According to this approach, *financial, social, and human capital* are important factors affecting entrepreneurial success (Alvarez and Busenitz, 2001).

In a resource-based approach, financial capital is a vital prerequisite for all enterprises of all sizes. Financial capital provides access to more resources to effectively capitalize on entrepreneurial opportunities. Compared with social and human capital resources, financial capital resources are visible. It acts as a buffer against uncontrollable environmental variables such as economic crises and allows the execution of capital-intensive strategies (Cooper, Gimeno-Gascon, and Woo, 1994). According to the resource-based approach, the financial capital factor is analyzed under two headings: initial investment and access to financial resources.

Initial investment (start-up capital) refers to the amount of money required to start a venture. Initial investment is an important driving force, especially in the establishment of small businesses. Small investors who want to take advantage of opportunities in the environment and start a new business venture take action using the initial investment resources. However, some researchers argue that one can start a venture even if one does not have sufficient financial resources (Davidsson and Honig, 2003; Hurst and Lusardi, 2004). Accordingly, although initial investment is an important assurance of the sustainability of a venture, it is not an obstacle to its establishment, and the biggest obstacle is access to financing.

Access to finance refers to the ability of entrepreneurs to obtain financial services such as loans, deposits, and insurance. It is an important factor affecting the sustainable success of an enterprise. It can be obtained through internal and external sources of financing. While internal financing sources consist of retained earnings or capital funds put forward by partners, external financing sources include alternatives such as informal income from family and colleagues, and formal alternatives such as bank loans, leasing, angel investors, and venture capital (Kahraman, Tektas, and Coskun, 2019). Lack of finance hinders enterprise growth and creates liquidity problems (Hughes, 2003). Small businesses in particular cannot develop new goods or services without sufficient capital, nor can they meet the existing demand in the market. Therefore, access to finance, as well as financial literacy, is important for the development, growth, and sustainable success of small and medium sized enterprises (SMEs). Enterprises with high access to finance have high growth prospects (Gómez Mejía, Pereira, and Smida, 2018).

In the resource-based approach, other factors affecting entrepreneurial success are examined in the context of social capital. These are networks, trust, and shared vision. Social capital is a term used to describe how individuals and organizations are connected. In other words, people have access to more social capital, and the larger, more consistent, and deeper their interactions are (Alvani, Nategh, and Farahi, 2007). Woolcock (1998) examined social capital in relation to economic development strategies. He contends that "integration" and "linkages"—two types of extra-community networks—are essential for bottom-up development. In top-down development, relationships between the state and the community—also referred to as "synergy"—as well as institutional coherence, competence, and capacity—also referred to as "institutional integrity"—are important. Thus, without a good reserve of social capital, collective action cannot occur (Onyx and Bullen, 2005).

Networks, which are accepted as a component of social capital, play a role in the design of social capital as well as in the relations of individuals with each other (Öğüt and Erbil, 2009). Collaborations and social networks, which can be established at the individual and organizational levels, offer many advantages. The importance of networks in entrepreneurship is often emphasized (Slotte-Kock and Coviello, 2010). According to the literature, social networks serve as a practical and easily accessible resource that entrepreneurs can leverage to establish new businesses or enhance their existing ventures (Kim and Aldrich, 2005). Moreover, networks not only influence the entrepreneurial process and create new opportunities by internalizing the skills of other actors (Hamel, 1991; Kogut, 1988).

Trust has become a key component in workplace environments at both the employee and organizational levels (Clausen et al., 2019; Ranjay and Sytch, 2008). Organizational members tend to trust each other because they believe that everyone is working toward collective goals and that other members will not be harmed by their own interests (Tsai and Ghoshal, 1998). Woolcock (1998)

argued that trust is fed by a combination of social relations, but it does not exist independently of social relations (Field, 2008). Gulati (1998) stated that trust leads to information exchange and information diffusion and positively affects firms' communication and cooperation with each other.

