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The Role of Networkability and Personal Inclination of Women Entrepreneurship Towards Additive Manufacturing Start-Ups for Mining Industry in Bengaluru City: An Empirical Approach

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Abstract

Women entrepreneurship is closely interwoven with economic and social benefits. Though India constitutes nearly half of the women population, there is a limited participation of women in entrepreneurship, especially in the field of manufacturing start-ups. Women are recognized as successful entrepreneurs through their strong desire, qualities and capabilities for robust economic development. Due to such an important contribution of women in economic development, we propose to investigate the factors that play a major role in women entrepreneur's success in the field of additive manufacturing start-ups in Bengaluru city (hub of start-ups). ***Purpose:*** *The research study aims at deciphering the various dynamics that inclines women entrepreneurship in mining ecosystem by focusing on the networkability of women on various avenues.* ***Design/ Methodology/Approach:*** *The study conducts a survey by administering a structured questionnaire to 273 registered additive manufacturing start-ups run by women in Bengaluru city. Convenience sampling method is adopted followed by Correlation analysis. A SEM model is developed using JMP software for exhaustive analysis. The results will focus on the impact of inclination of women entrepreneurship on the development of start-ups with the identified variables such as driving forces, creativity and enterprising ability with the aid of networkability.* ***Expected Outcome:*** *The research aims at exhibiting the level of networkability amongst the women entrepreneurs in additive manufacturing start-ups Bengaluru and its pivotal role on the business development. The extent of entrepreneurial inclination on start-ups by women can be gauged through this study.* ***Study Implications:*** *The study results can help Trade associations, Women councils, Women associations, policy makers and facilitators linked to innovation which can thereby contribute in developing effective policies and supportive measures to promote women entrepreneurship.*

Keywords: *Additive Manufacturing, Inclination, Mining, Networkability, Women Entrepreneurship*

1.0 Introduction

The concept of Enterprising Inclination (EI) is central to business venture research[1]. EI is a critical stance that illustrates the systems and operations that provide organizations with the foundation for strategic decisions

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and activities[1,2]. EI for the most part connects with the creative, proactive, and risk-taking ways of behaving of organizations and is thusly viewed as a vital aspect of firm execution[3]. Accordingly, impressive examination consideration given to the connection among EI and firm performance, the EI-execution relationship stays conflicting[1,4]. Although some researchers have discovered that EI has a significant impact on the performance of the firm, others have made contradictory results involving recognizing non-linear association or no association at all[1].

Various examiners have endeavored in explaining EI performance relationship by presenting ideas of data acquisition, learning direction, creation of information, and innovation.[1,5] In any case, this study zeroed in on inward firm factors as illustrative factors to make sense of the EI-performance relationship disregarding the likely job of external networks in which firms work. The external networks give valuable settings to comprehend in what way firms work since networks extensively influence how associations are supported, sustained and also maintained[1,6,7].

Women entrepreneurs are supposed to submit to prevailing accepted practices which projects them as invasive and unbridled in the event that they endure and effectively look for networks with others or associations, particularly male-driven associations[8]. Furthermore, women entrepreneurs are stereotyped as having a small entrepreneurial proclivity with a limited ability in building and expanding networks on same serious degree as their men equivalents[9]. As a result, less is investigated in what way organizations mediate the EI-performance relationship among women, mainly in agricultural countries in which organizations are critical to the performance of the firm[9]. There is a lack of information in particular to make sense of and explain in what way organizational factors mediate and impact the link between EI-performance for women of start-ups in Bengaluru City, despite the fact that the gendered setting aids in network formation and additionally ascertains the impact of networks on the performance of the firm[8,9]. Therefore, this study intends in investigating the reconciling part of network approach via networkability and social ties in EI-firm execution association among ladies business people of new companies in Bengaluru City, utilizing a network approach.

2.0 Literature Review

2.1 Entrepreneurial Inclination (EI)

Entrepreneurial Inclination (EI) is a firm's strategic projection that exemplifies its entrepreneurial decision-making practices as well as exercises[10,11]. EI represents how well a company expressly and perhaps even verifiably decides in working and extending qualities as part of risk-taking and creative undertaking and endeavors to be a market spearhead in active developments to acquire an upper hand and gain competitive advantage[3].

