

Opportunity Identification among Tunisian Micro-Entrepreneurs: Differential Effects of Human and Social Capital

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Abstract— Entrepreneurship is a key driver of economic growth and innovation, with opportunity identification being a fundamental step in the entrepreneurial process. This paper examines how human and social capital affect opportunity identification in Tunisian micro-enterprises—a sector that plays a crucial socio-economic role but faces significant informational and structural constraints. Human capital includes education, entrepreneurial training, sector-specific experience, managerial experience, and creativity, while social capital is captured through the size and quality of networks and interpersonal relationships. Data from 105 micro-entrepreneurs were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM).

The results show that social capital significantly facilitates opportunity identification. In contrast, education and creativity have unexpectedly negative effects, while sector-specific experience, managerial experience, and entrepreneurial training show no significant impact. These findings highlight the importance of social networks in emerging economies and provide actionable insights for policymakers and programs aiming to strengthen entrepreneurial ecosystems.

Keywords— Keywords: Human capital, Social capital, Entrepreneurship, Opportunity identification, Tunisian micro-entrepreneurs

I. INTRODUCTION

Entrepreneurship is a growing field of research that attracts the attention of scholars, governments, and policymakers. It is considered vital as it contributes to economic growth, job creation, and innovation. Many governments and international organizations view entrepreneurship as a key solution to challenges such as unemployment, political and economic instability [1]. As a result, countries have increasingly promoted entrepreneurial initiatives to address these issues and cope with health crises, population growth, and the limited capacity of labor markets to absorb graduates [2].

This role is particularly pronounced in emerging economies, where micro-enterprises form the backbone of local economic growth. In such contexts, entrepreneurship is essential for economic development, innovation, and job creation. A central element of the entrepreneurial process is the ability to identify business opportunities. References [3] and [4] emphasize that opportunity recognition is a core feature of the entrepreneurial phenomenon. While these studies consider opportunity recognition as a broader process including both identification and evaluation, this study focuses specifically on opportunity identification as a measurable and critical aspect for analyzing its determinants.

Despite its importance, the factors influencing opportunity identification remain insufficiently understood, particularly in environments characterized by limited resources, weak institutional support, and informal economic structures, such as Tunisia. From a resource-based perspective, human capital and social capital are essential entrepreneurial resources. Numerous studies highlight their role in both opportunity recognition and exploitation ([4], [5], [6], [7], [8]).

Human capital includes education, sector-specific experience, managerial experience, and creativity, which enhance cognitive abilities and support entrepreneurial judgment ([9], [10], [11]). Social capital refers to the benefits derived from networks, trust-based relationships, and interpersonal connections, facilitating access to information, resources, and opportunity identification ([12], [13], [14]).

Although extensively studied, empirical evidence remains limited on how human and social capital jointly influence opportunity identification in Tunisian micro-enterprises. These enterprises play a key socio-economic role but face constraints in access to information and institutional support. While previous studies mainly rely on traditional regression methods, this study employs Partial Least Squares Structural Equation Modeling (PLS-SEM). This method allows the simultaneous examination of human capital components—education, entrepreneurial training, sector-specific experience, managerial experience, and creativity—and social capital dimensions, including network size and the nature of ties (strong and weak ties), in relation to opportunity identification.

The findings aim to contribute to entrepreneurship literature in emerging economies and provide practical insights for policymakers and support organizations seeking to strengthen entrepreneurial ecosystems. The paper is organized as follows: the second section presents the theoretical framework and hypotheses development; the third section describes the data and methodology; the fourth section presents the results and discussion; and the final section concludes with implications and future research directions.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In entrepreneurship research, the identification of entrepreneurial opportunities remains a major challenge ([14], [4]). Entrepreneurs differ in their characteristics, which influence their ability to identify opportunities and mobilize resources, explaining why some succeed while others do not ([10], [4]). One key factor underlying these differences is human capital, which encompasses the knowledge, skills, and abilities required to identify and exploit opportunities. Human capital is recognized as a critical factor in opportunity identification, particularly in institutional and learning contexts ([15], [16]), and as a central determinant of the opportunity recognition process [17].

