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# Entrepreneurial Team Characteristics, Social Interactions and the Success of Information Technology Start-Ups

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## Abstract

Entrepreneurial teams significantly influence the growth, profitability, and innovation of new businesses, specifically in Information Technology (IT) start-ups. However, there is limited knowledge about the impact of personal characteristics of entrepreneurial team members and their social interactions on the success of their business. This paper explores the effect of entrepreneurial team characteristics and their social interactions on the success of IT start-ups. The study employed a quantitative research design and data from 213 entrepreneurial teams in IT start-ups. The findings showed that heterogeneity, experience, self-efficacy, commitment, trust, and social interactions of entrepreneurial team members have a significant positive influence on the success of IT start-ups. Implications of the findings for policy, practice, and research development are discussed.

**Keywords:** Business success, Entrepreneurial team, Start-up, Personal characteristics, Social interactions.

## 1 | Introduction



Worldwide businesses have been revolutionized by digital entrepreneurship [151]. Based on Baregheh et al. [13] start-up is a firm trying to solve a problem while the solution is ambiguous and the firm cannot guarantee success. Some other scholars define a start-up as a technology-based company that aims to create new products or services in extreme uncertainties [3], [98], [110]. Start-ups are initiated with an ingenious idea using technology and over time turn into a powerful technology and avant-garde sustainable firm that persist over time [86], [116]. Exploring the factors that shape a start-up's success has been the focus of a growing number of studies [17], [21], [56].

Business success is defined by growth indicators, contributing back to society, profitability, innovation, public recognition, work-life balance, firm survival/continuity, satisfied stakeholders (employees and customers), personal satisfaction, and utility or usefulness [54].

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In entrepreneurship, the concept of success is usually associated with monetary factors and the financial performance of the company. Some authors have also defined success from a tangible perspective, such as profitability, firm revenue, and the creation of personal wealth [4]. One of the strong components of the success of every startup is innovation. Organizations that cannot adapt themselves to new developments and research dies in the market [102].

The entrepreneur and team play a vital role in the success of new ventures [19]. Entrepreneurial teams have a high impact on new ventures' success [31]. An entrepreneurial team consists of two or more people who have a shared interest and participate in the development of an entrepreneurship project and are known as a part of the team [16], [33]. A lot of new businesses are launched by entrepreneurial teams. Ventures created as teams have a positive effect on the survivability, profitability, and growth potential of new businesses [103]. 40% of new ventures fail within the first year, and over 60% of failures are attributed to problems with the entrepreneurial team [44]. Improving the performance of the entrepreneurial team and the success of the entrepreneurial venture has been a significant concern for researchers [147]. Therefore, investigating entrepreneurial teams' characteristics and their social interactions is an essential topic in business success.

In this study, indicators such as profitability, growth, innovation, and survival have been used to evaluate start-ups' success. the innovative behavior in the team members is essential to survival and entrepreneurial teams' development [50]. Many entrepreneurs start their businesses in a team. Teams provide high potential for resources, such as human capital, time, money, and useful social connections. Heterogeneous teams are effective in dealing with the complex problems that are common to entrepreneurial firms. This is due to the importance of diversity in perceptions, skills, abilities, and knowledge in a heterogeneous team to solve complex and ambiguous problems [53], [58], [104], [138].

The characteristics of the entrepreneurial team mainly influence the launch of new investments [119]. Generally, entrepreneurial team characteristics have significant effects on entrepreneurial ventures' performance [29]. Examining these characteristics and their influence on start-ups' success is crucial because most of the investments in new ventures are led and established by teams, rather than individuals [62], [121]. Entrepreneurship scholars argued that the advantage of startup teams comes from the variety of their characteristics, skills, and knowledge. However, there is limited knowledge about the impact of personal characteristics of entrepreneurial team members and their social interactions on the success of their business. As far as we know, the effect of team characteristics and social interactions of the entrepreneurial team members on the success of start-ups has received less attention than it deserves in Iranian research.

New technology-based firms play critical roles in the development of the economy specifically in developing countries. This is due to the potential of the firms for high growth and the creation of innovative products and processes, as well as new industries. These firms have also beneficial consequences for the local market, stakeholders, partner companies, and regional development. Compared to single entrepreneurs, entrepreneurial teams in technology-based firms demand high skills of individuals, and the firms are highly capable of managing uncertainties, risks, and volatilities related to high technologies and new ventures [42].

In particular, this study investigates the impact of heterogeneity, experience, self-efficacy, commitment, trust, and social interactions of entrepreneurial team members on the success of IT start-ups. The findings of the present study also extend previous research on the relationship between entrepreneurial team characteristics and the success of start-ups created by the team.

## 2 | Theoretical Background

Exploring the factors that construct start-ups' success is of critical importance in the current business environment that is constantly challenged by the generation of new technologies and processes [59]. As

suggested by scholars [39], [40], over 60% of IT businesses are launched by entrepreneurial teams. In this section, the literature on entrepreneurial teams, start-ups' success, team characteristics, and social interactions of entrepreneurial team members are reviewed and hypotheses are proposed. In the following sections, we first review the related literature on personal characteristics of entrepreneurial teams including heterogeneity, experience, self-efficacy, commitment, and trust and then present the literature on social interactions of the entrepreneurial team that are hypothesized to influence start-ups' success.



## 2.1 | Review of the Literature And Theories

People who have high educational backgrounds and experience are attracted to the job market easily, therefore, they are less likely to be attracted to entrepreneurship. Individuals who are characterized by upper levels of human capital are interested more to be an entrepreneur if they can create valuable opportunities. In order to create the invaluable opportunity, they need to have partners to create their entrepreneurial team [105]. Entrepreneurial team composition and its effect on venture performance have been one of the main focuses of studies in this research field [55], [133], [137], [150]. The entrepreneurial team generates a composition that influences business performance. However, there are still debates among scholars about the ideal entrepreneurial team combination [48]. To better understand the concept of the entrepreneurial team, we first define the concepts of team and group. To define a team, we need to look at the differences between a team and a group. Scholars argue that a team is different from a group [78], [119] in its characteristics and purposes [134]. A group is defined as two or more people who are interdependent and interact with each other to achieve specific goals [112], [118]. A team is a group of people who take on tasks and outcomes related to those tasks. They share the results [32] and have the potential to provide more resources such as human capital, time, money, and useful social connections [43]. According to previous studies [51], [85], [91], [113], [140], about 80% of new investments are team-based.

An entrepreneurial team is a form of collective entrepreneurship that emerged during the 1990s [77]. In entrepreneurial teams, the founders mostly establish a team to start a new venture that has a significant influence on the team performance and success of the new venture [89]. Prior studies [82], [149] defined an entrepreneurial team as a social group in which two or more people contribute to achieving a common goal, are committed to the team and business, share common responsibilities and risks and consequently influence the company's strategic decision-making, shared risks and interests. In the literature [2], an entrepreneurial team consists of two or more people who have a stake in the company, actively participate in the investment, and influence the company's strategic decision making.

An entrepreneurial team in the current business environment consists of more human and social capital than an individual that enables effective dealing with uncertainties and irregularities related to creating a new venture [30], [90]. The term "social capital" was first used in studies to refer to community relationships. In management research, social capital is a key factor of a company's success [74]. Social capital is a new concept of capital that it has been introduced during the 1990s. Social capital is related to the analysis of entrepreneurship and small business as those recent concepts of capital [143]. Social capital plays an essential role in strengthening entrepreneurship performance and activities improvement in human resources [107], [129]. In the workplace, social capital leads to exchanging experience and knowledge among staff. Moreover, it increases participatory competition which is one of the most important focuses of entrepreneurship [81]. According to Kwon and Adler [87] value can be created by social capital. Social capital can bring about a shared understanding among people as well as compel individuals to pursue common goals. Thus, social capital displays a series of integrated resources for economic and social activities. Individuals like to share their information and knowledge when social interactions are well and friendly. Many studies have demonstrated that social capital is a key factor in both the knowledge and information-sharing behavior of people [25], [64], [139], [141]. Social interaction can be facilitated by social capital since as we mentioned above, social capital affects information and knowledge sharing [52].

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Despite the diversity of definitions of entrepreneurial teams, the literature has emphasized that entrepreneurial teams have a significant impact on the success of the investment in new ventures and determine the success of the venture [103]. Schumpeter [115], [123] was one of the first researchers who emphasized the role of innovation in the process of entrepreneurship. One of the elements of economic development is "innovation" which is an essential concept in Schumpeter's theory of economic development and refers to a change in the available manufacture system to be presented by the entrepreneur to reduce costs and make profits. Innovativeness displays an establishment's tendency to support and engage in creative processes, experimentation, new ideas, and novelty that may consequence in new products, technological processes, and new services. Economic development is a process of changing the economic balance from lower points to higher, and according to the Schumpeterian discussion, such changes occur through innovation. In cases of successful development, such as the adoption of brand new technologies and the evolution of production techniques, growth has been accompanied by innovations. The changes enhance productivity and growth. Hence, economic development is continuing innovations process [93]. Several researchers emphasized the prominence of sustainable development and entrepreneurship as boosting behavior within the entrepreneurial establishment for competitive advantage by achieving economic success, social practices, and an innovative environment [88], [94], [117]. Results of the prior studies [85], [113], [121] suggest that the majority of investments are established by teams and not individuals. The increasing number of new venture creation by teams has encouraged the authors to focus on entrepreneurial teams as a determinant of investment success in new ventures [62], [67].