Researchers have conceptualized EI according to two principal points of view, as composite i.e. unidimensional idea[3] and multi-dimensional idea[12].

EI is viewed by the way of single-dimensional concept that consists of three components: risk-taking, enterprising, and creativity[10,11]. From this viewpoint, the three factors collectively represent EI with the end goal that the presence of every one of the three demonstrates the presence of EI[11]. In this manner, EI is showed just when a firm displays each of the three elements of risk taking, enterprising and creativity. Creativity estimates the propensity of a firm to incline toward novel thoughts, explore and embrace innovative flows that leave from the laid out standards with practices[1]. However, enterprising refers to a company's ability to anticipate and follow up on future market demands, subsequently acquiring first-mover advantage corresponding to competitors. Risk taking refers towards eagerness in allocating assets to activities that have a high likelihood of failure because the consequences of all such activities are frequently ambiguous[1].

2.2 Networkability

Networkability as the degree to which a firm gets to, draws in and procures important assets from the people from the network[1]. Network characteristics vary also therefore might improve/limit a firm's ability in obtaining cross-border resources[10]. As a result, the implications of a firm's EI on its Networkability may be dependent on social ties that it has with individuals in its network. For example, established that social ties as collective networks were indeed critical to empowering entrepreneurs' access to monetary and non-monetary assets, along with upgrading

the ability and capacities of (women) entrepreneurs' subsequently working on the strength of their start-ups[8,9].

In this context, social ties are divided into two categories: government and business ties[1,13]. Business ties convey a firm's relationship with its trade stakeholders, such as suppliers, clients, partners, and competitors; whereas government ties reflect a firm's relationship with government organizations, such as administrative and supportive bodies[1,13].

Firms benefit from business ties by trading assets and data with individuals within their networks, and they also improve their authenticity[14]. Firms benefit in this manner by gaining access to necessary financial assistance besides cutting-edge information on upcoming variations in the laws of government and regulations[15]. Finally, these two kinds of social ties have divergent worth because they offer businesses with varying assets with capabilities[16,17].

According to the authors[9], despite the fact that women entrepreneurs representing startups stand in improving their networkability via social ties, their capability in laying out such ties is inhibited compared to male. Customary as well as traditional businesses projects women entrepreneurs as being less forceful and cutthroat and consequently less keen on chasing after and laying out networks[8,9]. In the meantime, the demonstration of looking for and chasing after networks as social ties is viewed as a manly execution, since men are seen as having the expected longing and shrewdness to seek after such undertakings[18]. As a result, women entrepreneurs are barred from instituting government and business ties and in addition are obliged in obtaining network assets with the assistance of men. Women are socially estimated to be less aggressive than men, whereas their capability in laying out ties and gather network assets for useful outcomes is questioned[9,18]. In any case, women entrepreneurs necessitates social connections in order to acquire the necessary assets to overcome varying gender specific issues they face on the open market as a result of their gender[8].

2.3 Firm Performance

The performance of the firm is evaluated and estimated in a variety of ways. The usual method is the dual-dimensional proportion of execution, which includes financial indicators based on results and functional procedures[38,31]. Financial measures include the usage of direct monetary based firm results like deal development, return on deals, net benefit, net benefit, deals, income and variation in number of workers (as an Intermediary for development) to decide the performance of a firm in a functional period[12]. The monetary-based yields are a goal measure, as revealed in company's monetary pointers. Functional (non-monetary) proportions of execution are worried about hierarchical objectives including proprietors' and supervisors' emotional evaluation of how well a firm is performing in view of some exhibition measures, their fulfillment with execution, client appraisals, worldwide achievement evaluations by the business local area or perceived global bodies[1]. Non-monetary exhibition, unlike monetary proportions of execution, is subjective[20].