Recent studies also underline the importance of human capital, especially in emerging contexts [18]. According to [19], it includes innate abilities, such as intelligence, as well as skills acquired through education and work experience. This knowledge creates heterogeneity among individuals, leading to differences in their ability to identify and exploit opportunities [4]. It also includes process skills, creativity, learning ability, and flexibility to adapt to different contexts [20].

Education is one of the most widely studied components of human capital. Formal education provides individuals with the cognitive skills needed to adapt to environmental changes [21]. It can also improve the ability to identify opportunities by enhancing access to knowledge and facilitating connections with well-informed individuals. Several studies ([4], [22], [23]) show that higher levels of education and participation in entrepreneurship training are positively linked to opportunity identification.

Experience helps individuals adapt to new situations and start businesses more effectively ([3], [24]). It also stimulates creativity and problem-solving abilities, enabling entrepreneurs to identify and exploit opportunities, complementing the knowledge and skills gained through education and training ([25], [26]). In addition to sectoral experience, managerial experience is positively associated with entrepreneurs' ability to use personal networks to access the information needed to establish a new business [27].

Finally, creativity, defined as the ability to generate innovative and useful ideas, allows entrepreneurs to combine knowledge, skills, and experience in new ways to create opportunities. Several authors consider creativity a key factor in opportunity identification ([28], [29]).

Taken together, these elements of human capital form the basis for the following hypotheses:

H1. Human capital has a positive effect on an entrepreneur's ability to identify a greater number of entrepreneurial opportunities.

H1a: Education has a positive effect on entrepreneurial opportunity identification.

H1a': Taking entrepreneurship training has a significant positive effect on the number of entrepreneurial opportunities identified.

H1b: Previous management experience a significant positive effect on entrepreneurial opportunity identification.

H1b': Previous experience in the business sector a significant positive effect on entrepreneurial opportunity identification.

H1C. The most creative people are able to spot the greatest number of opportunities.

Moreover, social capital—defined as the resources available through social relationships [13]—is essential for identifying entrepreneurial opportunities. Networks facilitate the identification, collection, and dissemination of information, supporting the detection and exploitation of opportunities ([30], [31]). Strong social networks are particularly important for entrepreneurs seeking to identify potential opportunities [7].

The literature highlights two main dimensions of social capital. The first is network size, determined by the number of relationships an individual maintains. A larger network provides greater access to information, increasing the likelihood of identifying opportunities ([32], [33]). The second concerns the nature of relationships, following [12], which distinguishes between strong ties—close or trust-based relationships—and weak ties—more distant connections. Weak ties provide access to novel information, while strong ties offer trust, support, and access to essential resources, playing a key role in opportunity development.

Based on this discussion, we propose the following hypothesis:

H2. The entrepreneur's capacity to identify entrepreneurial opportunities will be positively linked to relational social capital.

H2a. The size of an entrepreneur's social network positively influences his/her ability to identify entrepreneurial opportunities.

H2b. The nature of an entrepreneur's social networks is positively related to the number of opportunities identified.

By integrating human and social capital, this study examines the influence of personal and relational resources on the ability to identify opportunities among Tunisian micro-enterprises in an emerging economy. Using the PLS-SEM method, it captures the simultaneous effects of multiple dimensions, providing a more comprehensive understanding than studies based on traditional regression methods. Creativity is also included as a component of human capital due to its key role in generating entrepreneurial opportunities.

III. DATA AND METHODOLOGIE

A. Sample Studied

Our sample is made up of Tunisian micro enterprises given their importance in the Tunisian economic fabric. We considered micro enterprises as the ones with 1 to 9 employees. The respondents were entrepreneurs. The businesses were in various sectors (services, commerce, industry). The target population was 150 micro-businesses in different locations. Only 105 responses were valid. 80% of respondents were men and 20% were women.