## 2.2 | Team Characteristics and Social Interactions

In this study, we examined heterogeneity, experience, self-efficacy, commitment, and trust as the entrepreneurial team characteristics that affect stat-ups' success. Previous researchers have studied the correlation between team performance and team members' diversity. However, the results of these studies are not consistent. Some researchers support team heterogeneity and its significant effect on team performance and concluded that heterogeneous teams are effective in dealing with complicated problems which are common in entrepreneurial firms, while others believe that team heterogeneity may reduce team performance [146]. The heterogeneity of an entrepreneurial team may nurture innovation, improve the performance of an organization [149], and boost the amount of information available to the team [69]. However, it makes working together difficult for members of the team [142]. Ko et al. [84] illustrated that despite familiarity among team members, particularly high levels of age and gender diversity have negative effects on team productivity in new ventures' success. As Chowdhury [30], highlighted, diversity is often considered as a "double-edged sword" or a "mixed blessing" for its contrasting influence on the effectiveness of a team. In other words, it may have a negative or positive impact on the effectiveness of the team. Based on the results of previous research [40], team heterogeneity can be further categorized into two dimensions. The first dimension reflects visible attributes, such as demographic details (e.g., age, gender, or ethnic background) and visible job-related attributes, such as functional expertise, industry background, and education. The second dimension refers to less visible attributes such as personality traits, beliefs, attitudes, motivation, values, and internal team processes. Recent research has suggested that personality characteristics affect entrepreneurial performance that can be extended to the level of the entrepreneurial team [37]. Entrepreneurs have been characterized by three main characteristics including the need for achievement, locus of control, and risk-taking propensity [26], [57]. Need for achievement has long been suggested as a personal characteristic of entrepreneurs that motivates and enables entrepreneurial behavior that is positively related to a company's success [79]. Previous studies have shown that entrepreneurs have a higher need for achievement than non-entrepreneurs [15], [45], [71], [92]. The importance of risk-taking in business has been also emphasized by prior researchers. Generally, entrepreneurship is inherently associated with risk-taking [57]. In today's fast-paced and insecure markets, risk-taking plays a crucial role in business growth [100]. The term 'locus of control' indicates to what extent people believe they can handle the events that influence them. Individuals with an external locus of control believe that they are responsible for whatever happens to them [106] Research results show that entrepreneurs have an internal locus of control [79] and a high level of internal locus of control at the team

level increases the effectiveness and efficiency of an entrepreneurial team. According to Baptista et al. [12] the experiences of founders may affect the success of startups. The experience of entrepreneurial team members is expected to positively influence the success of new businesses. The previous experience of the entrepreneurial teams decreases the risk of business failure significantly [132]. In entrepreneurial teams, four specific types of experience may be relevant including prior shared experiences in the team, prior founding experience in the team, heterogeneity of experience, and combined industry experience represented by the team [122]. Scholars suggested that experienced entrepreneurs have faster access to the initial financial resources and earn more capital to invest than inexperienced ones. As a result, entrepreneurial teams with experienced members create better results [72] and they can prevent the company from failure in the future [126]. According to the results of previous research [119], earlier industrial experiences boost the probability of a successful start-up, because the entrepreneurial team has a high knowledge of industrial methods and procedures. Self-efficacy [9] is defined as one's believes in their ability to perform entrepreneurial roles and tasks successfully [23], [73]. Self-efficacy is an important determinant of human behavior. Individuals avoid performing a specific behavior if they have low self-efficacy. While those with high self-efficacy engage in performing the behavior [49]. Self-efficacy in the context of entrepreneurship has been conceptualized as entrepreneurial self-efficacy [65]. Entrepreneurial self-efficacy indicates an individual's belief in his/her ability to perform duties and roles that result in entrepreneurial behavior and it is a significant characteristic that differentiates entrepreneurs from non-entrepreneurs [27]. In addition to being a perceived ability at the individual level, self-efficacy also reflects collective abilities. Understanding collective self-efficacy is very important [7], [10]. Collective self-efficacy is defined as the collective believes of group members in their ability to produce high levels of achievement [8]. Self-efficacy is an important factor that determines a new venture's success [70]. Commitment is a mental framework or psychological state that commits a person to achieve a related goal [95]. The commitment of a team is a process in which team members feel loyal and trust each other. Trust and loyalty among team members encourage them to consider the views of other team members to make decisions [30]. Highly committed individuals tend to focus their time and energy on achieving goals, do not give up easily, and improve work strategies to overcome challenges and difficulties [124]. In addition to entrepreneurship procedure, 'commitment' is important for initiating a start-up and implementing productive business activities [130]. Trust forms the basis of social and economic relations and enables entrepreneurs to face uncertain conditions. In general, an entrepreneur needs to obtain others' trust including customers, employees, partners, and suppliers [96]. Trust is an influential component in increasing the effectiveness of entrepreneurial teams, specifically when the team members have a high internal locus of control [79]. As highlighted by prior researchers [35] trust is defined as the extent to which team members allow themselves to be vulnerable to others' actions. It also increases the willingness to share information between members of the entrepreneurial team so that they successfully run through unpredicted scenarios [80]. Moreover, trust is the most important factor for building a strong social interaction, cooperation, solidarity, and team spirit [47]. Members of an entrepreneurial team should focus on building team trust and loyalty in order to improve team performance. In entrepreneurial teams, trust is as an important factor that contributes to the success of a business [91]. Through social interactions, team members communicate with each other to exchange and combine ideas, resources, and information and obtain common goals [29].

Social interaction theory is made up of three dimensions; Trust, Interpersonal Interactions, and Perceived Profit. Interpersonal interactions play an important role in the sharing of knowledge and information. Two main dimensions of Interpersonal interactions are social interactions and trust. Social interactions demonstrate time spent, the sequence of communication between members, and the power of relationships. Social interactions create conditions by which people can share their knowledge and information. Trust refers to a series of specific beliefs that are related to the generosity, integrity, and ability of other members. In social interactions theory, trust is considered an essential factor for the process of social interaction. Trust maintains and creates relationships between individuals. There is more willingness to share information and cooperate between people when there is trust among them

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[52], [108]. Moreover, social interaction in an institution is related to affective commitment to that institution, and it is a contributor to the process of organizational commitment [66].

Social interaction not only allows each member to suggest different methods, views and ideas but also encourages members to compare different options and approaches [30]. The quality of social interaction is an important drive through which tacit knowledge is created and communicated in teams. The more social interactions in groups and teams, the more tacit knowledge is shared [114]. The quality of social interactions within the entrepreneurial team has a positive effect on the success of the firm. Researchers showed social interaction in teams facilitates innovation [46], [91], [127]. Furthermore, strong social interactions make the team more confident in their creative abilities [38]. In the literature, different team characteristics and social interactions of the entrepreneurial team have been examined. *Table 1* presents the articles that explored the team characteristics and social interactions of entrepreneurial teams and highlights the gaps in the literature.

**Table 1. The literature on entrepreneurial team characteristics and social interactions.**

| Author(s) and Year | Heterogeneity | Experience | Self-Efficacy | Commitment | Trust | Social Interaction |
|---|---|---|---|---|---|---|
| Zhao and Feng [149] | ✓ | | | | | |
| Jin et al. [76] | ✓ | | | | | |
| Morrissette [99] | | | | | ✓ | |
| Khan et al. [80] | ✓ | | | | | |
| Indrawati et al. [73] | | | ✓ | | | |
| Khan et al. [80] | | | | | ✓ | |
| Prakash et al. [106] | ✓ | | | | | |
| Tasnim et al. [130] | | | | ✓ | | |
| Khan et al. [79] | ✓ | | | | | |
| Cassar [23] | | | | ✓ | | |
| Homberg and Bui [69] | ✓ | | | | | |
| Hechavarria et al. [65] | | | ✓ | | | |
| Weisz et al. [142] | ✓ | | | | | |
| Dautzenberg and Reger [41] | ✓ | | | | | |
| Cassar and Friedman [24] | | | ✓ | | | |
| Schjoedt and Kraus [119] | | ✓ | | | | |
| Chen and Wang [29] | | | | | | ✓ |
| Lechler [91] | | | | | | ✓ |

This research tested seven hypotheses. The main hypothesis is that entrepreneurial team characteristics and their social interactions have either a positive or negative impact on the success of IT startups. The sub-hypotheses are the heterogeneity, experience, self-efficacy, commitment, trust, and social interactions of entrepreneurial team members have either positive or negative impacts on the success of IT startups.

*Fig. 1* depicts the research model of this study. Based on the reviewed literature, we developed and tested the model. More specifically, we tested the relationship between heterogeneity of entrepreneurial teams and start-ups' success based on previous studies [11], [20], [63], [75], [97], [122]. Following prior research works [5], [23] the relationship between entrepreneurial team members' experience and start-up's success was tested. We also tested the association between entrepreneurial team members' self-efficacy [101], commitment [14], trust [47], [99], and social interactions [91] and their start-up's success.