Although fair degree of the performance of the firm seeks to provide an accurate picture of firm performance, monetary records are typically difficult to obtain[16,23]. With regards to women entrepreneurs of start-ups, it is the situation that the greater part of these women lacks the fundamental financial proficiency and hence don't keep appropriate monetary records.[23] We found it useful in utilizing subjective measure of performance in this review because it was tough in obtaining monetary records of the women start-up entrepreneurs for the reasons stated above.

3.0 Hypotheses Development

3.1 Entrepreneurial Inclination, Business Ties, Government Ties, and Network Ability

EI is a significant factor in interests of both the social and government ties. All three dimensions of EI i.e. Creativity, Enterprising, and Risk-taking - necessarily entail that firm vigorously pursues government and social ties with the goal of using resources related with such ties in achieving EI objectives. Therefore, we propose:

H1a: EI positively influences government ties (GT)

H1b: EI positively influences business ties (BT)

H1c: EI positively influences networkability (NA)

3.2 Government Ties, Social Ties, and Networkability

Government ties are a significant feature of networks, particularly for women entrepreneurs in countries like India. It allows businesses to network with government departments, agencies and organizations[21], paving way in accessing and obtaining resources through such networks[33,42]. Connections with government organizations and agencies are required for women entrepreneurs. to achieve competitive advantages[9]. According to this viewpoint, women entrepreneurs have fewer political ties and thus procure limited resources than their compared to men, but restricted government ties they determine assist them in networkability. As a result, we suggest:

H2a: Government ties (GT) positively influence NA

Business ties recognized by a company with different business associations help companies secure various assets accessible within business environment[22]. Business ties assist businesses in establishing relationships with comparable organizations that aids them to acquire assets and gain an advantage[23]. Business ties are additionally a significant hotspot for getting network expertise where firms enthusiastically trade specialized ability with different firms inside such business networks[16,17]. As a result, we established:

H2b: Business ties (BT) positively influence NA.

3.3 Government Ties, Business Ties, Networkability and Firm Performance

In spite of the fact that high EI businesses are expected in gaining more network assets and, as a result, record better firm performance, these relationships might be modified and updated on by context-specific factors that might directly affect the firm performance[1]. In particular, there's a necessity in considering the government authority ties of firms working in Bengaluru City where legislatures control with dispense immense measures of assets. In such cases, the government authority tie obtained, had and practiced by firms could be a deciding component in their exhibition. Subsequently:

H3a: Government ties (GT) positively influence Firm Performance (FP).

Business ties, like government ties, are significant foundation for the performance of the firm. By granting companies permission to network data and sharing, they can improve and create new products, gaining a competitive advantage[24]. Business ties thus assist businesses in developing their versatile abilities in arising unpredictable business markets by facilitating admittance to significant with consistent market data, that they in advising themselves on winning market changes and moreover check the probable future alterations, that assists them in innovation[13]. Hence, that's what we hypothese:

H3b: Business ties positively influence firm performance.

According to network theory[1], a firm's capability in obtaining assets from its network enhances firm's performance. The networkability brings about the foundation of dependable roads to get sufficiently close to and trade assets, information and knowledge that upgrades performance. As a result, firms which participate in networking could establish the expected social ties and might even achieve a competitive advantage by having access to exclusive market data, industry patterns and strategy mandates. As a result, we believe that organizations that can procure resources through their networks will outperform those that cannot, because procured resources place business in great locus in providing better-differentiated products, thus filling clients with creating profit[25]. Thus, that's what we place:

H3c: Networkability (NA) positively influences Firm Performance.

4.0 Entrepreneurial Inclination and Firm Performance

The dimensions of EI i.e. Enterprising, Creativity, and Risk Taking are theoretically considered to be crucial facets of high firm performance, therefore firms committed to EI are capable of developing business and government ties also influence all accessible benefits in and out their networks in accomplishing the outcomes[26]. From the

previous studies, both the theoretical and empirical arguments all point to the same conclusion: businesses stand to benefit from pursuing newness, receptivity, and assured degree of boldness. Firms that aspire such innovations in the face of risk are obligated to gain a competitive advantage, that will positively influence their performance[27,28], demonstrating the positive impact of EI on performance. Thus, we suggest:

H4: EI positively influences firm performance.