B. Variables Measurement

The study's survey questions were designed based on the literature on entrepreneurial opportunities. The main dependent variable is the entrepreneur's ability to identify opportunities. The independent variables include the dimensions of human capital—education, entrepreneurship training, sector-specific experience, managerial experience, and creativity—and social capital—network size and network quality. Each variable was measured using structured questionnaires.

Age and gender were included as control variables.

The measurements for all variables are summarized in Table 1.

TABLE I. CONSTRUCT MEASUREMENT

Variable	Description	References
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Human capital		
Education	Binary variable (1 = higher education; 0 = otherwise)	[34]
Business training	Binary variable (1 = trained in business creation; 0 = otherwise)	[35]
Managerial experience	Binary variable (1 = managerial experience; 0 = otherwise)	[36]
Sectoral experience	Binary variable (1 = same sector experience; 0 = otherwise)	[26]
Creativity	Composite score (4 items, Likert scale 1–4)	[37]
Social capital		
Network size	Number of individuals supporting the entrepreneur	[38]
Strong ties	Ratio of strong ties to the total number of network ties.	[39]
Weak ties	Ratio of weak ties to the total number of network ties.	[39]
Opportunity identification	1 = one opportunity; 2 = two–three; 3 = more than three	[40]
Control variables		
Age	Continuous variable (23–65 years)	—
Gender	Binary variable (1 = male; 0 = female)	—

C. Descriptive statistics

Descriptive statistics for the sampled population are reported in Table 2

TABLE II: DESCRIPTIVE STATISTICS

Variable	Minimum	Maximum	Average	Standard deviation
Level of studies	0.000	1.000	0.514	0.500
Training	0.000	1.000	0.400	0.490
Managerial experience	0.000	1.000	0.676	0.468
Sectoral experience	0.000	1.000	0.790	0.407
Creativity 1	1.000	4.000	3.371	0.694
Creativity 2	1.000	4.000	3.276	0.710
Creativity 3	1.000	4.000	3.276	0.724
Creativity 4	1.000	4.000	3.381	0.821
Number of opportunities	1.000	3.000	1.705	0.742
Network size	0.000	7.000	2.752	1.661
Strong ties	0.000	1.000	0.766	0.335
Weak ties	0.000	57.000	1.250	5.496
Gender	0.000	1.000	0.800	0.400
Age	23.000	65.000	39.895	10.909

Source: [42]

D. Structural Equation Modeling

To analyze the determinants of entrepreneurial opportunity identification, we employed structural equation modeling using the partial least squares method (PLS-SEM). This method is particularly well-suited for small samples and allows for the inclusion of both qualitative and quantitative latent constructs. Model validation was conducted in two stages: in the first stage, the reliability and validity of the measurement model (outer model)

were assessed; in the second stage, the structural model (inner model) was used to evaluate the relationships among the latent variables.

IV. RESULTS AND DISCUSSION

We conducted our analysis using XLSTAT 2014 statistical software, specifically employing the Partial Least Squares Path Modeling (PLSPM) method. This software was chosen because it allows for multi-group PLS analyses, which are particularly useful for examining heterogeneity within the sample. Below, we present a step-by-step account of the results of our analysis.