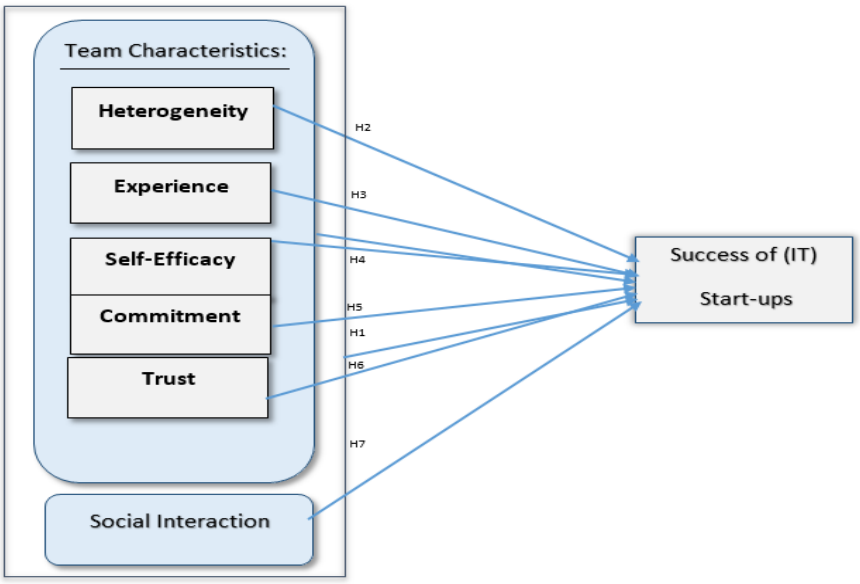


**Fig. 1. The proposed research model.**

# 3 | Method

## 3.1 | Sample and Procedure

This study employed quantitative research. Heterogeneity, experience, self-efficacy, commitment, trust, and social interactions of entrepreneurial team members are selected as the independent variables. The success of a start-up serves as the dependent variable. Data were collected from members of entrepreneurial teams of Information Technology (IT) start-ups in Tehran, the capital city of Iran. The start-ups were selected from a list of available start-ups registered in the Pardis Technology Park and the Presidential Deputy for Science and Technology. The statistical population consisted of 471 start-ups in the field of IT in Tehran. The sample size was calculated using Morgan's table. The sample was selected using the simple random sampling method. The data were collected using a questionnaire administered in both paper and electronic forms. We evaluated the reliability of the questionnaire using Cronbach's alpha [125]. The questionnaire Cronbach's alpha was 0.928 and the mean value of variance extracted was higher than 0.5 and the validity and reliability of the structures were confirmed. Of the participants, 133 (62.4%) were male and 80 (37.6%) were female. Majority of the participants aged between 25 and 30 (78, 36.6%) followed by 20–25 (57, 26.8%), 30–35 (46, 21.6%), 35–40 (15, 7%), 40–45 (9, 4.2%), 15–20 (5, 2.3%), 45–50 (2, 0.9%) and 50–55 (1, 05%). Regarding educational qualifications, the majority of the participants had a Master's degree (109, 50.7%) and Bachelor's degree (74, 34.7%) followed by a doctoral degree (22, 10.3%) and a Diploma (8, 3.7%). The majority of the participants had between 0 and 5 years of experience in the business (139, 65.3%) followed by 5–10 (47, 22.1%) and over ten years of experience (27, 12.6%).

## 3.2 | Measures

The questionnaire was designed based on validated items in previous studies and measured demographic characteristics, self-efficacy, experience, commitment, trust, social interaction of individual members of the entrepreneurial teams.

To measure the dimensions of heterogeneity, we used validated questionnaires. Specifically, we used the items developed by Wheeler et al. [144] to measure the need for achievement (10 items, e.g., "continual opportunities for personal growth and development"; $\alpha$= 0.718). Locus of control was measured using [120] questionnaire (11 items, e.g., "Overall, my skills and abilities will help me start a business."; $\alpha$= 0.767) and risk-taking was measured using [36] questionnaire (2 items, e.g., "when confronted with

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decision-making situations involving uncertainty, my firm Typically adopts a bold, aggressive posture to maximize the probability of exploiting potential opportunities"; α= 0.611).

The items developed by Campion et al. [22] were employed to measure the demographic diversity of the entrepreneurial teams (3 items, e.g., "team members have different backgrounds and experiences"; α= 0.630).

Using the questionnaire developed by Stephens [128], we measured the experience of the participants (5 items, e.g., "the reasons for developing a business network; the services received from a business network; their exposure to formal business networks; and finally, the benefits of a business network."; α= 0.727). The items developed by Högl [68] and Dampérat et al. [38] were employed to measure self-efficacy (9 items, e.g., "I have confidence in my ability to produce new ideas. "; α= 0.869). The items developed by Bishop and Scott [18] were employed to measure the entrepreneurial team members' commitment (8 items, e.g., "I am proud to tell others that I am part of this team."; α= 0.866) and the items developed by Chen and Wang [29] were employed to measure the participants' trust (4 items, e.g., "Entrepreneurial team members are willing to share things without anything to hide."; α= 0.837). We also used the items developed by Tsai and Ghoshal [135], Chen and Wang [29] to measure the social interactions of the participants (4 items, e.g., "With people of which units do you spend the most time together in social occasions?"; α= 0.706).

Finally, to evaluate the dimensions of success, including growth [145] we used 7 items (e.g., "has the market value of your firm increased or decreased relative to your competitors over the past 12 months?"; α= 0.674), profitability [131] was measured 8 items (e.g., "Do you think that that management of accounts receivable affect profitability? Why or why not?"; α= 0.827) and innovation [111] was evaluated with 6 items (e.g., "Compared with our competitors, our product modifications and innovations have a better market response."; α= 0.779). The participants were asked to indicate their agreement on all items using a 7-point Likert scale (1= strongly disagree to 7= strongly agree). They were also asked to provide their demographic data including age, gender, educational qualifications, and work experience. Of 250 questionnaires distributed, 226 were received out of which 13 were incomplete and were not used in our analysis. We used 213 questionnaires in the final analysis.

# 4 | Results

## 4.1 | Confirmatory Factor Analysis (CFA) and Correlations

A CFA was conducted using AMOS software [60] to measure the extent to which the constructs of this study (team characteristics, social interactions, and success) were distinct. The findings of this study show that heterogeneity, experience, self-efficacy, commitment, trust, and social interactions of the entrepreneurial team members have a significant positive influence on start-up success. To ensure the discriminant validity of the constructs in the scale, mean, standard deviations, variances, and correlations between variables were measured for each construct in this study. The results are presented in *Table 2*.

**Table 2. Means, standard deviations, variance, and correlations among variables in the study.**

| Variable | Mean | Std. Deviation | Variance | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|
| Heterogeneity | 5.478 | 0.803 | 0.702 | 1.000 | .306 | .379 | .297 | .344 | .346 | .310 |
| Experience | 4.811 | 0.968 | 0.939 | .306 | 1.000 | .315 | .409 | .221 | .261 | .281 |
| Self-Efficacy | 5.574 | 0.847 | 0.717 | .379 | .315 | 1.000 | .784 | .639 | .598 | .311 |
| Commitment | 5.519 | 0.944 | 0.892 | .297 | .409 | .784 | 1.000 | .602 | .471 | .285 |
| Trust | 5.669 | 0.958 | 0.919 | .344 | .221 | .639 | .602 | 1.000 | .632 | .219 |
| Social Interaction | 5.620 | 0.824 | 0.678 | .346 | .261 | .598 | .471 | .632 | 1.000 | .184 |
| Success | 5.669 | 0.969 | 0.952 | .310 | .281 | .311 | .285 | .219 | .184 | 1.000 |

The model fitted the data well because χ2/df was < 3. The calculated significance level for the model fit (p-Value) in all indicators was less than 0.05. Comparative Fit Index (CFI) values, Goodness of Fit Index (GFI), and Tucker-Lews Index (TLI) for all the indicators were higher than 0.90, Root Mean Square Error of Approximation (RMSEA) was less than the 0.05 threshold, and Root Mean square Residual (RMR) index was close to zero for all of the indicators [1]. The CR value for the construct was above 0.7, which shows the appropriate internal stability of the measurement models. The results of our analysis also showed a good model fit for the impact of heterogeneity of entrepreneurial teams on the start-ups' success (χ2 /df= 2.463, p <0.05, GFI= 0.936, CFI= 0.902, TLI= 0.859, RMSEA= 0.08, RMR= 0.065). In addition, the factor loadings of heterogeneity variables on the start-ups' success also supported the significant impact of heterogeneity on the start-ups' success and confirmed the second hypothesis on the significant positive effect of heterogeneity on start-ups' success (*Fig. 2*).