Shared vision is essential in organizations to inspire employees and give them a feeling of purpose (Tijunaitis et al., 2019). Social capital theory emphasizes the unifying strength of a shared goal.A common vision gives people a reason to care about the organization and demonstrates their connection to it. As a result, a shared vision enhances people's willingness to change their objectives and behaviors to participate in group objectives and behaviors (Leana and Van Buren, 1999). Thus, a shared vision encourages people to use their own goals and activities to contribute to group objectives and actions (Cao et al., 2016; Chang et al., 2012). It is suggested that entrepreneurial vision is positively related to shared vision (Chi-hsiang, 2015) because employees who share the same vision have a common understanding, view, and interpretation of organizational goals, leading to better job performance.

Another critical factor for successful entrepreneurship is human capital. Becker (2009) defined human capital as all types of knowledge, skills, and abilities that people accumulate by investing in education and training that increase their productivity and earning power. In recent years, investments in human capital have been recognized as providing significant returns for individuals, businesses, and societies as a whole. For this reason, the concept of human capital has received increasing attention from both academics and policy makers (Şeşen and Basım, 2012). According to the resource-based approach in the research, the human capital factor refers to educational and experience criteria. In line with the resource-based approach to entrepreneurship, the human capital factor consists of education and experience.

Education is often cited as a key factor in the success of entrepreneurs. The reason for this is that education equips people with the knowledge and abilities needed to recognize and seize entrepreneurial possibilities (Shane and Venkataraman, 2000). Learn how to create a business plan, secure finance, and manage money, for instance, by earning a degree in business administration. These are crucial abilities for business owners. Furthermore, education can provide people with the social networks they need to access materials and data essential for launching and expanding a business (Aldrich and Martinez, 2001). These are frequently emphasized in other studies (Kolstad and Wiig, 2015; Raposo and Paço, 2010) that show a positive association between education and business success. The Global Entrepreneurship Monitoring Report (GEM) (2023) also confirmed a significant positive correlation between educational attainment and entrepreneurial activity.

Experience is another essential component for an entrepreneur's success. Experience, according to Gartner et al. (2016), is the information or skills that a person has acquired because of circumstances in a certain career, business, or industry. Prior entrepreneurial experience has a positive effect on the success of new enterprises, according to Gartner et al. (2016). Carter et al. (1996) reported similar findings, highlighting that business owners had a better chance of success in new businesses. This is primarily because experience gives people the knowledge and skills they need to overcome the challenges involved in starting and growing a firm. For instance, experience can assist employees in better understanding the business they are entering and the legal and regulatory contexts in which they will operate. However, it is important to remember that there may not always be a connection between commercial success and experience. An entrepreneur may benefit from some experience, but too much experience may hinder his or her success. For instance, it was discovered that students without work experience had higher levels of entrepreneurship than students with work experience in a study that examined associate degree students (Keleş et al., 2012). This might be the case because those with more experience are more willing to uphold the status quo than to take risks or pursue novel ideas.

When entrepreneurship and multi-criteria decision-making are scanned together in the literature, it is possible to say that models such as AHP and Fuzzy AHP are used. For example, in the entrepreneurial orientation research conducted by Rezaei et al. (2013), the Fuzzy AHP model was used, with the first criterion being proactive. In Amrita et al. (2018) research, the critical success factors of female entrepreneurship were examined using the Fuzzy AHP model, and the first three criteria were individual, management, and government dimensions. Adebeyi et al. (2019) examined the impact of entrepreneurial orientation on business performance in Nigeria with the AHP (Analytical Hierarchy Process) model and accordingly, the competitiveness aggressiveness criterion was the highest ranked criterion. A review of the literature reveals that few studies have examined entrepreneurial success criteria using the SWARA method. An example of this is Kiraz and Eski (2019), who prioritized 11 personality traits that affect entrepreneurship using the SWARA method. Accordingly, self-confidence, individual risk-taking behavior, and openness to innovation ranked in the top three, followed by locus of control, determination, sociality, creativity, leadership, research spirit, business ethics, and team spirit, respectively. In light of all these evaluations, this research is thought to fill the gap in the literature due to the limited number of studies in which the criteria affecting entrepreneurial success and SWARA method are examined together.