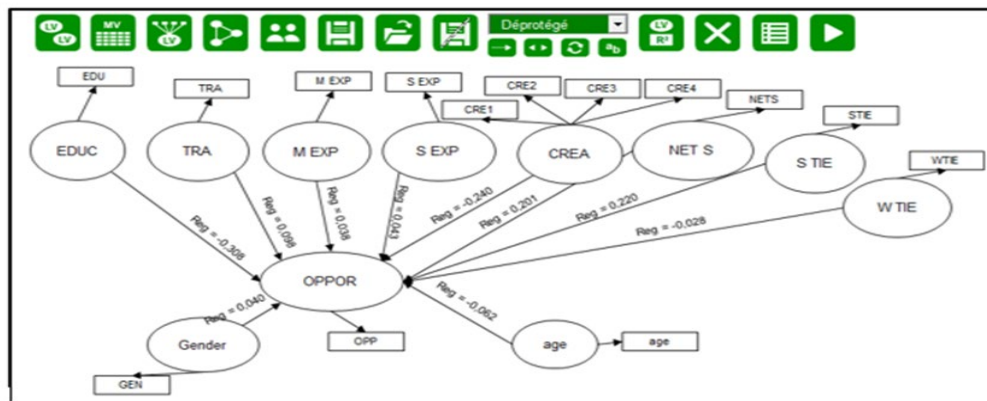


Fig. 1 Model Results

List of Abbreviations: EDUC: Education, TRA: Training, M EXP: Managerial experience, S EXP: Sectoral experience, CREA: Creativity, NET S: Network size, S TIE: Strong ties, W TIE: Weak ties, OPPOR: Opportunity identification.

A. Evaluation of Measurement Models

1) The reliability of manifest variables and the unidimensionality of constructs:

TABLE III: COMPOSITE RELIABILITY

Latent variable	Cronbach alpha	Rho DG	First VP	Second VP
Creativity	0.845	0.897	2.757	0,679

Source: [42]

As shown in the table above, the Cronbach's alpha and Dillon-Goldstein's rho values are satisfactory for all scales. Both the alpha coefficients and Dillon-Goldstein rho values exceed 0.7, confirming the reliability of the variable blocks. Moreover, the first eigenvalue of each latent variable is greater than 1, while the second is less than 1, demonstrating the unidimensionality of all constructs.

TABLE IV: CROSS-LOADING (SINGLE-FACTOR MANIFEST VARIABLES /1)

	EDUC	TRA	M EXP	S EXP	CREA	OPPOR	NET S	S.TIE	W TIE	Gender	Age
level of studies	1.000	0.443	0.061	-0.084	-0.229	-0.233	0.085	-0.158	0.103	-0.295	-0.174
Training	0.443	1.000	-0.017	-0.075	-0.163	0.010	0.180	-0.101	0.131	-0.175	-0.165
Managerial experience	0.061	-0.017	1.000	-0.025	-0.001	0.081	0.130	0.180	0.083	0.214	0.116
Sectoral experience	-0.084	-0.075	-0.025	1.000	0.035	-0.011	-0.095	-0.162	0.020	0.058	0.170
Creativity 1	-0.276	-0.213	-0.070	0.026	0.885	-0.231	-0.094	-0.122	-0.054	0.130	0.103

Creativity 2	-0.185	-0.044	-0.075	0.076	0.838	-0.116	0.082	-0.132	-0.043	0.060	0.149
Creativity 3	-0.208	-0.177	0.039	0.075	0.873	-0.185	0.017	-0.123	-0.165	0.224	0.167
Creativity 4	-0.060	-0.047	0.098	-0.048	0.699	-0.175	-0.105	-0.176	-0.023	0.203	-0.122
Number of opportunities	-0.233	0.010	0.081	-0.011	-0.225	1.000	0.234	0.327	0.034	0.090	-0.064
Network size	0.085	0.180	0.130	-0.095	-0.047	0.234	1.000	0.117	0.234	0.097	-0.101
Strong ties	-0.158	-0.101	0.180	-0.162	-0.166	0.327	0.117	1.000	0.057	0.013	-0.099
Weak ties	0.103	0.131	0.083	0.020	-0.089	0.034	0.234	0.057	1.000	-0.188	-0.056
Gender	-0.295	-0.175	0.214	0.058	0.195	0.090	0.097	0.013	-0.188	1.000	0.255
Age	-0.174	-0.165	0.116	0.170	0.086	-0.064	-0.101	-0.099	-0.056	0.255	1.000

Source: [42]

Each latent variable exhibits factor loadings greater than 0.6, with the highest values corresponding to the observable variables associated with their respective latent constructs. Consequently, the factor loading matrix displays a well-defined diagonal structure, confirming the expected relationships between the observable and latent variables.