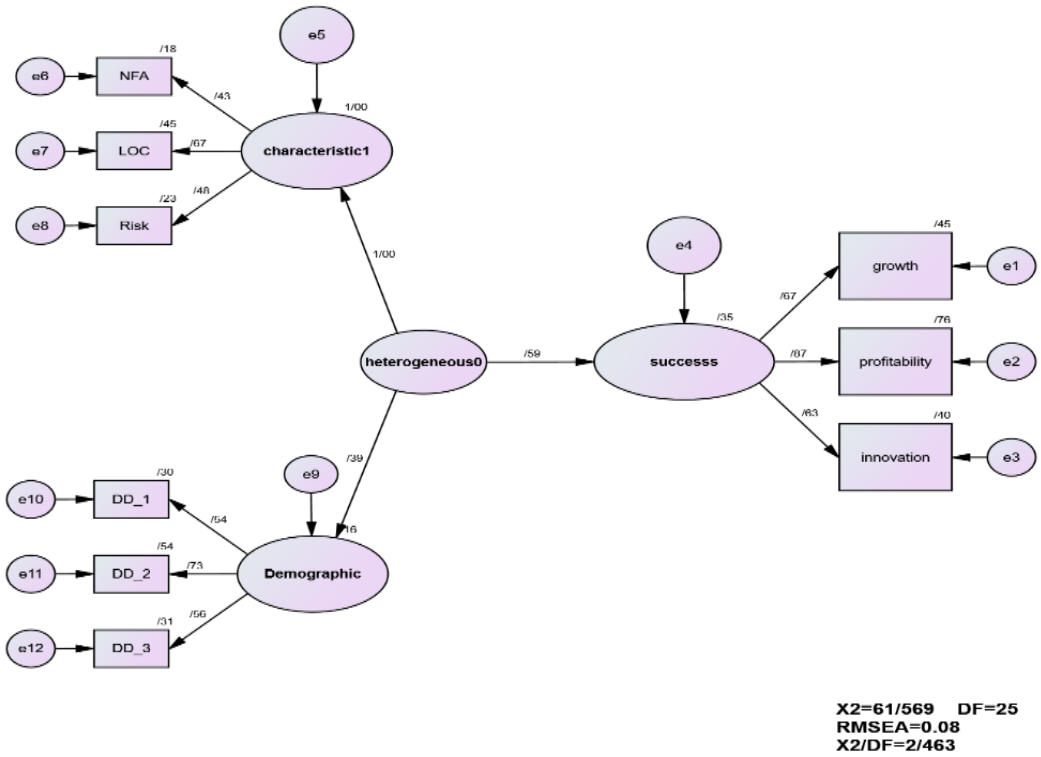


**Fig. 2. Impact of heterogeneity on success.**

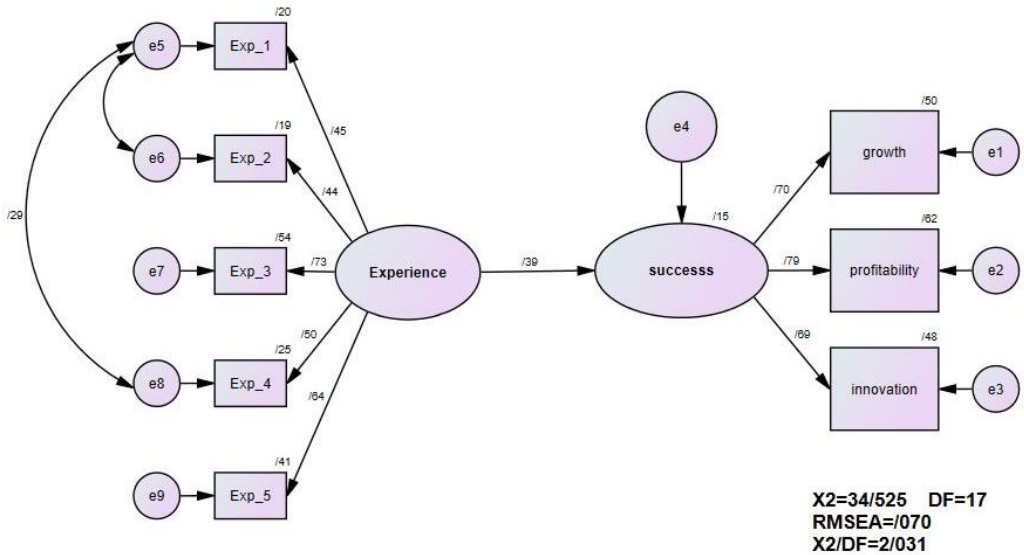


**Fig. 3. Impact of entrepreneurial team members' experience on start-ups' success.**

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Results showed a good model fit for the impact of experience on success ($\chi2$ /df= 2.031, p <0.05, GFI= 0.962, CFI= 0.956, TLI= 0.927, RMSEA= 0.070, RMR= 0.079). In addition, factor loading between the entrepreneurial team members' experience and their start-up's success supported the significant impact of experience on start-ups' success and confirmed the third hypothesis (*Fig. 3*).

Results also showed a good model fit for the impact of the entrepreneurial team members' self-efficacy on their start-ups' success ($\chi2$ / df = 1.723, p <0.05, GFI= 0.931, CFI= 0.959, TLI= 0.948, RMSEA= 0.058, RMR= 0.066). Factor loading of the entrepreneurial team members' self-efficacy on the start-ups' success has also supported the significant impact of entrepreneurial team members' self-efficacy on the start-ups' success and confirmed the fourth hypothesis (*Fig. 4*).

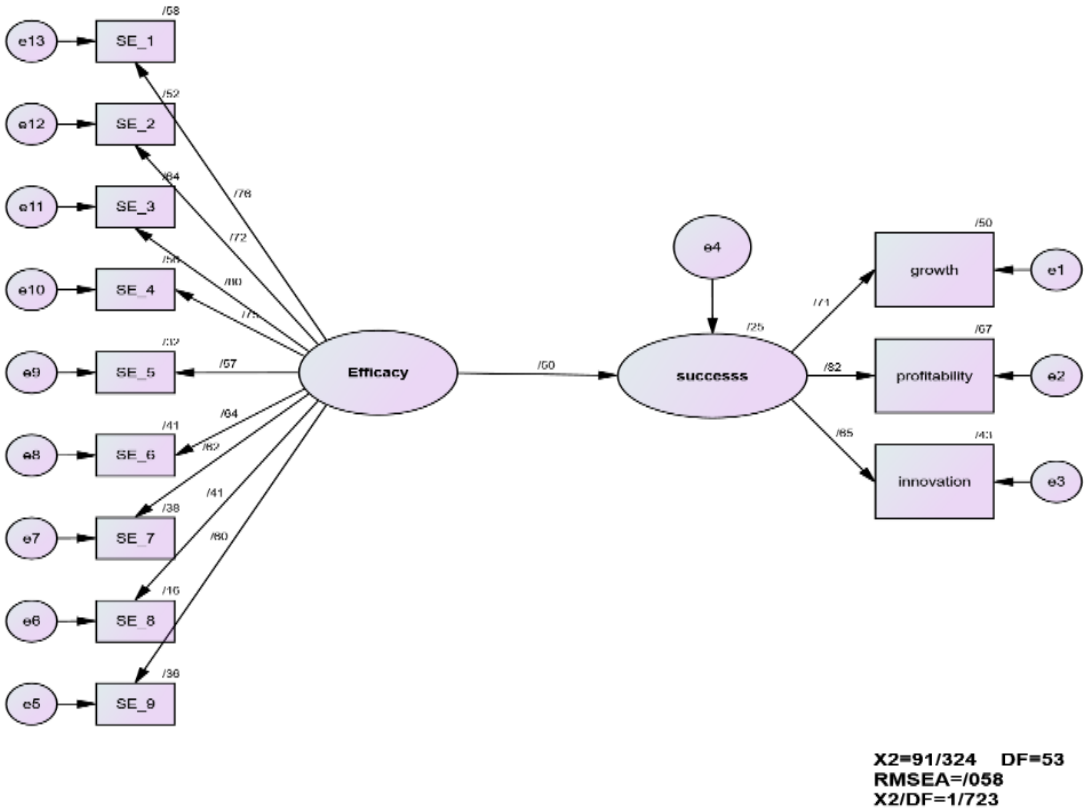


**Fig. 4. Impact of entrepreneurial team members' self-efficacy on start-ups' success.**

Our results also showed a good model fit for the impact of commitment on success ($\chi2$ /df = 1.406, p <0.05, GFI= 0.952, CFI= 0.978, TLI= 0.972, RMSEA= 0.046, RMR= 0.052). Factor loading of commitment on success has also supported the significant impact of entrepreneurial team members' commitment on the start-ups' success and confirmed the fifth hypothesis (*Fig. 5*).

Additionally, the results of the analysis showed a good model fit for the impact of trust on success ($\chi2$ / df= 0.738, p<0.05, GFI= 0.987, CFI= 0.995, TLI= 0.997, RMSEA= 0.000, RMR= 0.028). Factor loading between entrepreneurial team members' trust and start-ups' success also supported the significant impact of entrepreneurial team members' trust on the start-ups' success that confirmed the sixth hypothesis (*Fig. 6*).

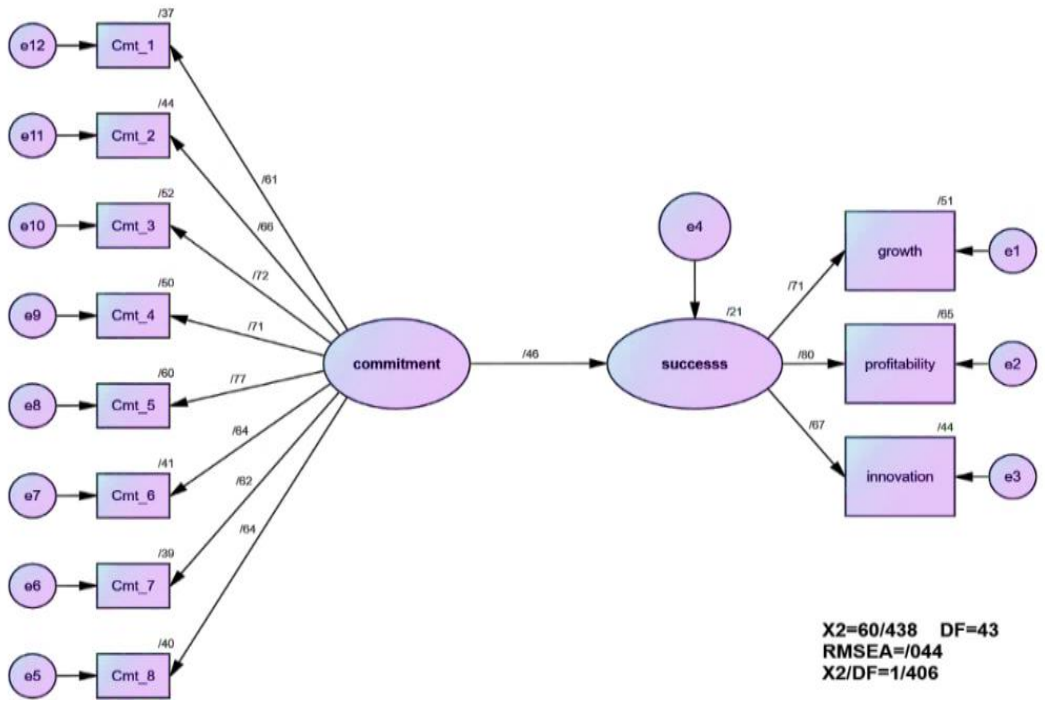


**Fig. 5. Impact of entrepreneurial team members' commitment on start-ups' success.**

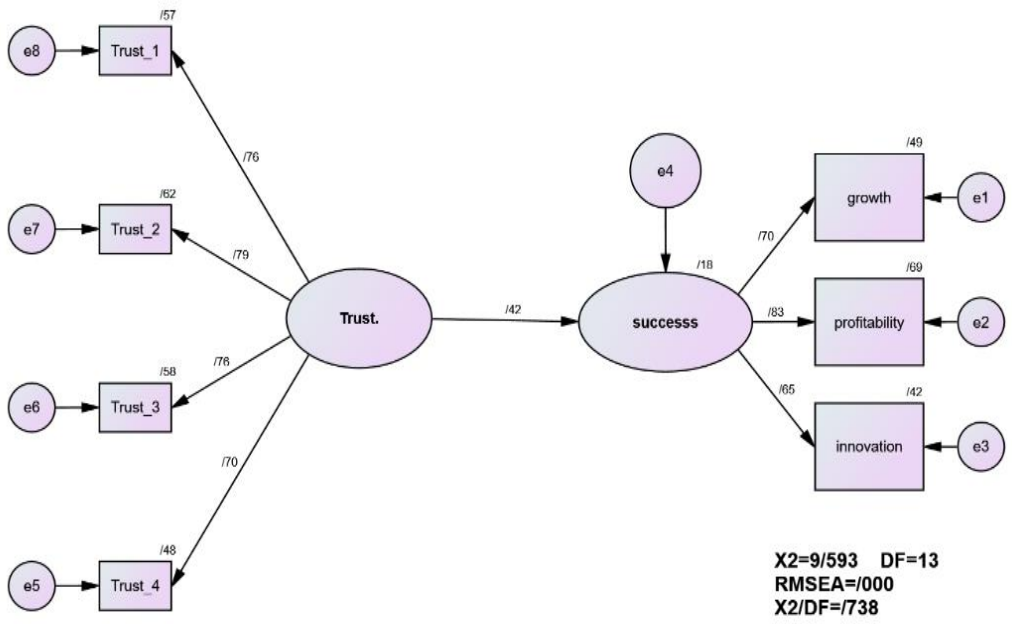


**Fig. 6. Impact of entrepreneurial team members' trust on start-ups' success.**

The results of our analysis also showed a good model fit for the impact of social interaction on success ($\chi 2$/ df= 1.140, $p < 0.05$, GFI= 0.982, CFI= 0.996, TLI= 0.992, RMSEA= 0.026, RMR= 0.049). Factor loading of social interactions on success also supported the significant impact of entrepreneurial team members' social interactions on start-ups' success and confirmed the seventh hypothesis (*Fig. 7*).