METHODOLOGY OF THE RESEARCH

Since criteria affecting entrepreneurial success are examined in this research, we aim to evaluate these criteria through a multi-criteria decision-making method called SWARA (Step-Wise Assessment Ratio Analysis) by incorporating expert views into the study. The SWARA method is a weighting method developed by Keršuliene et al. (2010). The SWARA method is widely preferred because it requires fewer pairwise comparisons (n - 1)thano other multi-criteria decision-making methods (Stanujkic et al., 2015). Another advantage of the method is the ease of application of mathematical operations and the use of expert opinions in the calculation of criteria weights (Keršuliene, Zavadskas and Turskis, 2010: 247; Zolfani and Banihashemi, 2014: 193; Zolfani and Saparauskas, 2013: 410). SWARA is a multi-criterion decision-making (MCDM) method based on qualitative and quantitative data with 6 steps. In this study, in accordance with the SWARA method, 7 criteria related to the problem were scored by 5 decision makers who are experts in their fields, and the results were discussed in light of the findings obtained. The five decision makers selected in this research are senior managers responsible for entrepreneurial activities in the energy, automotive, petroleum, electricity, and inspection sectors, each with at least 10 and more than 10 years of experience in the business they work for.

The SWARA method is implemented as follows.

Step 1: Determine Criteria for Problem- and Decision Makers in the Decision Committee

It is assumed that there are n criteria for the problem (C_j, j=1,2,3...n) and k decision-makers in the decision committee (DM_k, k=1,2,3...n).

In the resource-based approach to entrepreneurship developed by Alvarez and Busenitz (2001), 7 success criteria (C1 initial investment, C2 access to finance, C3 networks, C4 trust, C5 shared vision, C6 education, and C7 experience) were evaluated by decision makers. The research decision committee consists of 5 businesses operating in innovation-oriented industrial and service sectors. The decision-makers on the decision committee in the research are senior-level employees and experts in R&D, innovation, and entrepreneurship in the energy, automotive, petroleum, electricity, and service sectors, and they were selected by convenience sampling method.

Step 2: Determine the Order of Importance of Criteria

The decision committee determines the relative importance level of each criterion.The decision committee ranked the criteria developed from the literature from high to low importance based on their own knowledge and experience.

Step 3: Determine the s_j Coefficient

Once the criteria are arranged in order of importance, each criterion is compared with the next. For example, the decision-makers are asked questions such as "How many percentage (%) more important is criterion 1 than criterion 2?" "How many percentage (%) is criterion 2 more important than criterion 3?". The comparative importance of the average value is then calculated and expressed as s_j. To calculate the comparative importance of the average value, the decision-maker scored these questions between 0 and 1 in multiples of 5 and 5. Therefore, the values that this ratio can take are 0.00, 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, and 1.00. A value of 0 indicates that the two criteria have the same importance, while a value of 0.20 indicates that the criterion at the top of the ranking is 20% more important than the next criterion.

Step 4: Determining the k_j Coefficient

The coefficient (k_j) is calculated for each criterion. 1 point is added to the s_j value.

$$k_j = \begin{cases} 1 & j = 1 \\ s_j + 1 & j > 1 \end{cases}$$

Step 5: Determining the q_j Coefficient

The importance vector q_j is calculated for all criteria. The adjusted weight value of the most important criterion is 1.

$$q_j = \begin{cases} 1 & j = 1 \\ \frac{q_j - 1}{k_j} & j > 1 \end{cases}$$

Step 6: Determination of the Relative Weights (w_j) of The Criteria

The final weight of each criterion (w_j) is determined by dividing the criteria weights (q_j) by the sum of the weights of the criteria.

$$w_j = \frac{q_j}{\sum_{k=1}^{n} q_k}$$

RESULTS

The evaluation criteria of decision makers are coded as C1, C2, C3, C4, C5, C6, and C7 and are presented in Table 1.