5.0 The Mediating Effects of Government Ties, Business Ties and Networkability

While EI has shown to have a significant impact on firm performance[1], acquisition of resources from a firm's network has the potential to mediate this association[1].

Networkability is thus regarded as a mediator in relationship between EI and firm performance. Networkability demonstrated by well-planned networks illustrates the extent to which a firm can get to, draw in, plus procure resources from individuals from its organizations to work on its useful and competitive limits, thus aids with working on firm's exhibition[1]. Businesses rooted in networks in this manner stand to improve their performance via innovative work limit that causes progression prompting the advancement of significant value creation in product development and delivery[28].

Business and government ties are significant forerunners in arranging networkability and in this manner a significant arbiter of positive impact of EI on firms' performance[28]. While a firm's underlying EI tendency may spur it in achieving better performance, advantages related with government ties may also improve firm's performance. Eventually, government is supposed to mediate the positive EI- performance relationship emphatically.

H5a: Government ties mediate the positive effect of EI on firm performance.

Similarly, business ties have potential to mediate the positive relationship between EI and performance. It helps firms adjust to markets by allowing them in obtaining significant market data, access critical data from various associations, also procure and trade resources with organizations with which they have ties[13]. Consequently, that's what we recommend:

H5b: Business ties mediate the positive effect of EI on firm performance.

H5c: NA mediates the positive effect of EI on firm performance.

Furthermore, predicted immediate positive influence of EI on performance could be intervened by networkability. Essentially, the immediate positive influence of EI on performance is supported by possibility that social ties and networkability could improve firms' useful limits and thus work on their performance[29,21]. While this is valid, it is also true that the benefits of both business and political ties don't naturally accumulate or might not be augmented in EI-execution[21,22].

In this way, whereas business and political ties are a solid groundwork in approaching and taking advantage of specific advantages to further develop the EI-firm performance connects, it is the situation that not all networks will actually want to procure assets from such organizations and thusly improve their presentation. Hence, we guess that government ties, business ties and networkability will consecutively intervenes the constructive outcome of EI on firm execution. In view of the previous conversation, we set forward the accompanying hyptheses:

H6a: Government ties and Networkability sequentially mediate the positive effect of EI on firm performance.

H6b: Business ties and NA sequentially mediate the positive effect of EI on firm performance.

6.0 Study Context and Data Collection Procedure

Data is gathered from women entrepreneurs of additive manufacturing startups in Bengaluru City (simultaneously collected from North, South, East and West from 5th Feb 2022 to 20th September 2022). The sampling frame was drawn from Karnataka Startup Cell

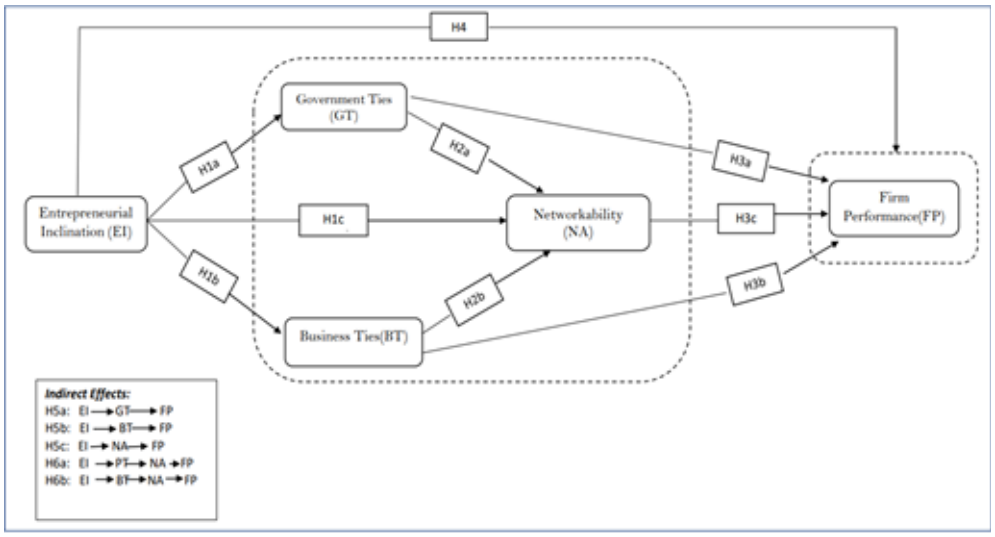


Figure 1. Conceptual Framework of the study.