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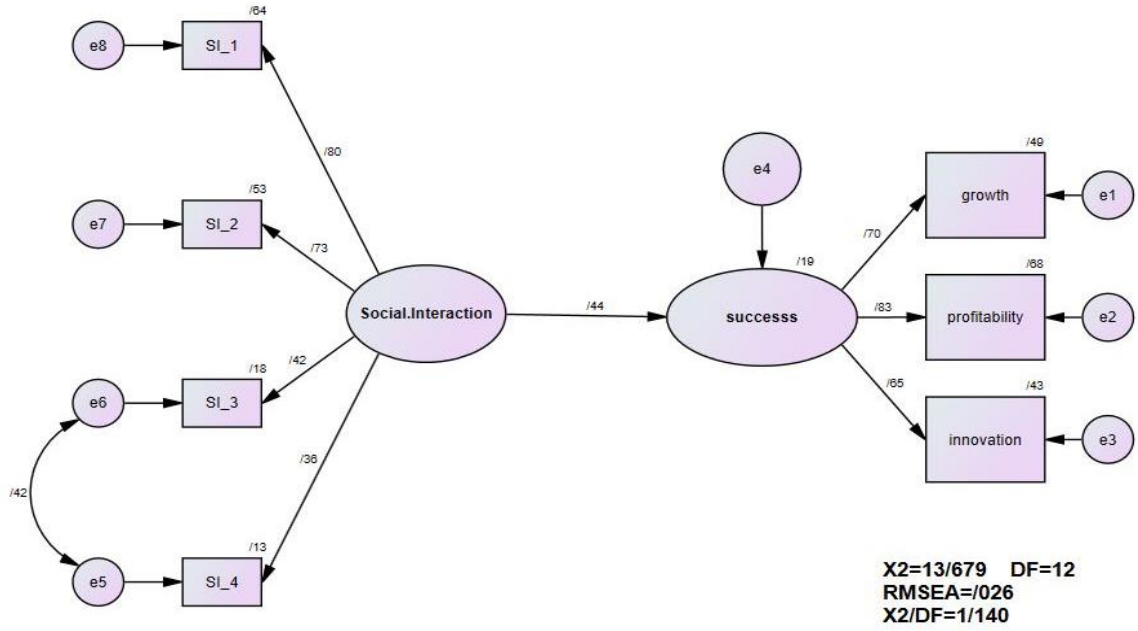


**Fig. 7. Impact of entrepreneurial team members' social interaction on start-ups' success.**

## 4.2 | Structural Model of the Impact of Study Variables on Start-Ups' Success

To test the validity of the first hypothesis that proposed the significant positive impact of team characteristics and social interactions on the start-ups' success, a structural model was developed using the procedures of Structural Equation Modeling (SEM) and maximum likelihood estimation. Model analysis suggested a good model fit ($\chi 2$ /df= 1.516, $p < 0.05$, GFI= 0.81, CFI= 0.90, TLI= 0.88, RMSEA= 0.049, RMR= 0.1). Our analysis showed that team characteristics (heterogeneity, experience, self-efficacy, commitment, trust) and social interactions have a significant positive effect on the start-up's success ($p < 0.05$). Therefore, all research hypotheses were confirmed (*Fig. 8*).

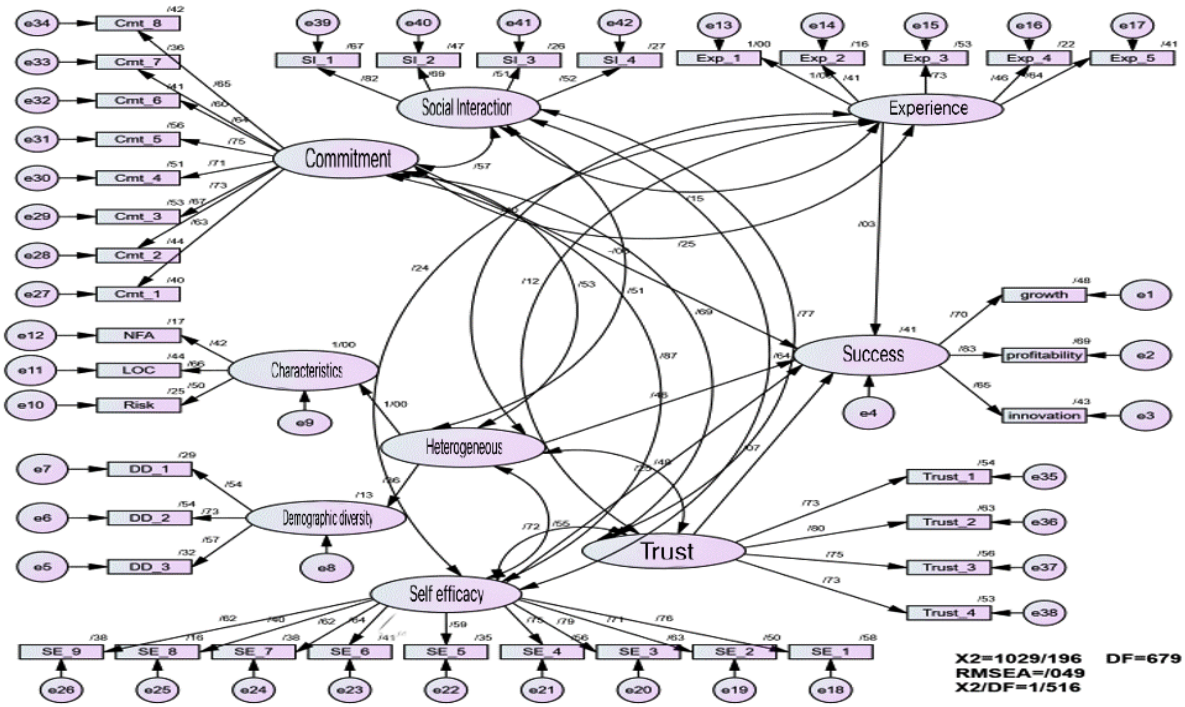


**Fig. 8. Impact of personal characteristics and social interactions of entrepreneurial teams on start-ups' success.**

## 5 | Discussion

The main purpose of this study was to investigate the influence of personal characteristics and social interactions of entrepreneurial teams on the success of IT start-ups. Findings indicated that team characteristics including heterogeneity, experience, self-efficacy, commitment, and trust as well as social interactions have a significant positive effect on the start-ups' success. This finding contributes to the growing number of studies on entrepreneurial teams. Specifically, this study extends previous research that suggested entrepreneurial teams' traits has a significant impact on their entrepreneurial performance [149]. Furthermore, this finding adds to the knowledge that the composition and traits of the senior management team have a significant impact on organizational outcomes [61], [76].

The findings of this study showed that the heterogeneity of entrepreneurial teams has a significant positive effect on the start-ups' success. This research contributes to the limited literature on entrepreneurial teams and start-ups' success [11], [30], [83], [97], [142], [148]. The literature also indicated that experience is important for a business's success since it helps people learn from previous experiences [23]. In this study, the effect of experience on success was investigated. The findings of this research supported previous studies in that the experience of entrepreneurial teams has a significant positive effect on the start-ups' success [5], [23], [34], [72], [136]. The effect of self-efficacy on success has been also investigated in the literature [27], [28], [65] and the findings of the present study showed that self-efficacy of entrepreneurial team members has a significant positive effect on the start-up's success.

Previous studies have also suggested that employees' commitment is significantly impactful on the success of entrepreneurial companies [14]. The findings of this study also supported the studies highlighted that commitment has a significant positive effect on start-ups' success [6], [14], [30], [109], [130].

The results of this study also show that trust has a significant positive effect on the start-ups' success. A meta-analysis of studies on trust in teams showed that there is a significant positive relationship between trust and team performance [99]. Finally, the findings of the present study showed that social interactions have a significant positive effect on the start-ups' success. This finding supports previous research [91] that suggested social interaction is essential in shaping new investments.

## 6 | Conclusions

The present study has empirically revealed the positive significant influences of team characteristics and social interactions of entrepreneurial teams on start-up success. The present study was conducted on IT start-ups. Therefore, the generalizability of the results to other businesses and contexts demands further research. The findings of this research have several implications for entrepreneurs, entrepreneurial teams, and business consultants. In this regard, novice entrepreneurs who seek to create a team may use the findings of this study to improve these characteristics in their team so that they improve the probability of their business success. This study is the starting point for future research on the impact of entrepreneurial teams on different aspects of the business. Furthermore, to increase the reliability and better explain the relationships between the entrepreneurial team and start-ups' success, future research should explore the role of moderators or mediators in the relationships that emerged from this study.