2) Convergent and discriminant validity:

TABLE V: CONVERGENT AND DISCRIMINANT VALIDITY (AVE > SQUARE CORRELATION)

	EDUC	TRA	M EXP	S EXP	CREA	NET S	S TIE	W TIE	Gender	Age	OPPOR	Average communalities (AVE)
EDUC	1	0.197	0.004	0.007	0.053	0.007	0.025	0.011	0.087	0.030	0.054	
TRA	0.197	1	0.000	0.006	0.027	0.033	0.010	0.017	0.031	0.027	0.000	
M .EXP	0.004	0.000	1	0.001	0.000	0.017	0.033	0.007	0.046	0.014	0.007	
S.EXP	0.007	0.006	0.001	1	0.001	0.009	0.026	0.000	0.003	0.029	0.000	
CREA	0.053	0.027	0.000	0.001	1	0.002	0.027	0.008	0.038	0.007	0.051	0.684
NET.S	0.007	0.033	0.017	0.009	0.002	1	0.014	0.055	0.010	0.010	0.055	
S.TIE	0.025	0.010	0.033	0.026	0.027	0.014	1	0.003	0.000	0.010	0.107	
W.TIE	0.011	0.017	0.007	0.000	0.008	0.055	0.003	1	0.035	0.003	0.001	
Gender	0.087	0.031	0.046	0.003	0.038	0.010	0.000	0.035	1	0.065	0.008	
Age	0.030	0.027	0.014	0.029	0.007	0.010	0.010	0.003	0.065	1	0.004	
OPPOR	0.054	0.000	0.007	0.000	0.051	0.055	0.107	0.001	0.008	0.004	1	
Average communalities (AVE)					0.684							0

Source: [42]

The AVE for creativity exceeds 0.5, indicating good convergent validity and demonstrating a strong correlation among the items that constitute this construct.

B. Evaluation of the Structural Model

To evaluate the structural model, we first examine the R^2 values for each latent variable, followed by the assessment of the path coefficients.

TABLE VI: STRUCTURAL MODEL

	R ²	F	Pr > F	R ² (Bootstrap)	Standard deviation	Critical ratio (CR)
Opportunity identification	0.255	3.218	0.001	0.330	0.077	3.294

Source: [42]

TABLE VII: PATHS COEFFICIENTS

Dependent variable	Latent variable	Value	Standard deviation	t	Pr > t
Opportunity identification	Level of studies (education)	-0.308	0.107	-2.875	0.005
	Training	0.098	0.102	0.964	0.337
	Managerial experience	0.038	0.095	0.393	0.695
	Sectoral experience	0.043	0.092	0.471	0.639
	Creativity	-0.240	0.095	-2.535	0.013
	Network size	0.201	0.096	2.099	0.038
	Strong ties	0.220	0.097	2.265	0.026
	Weak ties	-0.028	0.095	-0.298	0.766
	Age	0.040	0.102	0.394	0.694
	Gender	-0.062	0.096	-0.646	0.520

Source: [42]

C. Interpretation of Result

Overall, referring to Table VII above, several observations can be made.

1) *Human capital*: Education shows a significant negative effect on opportunity identification ($\beta = -0.308$, $p = 0.005$), consistent with [14], although it contrasts with studies emphasizing its positive role. This may be attributed to a mismatch between formal education and labor market requirements in Tunisia.

Business training has no significant effect on opportunity identification ($p = 0.337$), contrary to [3], suggesting a gap between theoretical training and practical entrepreneurial needs.