and AWAKE (Association of Women Entrepreneurs of Karnataka). A simple random sampling technique is adopted in collecting the responses. Multiple approaches like direct discussion/interview, telephonic conversation, and questionnaire filling through google forms were followed to connect with the women entrepreneurs for survey.

Overall, 300 questionnaires were administered. Due to incomplete data, 27 questionnaires were disposed resulting in 273 valid replies retained for data analysis. The questionnaire was attentively designed and conducted pilot study with 50 respondents.

JMP software was used to test the proposed conceptual framework (Figure 1). To investigate effects of the constructs in proposed model, confirmatory factor analysis and path analysis approaches were utilized. Validity, reliability, and goodness of fit indices were calculated for both measurement model and structural equation. 10,000 times bootstrap resampling was performed in the proposed model.

Harman's single-factor test is used in confirming the presence of CMB in the data collected. In the EFA, all of the items were uploaded onto a single unrotated exploratory factor, and highest variance explained by a single factor was 33.8%, indicating that CMB was not prevalent matter in the data[30].

Furthermore, this study investigated the data's normality and found no major issues because values for skewness and kurtosis provided by JMP output were less than 3.0 and 7.0, correspondingly[31], demonstrating normality underlying ML estimation of SEM and appropriateness of gathered data in Bengaluru.

7.0 Construct Measurement

All of the scales are validated and adapted from literature. To easily capture study context, appropriate items were revamped. All items were scored on a 5-point Likert scale, with 1 being "strongly disagree" and 5 being "strongly agree."

Entrepreneurial Inclination (EI), utilized as a second-order construct in this study, was estimated using the 9-item (EI) scale developed[32], that is extensively utilized because of its popularity in international research ecosystem[33]. According to Author[7] EI is treated as 3 reflective first-order constructs: enterprising (α= 0.86), creativity (α= 0.81), and risk taking (α= 0.83).

Networkability (NA) was assessed using four items adapted from the authors[1,25,35], in determining degree to which businesses obtained resources from their networks (α = 0.94). Business and government ties were used to assess social ties. Business ties were measured using[24] 4 item measure that captures degree to which a company has relationships with its networks, containing competitors and suppliers (α=0.71). To comprehend in what way a startup has established associations with government agencies and politics, government ties (PT) was assessed utilizing 4 item scale adapted from [16,23] (α=0.93). Firm

Performance (FP) was apprehended by 5 items adopted[4]. 5 items that came out in the calculation demonstrated a high reliability (α= 0.93).

8.0 Results

8.1 Study Samples and Firm Characteristics

The 273 respondents who tested the model presented (Table 1) were mostly middle-aged women entrepreneurs aged 40-49 years old (37%), and 30-39 years old (33.8%). 73.50% of respondents were married, and 42.60% had a university education. Table 1 summarized demographic characteristics of female entrepreneurs as well as the characteristics of their businesses. 47.2% of respondents have been in business for 5 years or less, and 39.19% have been in business for 10 years or more. More than 50% of the businesses were small –startups with 5 or fewer employees (47.2%) as depicted in Table 1.

8.2 Testing the Measurement Model

Before assessing the hypothesis relationships with SEM, Confirmatory Factor Analysis (CFA) was used in understanding and measure convergent and discriminant validity of defined constructs. The F-indices showed that measurement model fit the data collected in Bengaluru City satisfactorily: 2 = 474.49, d f = 210, p = 0.000, T L I = 0.96, C F I = 0.97, R M S E A = 0.048 and S R M R = 0.044.