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## References

[1] Abd-El-Fattah, S. M. (2010). Structural Equation Modeling with AMOS: Basic Concepts, Applications and Programming. *Journal of applied quantitative methods*, *5*(2), 365-368.

[2] Almer-Jarz, D. A., Schwarz, E. J., & Breitenecker, R. J. (2008). New venture teams: the relationship between initial team characteristics, team processes and performance. In *Entrepreneurship. sustainable growth and performance, edward elgar publishing limited, cheltenham and northampton* (pp. 163-193). Edward Elgar Publishing.

[3] Aminova, M., & Marchi, E. (2021). The role of innovation on start-up failure vs. its success. *International journal of business ethics and governance*, *4*(1), 41-72.

[4] Amit, R., MacCrimmon, K. R., Zietsma, C., & Oesch, J. M. (2001). Does money matter? wealth attainment as the motive for initiating growth-oriented technology ventures. *Journal of business venturing*, *16*(2), 119-143. https://doi.org/10.1016/S0883-9026(99)00044-0

[5] Argote, L., McEvily, B., & Reagans, R. (2003). Managing knowledge in organizations: an integrative framework and review of emerging themes. *Management science*, *49*(4), 571-582. https://doi.org/10.1287/mnsc.49.4.571.14424

[6] Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: structure, process, and content. *Psychological bulletin*, *120*(3), 338-375. https://doi.org/10.1037/0033-2909.120.3.338

[7] Bandura (1995). *Self-efficacy in changing societies*. Cambridge university press. https://doi.org/10.1017/CBO9780511527692

[8] Bandura (1997). *Self-efficacy: the exercise of control*. Worth Publishers. https://books.google.com/books/about/Self_Efficacy.html?id=eJ-PN9g_o-EC

[9] Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, *84*(2), 191-215. https://doi.org/10.1037/0033-295X.84.2.191

[10] Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of social and clinical psychology*, *4*(3), 359.

[11] Bantel, K. A., & Jackson, S. E. (1989). Top management and innovations in banking: does the composition of the top team make a difference? *Strategic management journal*, *10*(S1), 107-124. https://doi.org/10.1002/smj.4250100709

[12] Baptista, R., Karaöz, M., & Mendonça, J. (2007). *Entrepreneurial backgrounds, human capital and start-up success* (No. 2007, 045). Jena Economic Research Papers. https://www.econstor.eu/handle/10419/25610

[13] Baregheh, A., Rowley, J., & Sambrook, S. (2009). Towards a multidisciplinary definition of innovation. *Management decision*, *47*(8), 1323-1339. https://doi.org/10.1108/00251740910984578

[14] Baron, J. N., & Hannan, M. T. (2002). Organizational blueprints for success in high-tech start-ups: lessons from the Stanford project on emerging companies. *California management review*, *44*(3), 8-36. https://doi.org/10.2307/41166130

[15] Begley, T. M., & Boyd, D. P. (1987). Psychological characteristics associated with performence in entrepreneurial firms and smaller businesses. *Journal of business venturing*, *2*(1), 79-93. https://doi.org/10.1016/0883-9026(87)90020-6

[16] Ben Hafaïedh, C. (2006). *Essay on a team-based view of entrepreneurship*. 14th Nordic conference on small business research, stockholm, Sweden. http://www.semanticscholar.org

[17] Bergek, A., & Norrman, C. (2008). Incubator best practice: a framework. *Technovation*, *28*(1-2), 20-28. https://doi.org/10.1016/j.technovation.2007.07.008

[18] Bishop, J. W., & Scott, K. D. (2000). An examination of organizational and team commitment in a self-directed team environment. *Journal of applied psychology*, *85*(3), 439. https://doi.org/10.1037/0021-9010.85.3.439

[19] Bocken, N. M. (2015). Sustainable venture capital–catalyst for sustainable start-up success? *Journal of cleaner production*, *108*, 647-658. https://doi.org/10.1016/j.jclepro.2015.05.079

[20] Brockhaus Sr, R. H. (1980). Risk taking propensity of entrepreneurs. *Academy of management journal*, *23*(3), 509-520. https://doi.org/10.5465/255515

[21] Bruneel, J., Ratinho, T., Clarysse, B., & Groen, A. (2012). The Evolution of Business Incubators: comparing demand and supply of business incubation services across different incubator generations. *Technovation*, *32*(2), 110-121. https://doi.org/10.1016/j.technovation.2011.11.003

[22] Campion, M. A., Medsker, G. J., & Higgs, A. C. (1993). Relations between work group characteristics and effectiveness: implications for designing effective work groups. *Personnel psychology*, *46*(4), 823-847. https://doi.org/10.1111/j.1744-6570.1993.tb01571.x

[23] Cassar, G. (2014). Industry and startup experience on entrepreneur forecast performance in new firms. *Journal of business venturing*, *29*(1), 137-151. https://doi.org/10.1016/j.jbusvent.2012.10.002

[24] Cassar, G., & Friedman, H. (2009). Does self-efficacy affect entrepreneurial investment? *Strategic entrepreneurship journal*, *3*(3), 241-260. https://doi.org/10.1002/sej.73

[25] Castro, I., & Roldán, J. L. (2013). A mediation model between dimensions of social capital. *International business review*, *22*(6), 1034-1050. https://doi.org/10.1016/j.ibusrev.2013.02.004

[26] Chell, E. (2008). The nascent entrepreneur, business development and the role of human resources. In *International handbook of entrepreneurship and HRM* (pp. 21-46). Edward Elgar Publishing. https://doi.org/10.4337/9781848441224

[27] Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of business venturing*, *13*(4), 295-316. https://doi.org/10.1016/S0883-9026(97)00029-3

[28] Chen, G., & Bliese, P. D. (2002). The role of different levels of leadership in predicting self-and collective efficacy: evidence for discontinuity. *Journal of applied psychology*, *87*(3), 549. https://doi.org/10.1037/0021-9010.87.3.549

[29] Chen, M. H., & Wang, M. C. (2008). Social networks and a new venture's innovative capability: the role of trust within entrepreneurial teams. *R&d management*, *38*(3), 253-264. https://doi.org/10.1111/j.1467-9310.2008.00515.x

[30] Chowdhury, S. (2005). Demographic diversity for building an effective entrepreneurial team: is it important? *Journal of business venturing*, *20*(6), 727-746. https://doi.org/10.1016/j.jbusvent.2004.07.001

[31] Clarkin, J. E., & Rosa, P. J. (2005). Entrepreneurial teams within franchise firms. *International small business journal*, *23*(3), 303-334. https://doi.org/10.1177/0266242605052075

[32] Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: group effectiveness research from the shop floor to the executive suite. *Journal of management*, *23*(3), 239-290. https://doi.org/10.1177/014920639702300303

[33] Cooney, T. M. (2005). What is an entrepreneurial team? *International small business journal*, *23*(3), 226-235. https://doi.org/10.1177/0266242605052131

[34] Cooper, A. C., & Bruno, A. V. (1977). Success among high-technology firms. *Business horizons, 20*(2), 16-22.

[35] Costa, A. C., & Anderson, N. (2011). Measuring trust in teams: development and validation of a multifaceted measure of formative and reflective indicators of team trust. *European journal of work and organizational psychology*, *20*(1), 119-154. https://doi.org/10.1080/13594320903272083

[36] Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic management journal*, *10*(1), 75-87. https://doi.org/10.1002/smj.4250100107

[37] Dai, S., Li, Y., & Zhang, W. (2019). Personality traits of entrepreneurial top management team members and new venture performance. *Social behavior and personality: an international journal*, *47*(7), 1-15. DOI: https://doi.org/10.2224/sbp.8107

[38] Dampérat, M., Jeannot, F., Jongmans, E., & Jolibert, A. (2016). Team creativity: Creative self-efficacy, creative collective efficacy and their determinants. *Recherche et applications en marketing (English Edition)*, *31*(3), 6-25. https://doi.org/10.1177/2051570716650164

[39] Dautzenberg, K. (2012). Gender differences of business owners in technology-based firms. *International journal of gender and entrepreneurship*, *4*(1), 79-98. https://doi.org/10.1108/17566261211202990

[40] Dautzenberg, K., & Reger, G. (2010). Entrepreneurial team characteristics and success of new technology-based firms in Germany. *International journal of business and globalisation*, *4*(1), 71-94.

[41] Dautzenberg, K., & Reger, G. (2010). Evaluation of entrepreneurial teams: early-stage investment decisions in new technology-based firms. *International journal of entrepreneurial venturing*, *2*(1), 1-22.

[42] Dautzenberg, K., Madani, R., Reger, G., & Schultz, C. (2007). Effects of entrepreneurial team formation on success of technology-based firms. *4th conference "theory and practice of entrepreneurship"*. Klagenfurt, Austria.

[43] Davis, A. E., Aldrich, H. E., & Longest, K. C. (2009). Resource drain or process gains? team status characteristics and group functioning among startup teams. *Frontiers of entrepreneurship research*, *29*(11), 2.

[44] de Mol, E., Khapova, S. N., & Elfring, T. (2015). Entrepreneurial team cognition: a review. *International journal of management reviews*, *17*(2), 232-255. https://doi.org/10.1111/ijmr.12055

[45] DeCarlo, J. F., & Lyons, P. R. (1979). A comparison of selected personal characteristics of minority and non-minority female entrepreneurs. *Academy of management proceedings* (Vol. 1979, No. 1, pp. 369-373). Briarcliff Manor, NY 10510: Academy of Management. https://doi.org/10.5465/ambpp.1979.4977629

[46] Dyer, J. H., & Nobeoka, K. (2000). Creating and managing a high-performance knowledge-sharing network: the Toyota case. *Strategic management journal*, *21*(3), 345-367. https://doi.org/10.1002/(SICI)1097-0266(200003)21:3<345::AID-SMJ96>3.0.CO;2-N

[47] Erdem, F., & Ozen, J. (2003). Cognitive and affective dimensions of trust in developing team performance. *Team performance management: an international journal*, *9*(5/6), 131-135. https://doi.org/10.1108/13527590310493846

[48] Feul, P., Pardo-del-Val, M., & Revuelto-Taboada, L. (2022). Does the ideal entrepreneurial team exist? *International entrepreneurship and management journal*, *18*, 1263-1289.