Table 1. *Evaluation Criteria*

Code	Criteria
C1	Initial investment
C2	Access to finance
C3	Networks
C4	Trust
C5	Shared vision
C6	Education
C7	Experience

For the criterion weighting stage, five decision makers (DMs) were interviewed. Decision makers were selected based on their experience in the sector and ability to conduct entrepreneurial activities in their departments. The criteria were ranked from most important to least important by the decision makers, and the relative importance levels (s_j) of the criteria were determined for each decision-maker. The comparison results are presented in Table 2.

Table 2. *Results of the SWARA Method for DM1, DM2, DM3, DM4, and DM5*

Order of Importance	DM1		DM2		DM3		DM4		DM5	
	Criteria	s_j	Criteria	s_j	Criteria	s_j	Criteria	s_j	Criteria	s_j
1	C3	0	C5	0	C1	0	C3	0	C2	0
2	C7	0	C7	0,2	C2	0,2	C7	0	C3	0,25
3	C5	0,2	C6	0,7	C7	0,25	C5	0,3	C6	0,1
4	C6	0,2	C4	0,5	C3	0,3	C2	0,15	C4	0,15
5	C2	0,3	C3	0	C5	0,1	C6	0,3	C1	0,05
6	C1	0,3	C2	0,3	C6	0	C4	0,2	C5	0,05
7	C4	0	C1	0,2	C4	0	C1	0,05	C7	0,05

In the next stage, coefficient (k_j) and new importance vector (q_j) were calculated for the criteria. In the final stage of the method, the criterion weights (w_j) were calculated. In the research, 5 different w_j values were calculated in line with the responses received from 5 decision makers. The relative weights (w_j) of the criteria scored by each decision-maker, as shown in Table 2, and the geometric mean, are shown in Table 3. As shown in Table 3, the results of interviews with experts from 5 different sectors show that experience (C7) is the most important criterion affecting entrepreneurial success in the resource-based approach. After the experience criterion, the criteria in order of importance are as follows: shared vision (C5), networks (C3), access to finance (C2), education (C6), initial investment (C1) and trust (C4).

Table 3. *Combined Criterion Weights*

Order of Importance	Criteria	DM1	DM2	DM3	DM4	DM5	w_j
1	Experience	0,2	0,24	0,19	0,21	0,11	0,177
2	Shared vision	0,17	0,14	0,15	0,16	0,12	0,158
3	Networks	0,2	0,29	0,23	0,21	0,16	0,151
4	Access to finance	0,14	0,1	0,12	0,14	0,2	0,134
5	Education	0,11	0,1	0,11	0,11	0,15	0,128
6	Initial investment	0,08	0,06	0,11	0,06	0,12	0,104
7	Trust	0,08	0,07	0,11	0,09	0,13	0,1

DISCUSSION AND CONCLUSION

Because of this research, it was concluded that the most important criterion affecting entrepreneurial success in the resource-based approach is the "experience" criterion with a value of 0.177. In this research, it was found that experience is an important factor in the success of entrepreneurship. Başar (2013) stated that one of the most valuable assets in entrepreneurship is experience. It has been determined that various studies in the entrepreneurship literature, which has a long history, support this finding. For example, Ettl and Welter (2010) argued that individual-level experience and professional background are particularly important elements in learning entrepreneurship. Reuber and Fischer (1999) stated that each prospective entrepreneur enters the start-up process with a "stock of experience" consisting of the individual's past or history accumulated up to that point. Similarly, Zhao et al. (2005) emphasized that previous entrepreneurial experiences play an important role in entrepreneurial intentions. In a study examining university students' interest in entrepreneurship, Wang and Wong (2004) determined that even family business experience influences interest in entrepreneurship (Wang and Wong, 2004). Research on entrepreneurship shows that experience plays an important role in the ability to recognize and act on venture opportunities and organize and manage new ventures (Politis and Gabrielsson, 2005). It has also been observed that enterprises initiated by entrepreneurs with previous start-up experience are more successful than first-time entrepreneurs. *Experience* provides the entrepreneur with a plethora of information and abilities that can be transferred to new endeavors. Experience is studied in the entrepreneurship literature in the context of both human capital and personal traits of the entrepreneur. Prior entrepreneurial experience increases the likelihood of capitalizing on an entrepreneurial opportunity because it reduces the cost of learning (Shane and Venkataraman, 2000). Bird (2019) stated previous work experience in an industry, management, or entrepreneurship as key elements of the experience factor, noting that these tangible experiences provide the entrepreneur with learning opportunities on how to start, manage, nurture, and grow a new venture. However, it is worth emphasizing that which of these experience factors has the greatest impact on entrepreneurial success should be clarified in future research. The value of expertise in corporate entrepreneurship, regardless of field, cannot be emphasized. This is because experienced entrepreneurs can identify new opportunities, generate innovative products and services, and respond rapidly to changing market conditions. Similarly, Harris and Gibson (2008) argued that first-hand experience in entrepreneurship provides a more realistic view of the challenges of starting and sustaining a successful business venture.