Managerial experience is also not significant ($p = 0.695$), consistent with [14], but contrary to studies highlighting its role in facilitating access to information and networks ([27], [42]). This result may be due to the heavy responsibilities associated with managerial roles, which may reduce the time and cognitive resources available for opportunity identification.

Sectoral experience is not significant ($p = 0.639$), in line with [14] and [26], but contrary to most prior studies. This may be explained by the fact that sector-specific knowledge shapes entrepreneurs' cognitive frameworks, focusing their attention and interpretations on familiar market signals. Consequently, they may be less likely to explore opportunities outside their area of expertise, which limits opportunity identification. This finding may also reflect the Tunisian cultural context, where a preference for stable employment over entrepreneurship is still prevalent.

Finally, creativity has a significant negative effect on opportunity identification ($\beta = -0.240$, $p = 0.013$), consistent with [14] but in contrast with [28], who emphasize its importance in entrepreneurial processes. In the Tunisian context, this may be due to the high costs, market volatility, and economic uncertainty associated with innovation, which may discourage individuals from engaging in opportunity identification activities.

2) *Social capital*: Our results highlight the critical role of social capital in opportunity identification. Network size has a positive and significant effect on the ability to detect entrepreneurial opportunities (H2a supported; $p = 0.038$), confirming previous findings ([32], [28]). Larger networks increase access to information, thereby enhancing the likelihood of opportunity identification.

Regarding the nature of networks, only strong ties show a direct positive and significant effect (H2b partially supported; $p = 0.026$), in contrast with studies emphasizing the importance of weak ties. According to

Granovetter's (1973) "strength of weak ties" theory [12], weak ties are generally considered more valuable for accessing non-redundant information and identifying new opportunities.

However, our findings are consistent with [5], who show that strong ties, including family members and close friends, can also facilitate opportunity identification. Emotional support from family may enhance entrepreneurs' psychological stability [43], while experienced family members can provide practical guidance and reliable resources.

In the Tunisian context, strong family ties play a central role in social and economic interactions, which may explain their importance in opportunity identification.

Finally, the results indicate that age and gender are not significant factors, suggesting that social capital—particularly network size and strong ties—plays a more decisive role in opportunity detection.

V. CONCLUSION

This study examined the impact of entrepreneurs' profiles, particularly their human and social capital, on opportunity identification. A conceptual model linking these two forms of capital to opportunity detection was developed and tested in the Tunisian context using data collected from 105 entrepreneurs through structured questionnaires. The analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), allowing the assessment of latent constructs and the simultaneous effects of multiple variables.

The results reveal that none of the human capital dimensions—education, entrepreneurial training, sector-specific experience, managerial experience, or creativity—has a significant positive effect on opportunity identification. These findings suggest that contextual factors related to the economic, institutional, and cultural environment in Tunisia may weaken the effectiveness of human capital in explaining opportunity detection.

In contrast, social capital plays a more prominent role. Network size has a positive and significant effect, while among the nature of ties, only strong ties contribute significantly to opportunity identification. These findings highlight the importance of close relationships, particularly family ties, in providing access to relevant information and resources in the Tunisian context.

Overall, the results indicate that, in this setting, a well-developed social network reinforced by strong ties is more influential for opportunity identification than individual human capital factors such as education, experience, or creativity.

This study contributes to the entrepreneurship literature by distinguishing the roles of human and social capital in opportunity identification within an emerging economy. From a practical perspective, it underscores the importance of strengthening entrepreneurial networks and suggests that educational and training programs should be better aligned with labor market and entrepreneurial realities in Tunisia.

Finally, several limitations should be acknowledged. The relatively small sample size limits the generalizability of the findings. Future research should consider larger samples and different contexts to validate and extend these results. Comparative studies across countries or regions would also help to deepen understanding of how contextual factors shape the relationship between human and social capital in entrepreneurial opportunity identification.

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