[49] Forbes, D. P. (2005). The effects of strategic decision making on entrepreneurial self–efficacy. *Entrepreneurship theory and practice*, *29*(5), 599-626. https://doi.org/10.1111/j.1540-6520.2005.00100.x

[50] Freel, M. S. (2005). Perceived environmental uncertainty and innovation in small firms. *Small business economics*, *25*(1), 49-64. https://doi.org/10.1007/s11187-005-4257-9

[51] Gartner, W. B., Gartner, W. C., Shaver, K. G., Carter, N. M., & Reynolds, P. D. (Eds.). (2004). *Handbook of entrepreneurial dynamics: The process of business creation*. Sage. https://sk.sagepub.com/reference/handbook-of-entrepreneurial-dynamics/n27.xml

[52] Ghahtarani, A., Sheikhmohammady, M., & Rostami, M. (2020). The impact of social capital and social interaction on customers' purchase intention, considering knowledge sharing in social commerce context. *Journal of innovation & knowledge*, *5*(3), 191-199. https://doi.org/10.1016/j.jik.2019.08.004

[53] Gladstein, D. L. (1984). Groups in context: a model of task group effectiveness. *Administrative science quarterly*, 499-517. https://doi.org/10.2307/2392936

[54] Gorgievski, M. J., Ascalon, M. E., & Stephan, U. (2011). Small business owners' success criteria, a values approach to personal differences. *Journal of small business management*, *49*(2), 207-232. https://www.tandfonline.com/doi/abs/10.1111/j.1540-627X.2011.00322.x

[55] Gregori, P., & Parastuty, Z. (2021). Investigating the process of entrepreneurial team member exits: a systematic review and future research directions. *Review of managerial science*, *15*(4), 847-878. https://doi.org/10.1007/s11846-020-00377-1

[56] Grimaldi, R., & Grandi, A. (2005). Business incubators and new venture creation: an assessment of incubating models. *Technovation*, *25*(2), 111-121. https://doi.org/10.1016/S0166-4972(03)00076-2

[57] Gürol, Y., & Atsan, N. (2006). Entrepreneurial characteristics amongst university students: some insights for entrepreneurship education and training in Turkey. *Education+ training*, *48*(1), 25-38. https://doi.org/10.1108/00400910610645716

[58] Hackman, J. R., & Lorsch, J. W. (1987). *Handbook of organizational behavior*. Prentice-Hall, Englewood Cliffs, NJ.

[59] Hagen, C., Bergh, N. S., & Christensen, S. (2018). *Startups seeking business angel financing-from the entrepreneur's perspective* (Master's Thesis, NTNU). Retrieved from http://hdl.handle.net/11250/2572910

[60] Hair Jr, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis: a global perspective*. Prentice-Hall, Englewood Cliffs, NJ.

[61] Hambrick, D. C. (2007). Upper echelons theory: an update. *Academy of management review*, *32*(2), 334-343.

[62] Harper, D. A. (2008). Towards a theory of entrepreneurial teams. *Journal of business venturing*, *23*(6), 613-626.

[63] Harrison, D. A., Price, K. H., & Bell, M. P. (1998). Beyond relational demography: time and the effects of surface-and deep-level diversity on work group cohesion. *Academy of management journal*, *41*(1), 96-107.

[64] He, W., Qiao, Q., & Wei, K. K. (2009). Social relationship and its role in knowledge management systems usage. *Information & management*, *46*(3), 175-180.

[65] Hechavarria, D. M., Renko, M., & Matthews, C. H. (2012). The nascent entrepreneurship hub: goals, entrepreneurial self-efficacy and start-up outcomes. *Small business economics*, *39*(3), 685-701.

[66] Heffner, T. S., & Rentsch, J. R. (2001). Organizational commitment and social interaction: a multiple constituencies approach. *Journal of vocational behavior*, *59*(3), 471-490.

[67] Henneke, D., & Lüthje, C. (2007). Interdisciplinary heterogeneity as a catalyst for product innovativeness of entrepreneurial teams. *Creativity and innovation management*, *16*(2), 121-132.

[68] Högl, M. (1998). Teamarbeit in innovative projects: Eine kritische Bestandsaufnahme der empirischen Forschung. *German journal of human resource management.* (In German) https://doi.org/10.1177/239700229801200301

[69] Homberg, F., & Bui, H. T. (2013). Top management team diversity: a systematic review. *Group & organization management*, *38*(4), 455-479.

[70] Hopp, C., & Stephan, U. (2012). The influence of socio-cultural environments on the performance of nascent entrepreneurs: community culture, motivation, self-efficacy and start-up success. *Entrepreneurship & regional development*, *24*(9-10), 917-945.

[71] Hornaday, J. A., & Aboud, J. (1971). Characteristics of successful entrepreneurs. *Personnel psychology, 24*(2), 141-153.

[72] Hsu, D. H. (2004). *Experienced entrepreneurial founders and venture capital funding*. Retrieved from http://dx.doi.org/10.2139/ssrn.584702

[73] Indrawati, N. K., Salim, U., & Djawahir, A. H. (2015). Moderation effects of entrepreneurial self-efficacy in relation between environmental dimensions and entrepreneurial alertness and the effect on entrepreneurial commitment. *Procedia-Social and Behavioral Sciences*, *169*, 13-22.

[74] Inkpen, A. C., & Tsang, E. W. (2005). Social capital, networks, and knowledge transfer. *Academy of management review, 30*(1), 146-165.

[75] Jackson, S. E., May, K. E., Whitney, K., Guzzo, R. A., & Salas, E. (1995). Understanding the dynamics of diversity in decision-making teams. *Team effectiveness and decision making in organizations*, 204-261.

[76] Jin, L., Madison, K., Kraiczy, N. D., Kellermanns, F. W., Crook, T. R., & Xi, J. (2017). Entrepreneurial team composition characteristics and new venture performance: a meta–analysis. *Entrepreneurship theory and practice, 41*(5), 743-771.

[77] Kamm, J. B., Shuman, J. C., Seeger, J. A., & Nurick, A. J. (1990). Entrepreneurial teams in new venture creation: a research agenda. *Entrepreneurship theory and practice, 14*(4), 7-17.

[78] Katzenbach, J. R., & Smith, D. K. (2003). *Teams: der schlüssel zur hochleistungsorganisation*. Moderne Industrie. (In German).

[79] Khan, M. S., Breitenecker, R. J., & Schwarz, E. J. (2014). Need for achievement diversity and relationship conflicts in entrepreneurial teams. *Academy of management proceedings* (Vol. 2014, No. 1, p. 13610). Briarcliff Manor, NY 10510: Academy of Management.

[80] Khan, M. S., Breitenecker, R. J., Gustafsson, V., & Schwarz, E. J. (2015). Innovative entrepreneurial teams: the give and take of trust and conflict. *Creativity and innovation management, 24*(4), 558-573.

[81] Kheirandish, M., & Jamshidi, H. (2016). The effect of social capital on organizational entrepreneurship with studying the moderating role of job motivation. *Social capital management, 3*(1), 43-68.

[82] Klotz, A. C., Hmieleski, K. M., Bradley, B. H., & Busenitz, L. W. (2014). New venture teams: a review of the literature and roadmap for future research. *Journal of management, 40*(1), 226-255.

[83] Daily, B. F., & Bishop, J. W. (2003). TQM workforce factors and employee involvement: The pivotal role of teamwork. Journal of managerial issues, *XV*(4)393-412.

[84] Ko, E. J., Wiklund, J., & Pollack, J. M. (2021). Entrepreneurial team diversity and productivity: the role of family relationships in nascent ventures. *Entrepreneurship theory and practice, 45*(2), 386-417.

[85] Kollmann, T., Stöckmann, C., Hensellek, S., & Kensbock, J. (2016). *European startup monitor 2016*. Graz: Universität Duisburg-Essen Lehrstuhl für E-Business.

[86] Kopera, S., Wszendybył-Skulska, E., Cebulak, J., & Grabowski, S. (2018). Interdisciplinarity in tech startups development: case study of" unistartapp" project. *Foundations of management, 10*(1), 23-32.

[87] Kwon, S. W., & Adler, P. S. (2014). Social capital: maturation of a field of research. *Academy of management review, 39*(4), 412-422.

[88] Kyrö, P. (2015). To grow or not to grow? entrepreneurship and sustainable development. In *Handbook of entrepreneurship and sustainable development research* (pp. 3-29). Edward Elgar Publishing.

[89] Lazar, M., Miron-Spektor, E., Agarwal, R., Erez, M., Goldfarb, B., & Chen, G. (2020). Entrepreneurial team formation. *Academy of management annals, 14*(1), 29-59.

[90] Zhou, W., & Rosini, E. (2015). Entrepreneurial team diversity and performance: Toward an integrated model. *Entrepreneurship research journal, 5*(1), 31-60.

[91] Lechler, T. (2001). Social interaction: a determinant of entrepreneurial team venture success. *Small business economics, 16*(4), 263-278.

[92] Lee, D. Y., & Tsang, E. W. (2001). The effects of entrepreneurial personality, background and network activities on venture growth. *Journal of management studies, 38*(4), 583-602.

[93] Lee, Y. S. (2020). New general theory of economic development: innovative growth and distribution. *Review of development economics, 24*(2), 402-423.

[94] Lehmann, M., Christensen, P., & Larsen, J. M. (2005). 13. Self-regulation and new institutions: the case of the Green Network in Denmark. *Environmental strategy and competitive advantage*, 286. https://doi.org/10.4337/9781845426859

[95] Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: toward a general model. *Human resource management review, 11*(3), 299-326.

[96] Mickiewicz, T., & Rebmann, A. (2020). Entrepreneurship as trust. *Foundations and trends® in entrepreneurship, 16*(3), 244-309.

[97] Milliken, F. J., & Martins, L. L. (1996). Searching for common threads: understanding the multiple effects of diversity in organizational groups. *Academy of management review, 21*(2), 402-433.