The second important criterion in this study was shared vision, which is a social capital criterion. Shared vision refers to creating a common vision with colleagues. Common or shared vision refers to an internal communication process that encourages all members of an organization and all other stakeholders committed to learning (Baker and Sinkula, 1999). The shared vision clarifies what the enterprise aims to achieve and how it intends to achieve it. However, a study on energy businesses concluded that the shared vision criterion is less important for entrepreneurial success than access to finance, networks, trust, education, and experience (Yadav, V.P.R.P. and Pradhan, 2018). Networks were identified as the third most important criterion in this research. Networking involves the development of social networks by entrepreneurial individuals and organizations in conjunction with other actors in the ecosystem. Actively maintaining and developing social relationships is important for current and new enterprises (Davidsson & Honig, 2003). The trust criterion ranked last in the research. Trust refers to the ability of entrepreneurs to develop positive feelings toward customers, the people who will provide resources to the venture, and the knowledge and experience of team members (Mickiewicz and Rebmann, 2020). This research has shown that trust can be built over time and is motivated by other criteria.

The first investment criterion was placed lower in the study's financial capital criteria than the access to capital. According to this ranking, initial investments are not as crucial as access to capital. A certain amount of equity is typically provided as part of a business venture's initial funding, but this initial equity may not be sufficient to continue the venture. The findings of researchers (Aldrich, 1999; Davidsson & Honig, 2003; Hurst & Lusardi, 2004) also imply that a venture might begin without adequate funding. Therefore, even though a large amount of capital is not necessary to launch a business, the entrepreneur's access to financial resources is crucial to the sector's expansion. According to a study, human capital directly affects an entrepreneur's capacity to provide financial capital (Harding, 2002). It is conceivable that experience plays a key role in determining how easy it is to obtain capital. In addition, the ability to access financial capital is linked to critical issues such as the entrepreneur's educational background and business skills (Banerje, Duflo, Glennerste, & Kinnnan, 2015; de Mel, McKenzie, & Woodruff, 2008).

In this study, entrepreneurial success factors were examined using the resource-based approach developed by Alvarez and Busenitz (2001), and success criteria were prioritized using SWARA, a multi-criteria decision-making method. In light of all these evaluations, it has been revealed that financial, social, and human capital resources owned by individuals or businesses that will start new business ventures should be developed. In line with the fact that one of the most important criteria for entrepreneurial success is experience, it can be suggested that individuals or businesses that start new ventures should establish various collaborations and create platforms where they can share experiences to benefit from the experiences of individuals or businesses with previous entrepreneurial experience. The research has been applied in the energy, automotive, petroleum, electricity, and service sectors, and it is recommended to conduct different researches with other multi-criteria decision-making methods in different sectors. Moreover, no research in the literature has examined the most important criteria affecting entrepreneurial success using a resource-

based approach such as the SWARA method. In this sense, it can be recommended to conduct research in which the criteria in this study are examined using different multi-criterion decision-making methods, such as AHP and MACBETH.

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