[98] Moroni, I., Arruda, A., & Araujo, K. (2015). The design and technological innovation: how to understand the growth of startups companies in competitive business environment. *Procedia manufacturing, 3*, 2199-2204.

[99] Morrissette, A. (2016). *Team trust and team performance: a meta-analysis*. Retrieved from https://hdl.handle.net/11244/47083

[100] Naldi, L., Nordqvist, M., Sjöberg, K., & Wiklund, J. (2007). Entrepreneurial orientation, risk taking, and performance in family firms. *Family business review, 20*(1), 33-47.

[101] Newman, A., Obschonka, M., Schwarz, S., Cohen, M., & Nielsen, I. (2019). Entrepreneurial self-efficacy: a systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research. *Journal of vocational behavior, 110*, 403-419.

[102] Okrah, J., Nepp, A., & Agbozo, E. (2018). Exploring the factors of startup success and growth. *The business & management review, 9*(3), 229-237.

[103] Omri, A., & Boujelbene, Y. (2018). Success factors of entrepreneurial teams: modeling through the cognitive mapping. *Journal of entrepreneurship and management, 7*(1), 1-9.

[104] Pearce III, J. A., & Ravlin, E. C. (1987). The design and activation of self-regulating work groups. *Human relations, 40*(11), 751-782.

[105] Pinzón, N., Montero, J., & González-Pernía, J. L. (2021). The influence of individual characteristics on getting involved in an entrepreneurial team: the contingent role of individualism. *International entrepreneurship and management journal, 18*, 1103-1140.

[106] Prakash, D., Jain, S., & Chauhan, K. (2015). Supportive government policies, locus of control and student's entrepreneurial intensity: a study of India. *Journal of global entrepreneurship research, 5*(1), 1-15.

[107] Rafiei, S., Mohebibar, R., Ahadi Nejad, B., & Nisari, N. (2018). The study of the relationship between social capital and entrepreneurship behavior of faculty members of Qazvin University of medical sciences in 2018. *Evidence based health policy, management and economics, 2*(4), 275-280.

[108] Razak, N. A., Pangil, F., Zin, M. L. M., Yunus, N. A. M., & Asnawi, N. H. (2016). Theories of knowledge sharing behavior in business strategy. *Procedia economics and finance, 37*, 545-553.

[109] Renn, R. W. (2003). Moderation by goal commitment of the feedback–performance relationship: theoretical explanation and preliminary study. *Human resource management review, 13*(4), 561-580.

[110] Ries, E. (2011). *The lean startup: how today's entrepreneurs use continuous innovation to create radically successful businesses*. Currency.

[111] Ritter, T., & Gemünden, H. G. (2004). The impact of a company's business strategy on its technological competence, network competence and innovation success. *Journal of business research, 57*(5), 548-556.

[112] Robbins, S. P. and T. A. Judge (2008). *Perilaku organisasi (Organizational behavior)*. https://www.semanticscholar.org/

[113] Ruef, M. (2010). *The entrepreneurial group: social identities, relations, and collective action (the kauffman foundation series on innovation and entrepreneurship)*. Princeton University Press.

[114] Ryan, S., & O'Connor, R. V. (2013). Acquiring and sharing tacit knowledge in software development teams: an empirical study. *Information and software technology, 55*(9), 1614-1624.

[115] Schumpeter, J. A. (1934). *The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle / by Joseph A. Schumpeter; translated from the German by Redvers Opie*. Cambridge, Mass : Harvard University Press.

[116] Saura, J. R., Palos-Sanchez, P., & Grilo, A. (2019). Detecting indicators for startup business success: sentiment analysis using text data mining. *Sustainability, 11*(3), 917. https://doi.org/10.3390/su11030917

[117] Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business strategy and the environment, 20*(4), 222-237.

[118] Schei, V., & Rognes, J. K. (2005). Small group negotiation: when members differ in motivational orientation. *Small group research, 36*(3), 289-320.

[119] Schjoedt, L., & Kraus, S. (2009). Entrepreneurial teams: definition and performance factors. *Management research news, 32*(6), 513-524.

[120] Schjoedt, L., & Shaver, K. G. (2012). Development and validation of a locus of control scale for the entrepreneurship domain. *Small business economics, 39*(3), 713-726.

[121] Schjoedt, L., Monsen, E., Pearson, A., Barnett, T., & Chrisman, J. J. (2013). New venture and family business teams: understanding team formation, composition, behaviors, and performance. *Entrepreneurship theory and practice, 37*(1), 1-15.

[122] Leary, M. M., & DeVaughn, M. L. (2009). Entrepreneurial team characteristics that influence the successful launch of a new venture. *Management research news, 32*(6), 567-579.

[123] Schumpeter, J. A. (2008). *Capitalism, socialism, and democracy: third edition (harper perennial modern thought)*. Harper Perennial Modern Classics.

[124] Seijts, G. H., & Latham, G. P. (2011). The effect of commitment to a learning goal, self-efficacy, and the interaction between learning goal difficulty and commitment on performance in a business simulation. *Human performance, 24*(3), 189-204.

[125] Sekaran, U., & Bougie, R. (2016). *Research methods for business: a skill building approach*. John Wiley & Sons.

[126] Shane, S., & Stuart, T. (2002). Organizational endowments and the performance of university start-ups. *Management science, 48*(1), 154-170.

[127] Singh, J. (2005). Collaborative networks as determinants of knowledge diffusion patterns. *Management science, 51*(5), 756-770.

[128] Stephens, S. (2013). Building an entrepreneurial network: the experiences of immigrant entrepreneurs. *Journal of enterprising communities: people and places in the global economy, 7*(3), 233-244.

[129] Tajpour, M., & Hosseini, E. (2019). The effect of human and social capital on entrepreneurial activities: A case study of Iran and implications. *Entrepreneurship and sustainability issues, 6*(3). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3682545

[130] Tasnim, R., Yahya, S., & Zainuddin, M. N. (2014). "I'm loving it!" what makes the successful entrepreneur affectively committed to entrepreneurial performance? *Journal of applied management and entrepreneurship, 19*(2), 27-52.

[131] Tauringana, V., & Afrifa, G. A. (2013). The relative importance of working capital management and its components to SMEs' profitability. *Journal of small business and enterprise development, 20*(3), 453-469.

[132] Teltch, N. (2021). *The entrepreneurial team and early stage success of start-ups*. Temple University.

[133] Thiess, D., Sirén, C., & Grichnik, D. (2016). How does heterogeneity in experience influence the performance of nascent venture teams: insights from the US PSED II study. *Journal of business venturing insights, 5*, 55-62.

[134] Tihula, S., Huovinen, J., & Fink, M. (2009). Entrepreneurial teams vs management teams: reasons for team formation in small firms. *Management research news, 32*(6), 555-566.

[135] Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: the role of intrafirm networks. *Academy of management journal, 41*(4), 464-476.

[136] Van de Ven, A. H., Hudson, R., & Schroeder, D. M. (1984). Designing new business startups: entrepreneurial, organizational, and ecological considerations. *Journal of management, 10*(1), 87-108.

[137] Visintin, F., & Pittino, D. (2014). Founding team composition and early performance of university—based spin-off companies. *Technovation, 34*(1), 31-43.

[138] Wanous, J. P., & Youtz, M. A. (1986). Solution diversity and the quality of groups decisions. *Academy of management journal, 29*(1), 149-159.

[139] Wasko, M. M., & Faraj, S. (2005). Why should I share? examining social capital and knowledge contribution in electronic networks of practice. *MIS quarterly, 29*(1), 35-57.

[140] Watson, W. E., Ponthieu, L. D., & Critelli, J. W. (1995). Team interpersonal process effectiveness in venture partnerships and its connection to perceived success. *Journal of business venturing, 10*(5), 393-411.

[141] Wei, J., Zheng, W., & Zhang, M. (2011). Social capital and knowledge transfer: a multi-level analysis. *Human relations, 64*(11), 1401-1423.

[142] Weisz, N., Vassolo, R. S., Mesquita, L., & Cooper, A. C. (2010). Diversity and social capital of nascent entrepreneurial teams in business plan competitions. *Management research: journal of the iberoamerican academy of management, 8*(1), 39-63.

[143] Westlund, H., & Bolton, R. (2003). Local social capital and entrepreneurship. *Small business economics, 21*(2), 77-113.

[144] Wheeler, A. R., Richey, R. G., Tokkman, M., & Sablynski, C. J. (2006). Retaining employees for service competency: the role of corporate brand identity. *Journal of brand management, 14*(1), 96-113.

[145] Wiklund, J., Patzelt, H., & Shepherd, D. A. (2009). Building an integrative model of small business growth. *Small business economics, 32*(4), 351-374.

[146] Wu, P. (2019). Multiple paths in promoting the performance of entrepreneurial team under the interaction of team heterogeneity and autonomous learning based on fuzzy-set qualitative comparative analysis. *Open access library journal, 6*(12), 1. DOI: 10.4236/oalib.1105960

[147] Yan, L., & Chenhui, Z. (2021). A research on the mechanism of collective psychological ownership affecting the entrepreneurial team performance. *Science research management, 42*(9), 150-156.

[148] Yu, L. (2002). Does diversity drive productivity? different experiences and points of view don't, by themselves, make work groups more productive. The important factor is how people interrelate (Teams). *MIT sloan management review, 43*(2), 17-18.

[149] Zhao, Y., & Feng, Y. Y. (2019). A study on the impact of team heterogeneity on organizational performance in start-ups. *5th international conference on economics and management (ICEM 2019)* (pp. 215-218). Atlantis Press.

[150] Zhou, W., Hu, H., & Zey, M. (2015). Team composition of new venture founding teams: does personality matter? *International journal of entrepreneurial behavior & research, 21*(5), 673-689.

[151] Ziyae, B., Sajadi, S. M., & Mobaraki, M. H. (2014). The deployment and internationalization speed of e-business in the digital entrepreneurship era. *Journal of global entrepreneurship research, 4*(1), 1-11.