Factor Loadings are greater than 0.60 (from 0.63 to 0.93) and significant at.001 levels, as shown in Table 2. However, all of the Composite Reliability (CR) values ranged from 0.71 to 0.94, and Average Variance Extracted (AVE) values ranged from 0.56 to 0.77 (Table 3), with thresholds of 0.70 and 0.5 correspondingly, establishing measurement items' Convergent Validity.[2] Furthermore, square root of AVE for all constructs exceeded the correlations among constructs, indicating

Table 1. Descriptive summary of responses

Bengaluru City	n	%
Age (n=273)		
18–29	33	12.2
30–39	93	33.8
40–49	100	37
50–59	42	15
≥60	5	2.1
Marital Status (n=273)		
Single	32	11.8
Married	200	73.5
Living together	13	4.7
Divorced/Separated	13	4.7
Widow	15	5.3
Education (n=273)		
Secondary school	38	13.9
High School	52	19.1
Technical/Vocational education/junior college	34	12.3
Undergraduate education	33	12.1
Graduate education	116	42.6
Firm Size (n = 273)		
1–5	176	64.46
6–10	97	35.54
Firm age (years) (n = 273)		
1–5	123	45.05
6–10	107	39.19
11–15	26	9.52
16–20	9	3.2
21 or more	8	2.9
Entrepreneur Tenure (n = 273)		
5 years or less	129	47.2
6–10 years	102	37.3
11–15 years	23	8.42
16–20 years	12	4.39
More than 20 years	12	4.39

that all constructs in the model are considered to have Discriminant Validity[37].

Cronbach Alpha values for all constructs are greater than break off value of 0.70 implying that all latent factors in the study are very reliable[38] (Table 4).

8.3 Testing the Structural Model

SM (Structural Model) was evaluated if the model measurement demonstrated an adequate fit index and was both valid and reliable. The data well fit indices of the SM fit: 2 = 570.51, d f = 217, 2 /d f = 2.63, p = 0.000, T L I = 0.95, C F I = 0.95, R M S E A = 0.055 and S R M R = 0.055. The exogenous constructs explain the hypotheses analysis, including the standardized path co-efficient and the percentage of variance (value of R2). As shown in Figure 2, all but two of the nine proposed direct hypotheses were supported, with the exception of H3b and H5b, which were only partly supported.

According to analyzed outcomes, EI significantly forecasted GT (β = 0.376, p<0.001), BT (β = 0.231, p<0.001), and NA (β = 0.145, p<0.01), lending support to the H1a, H1b, and H1c. GT has significant positive effect on NA (β = 0.420, p<0.001), supporting H2a. Conversely, H2b was partially supported since BT have significant but negative influence on NA (β = – 0.091, p<0.05). GT were found to negatively influence FP (β = – 0.118, p<0.05), partially supporting H3a. Both BT (β = 0.235, p< 0.001) and NA (β = 0.223, p<0.001) positively and significantly forecasted FP, supporting H3b and H3c. Moreover, EI positively predicted FP (β = 0.235, p<0.001), lending support to H4. The R^2 values suggested that the model explained 14.0% of variance in GT, 12.0% in BT, 23.0% of the variance in firm NA, and 52.0% in FP. Considering all these, findings reveal that proposed study model linking EI, network- approach (GT, BT and NT) and FP is both conceptually and empirically sound.

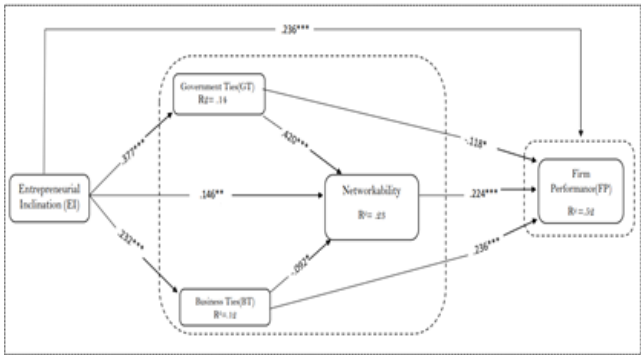


Figure 2. Structural Equation Modelling (SEM). ***p<0.001; **p<0.01; *p<0.05

Table 2.

Constructs and their Indicators	Mean (SD)	Skewness	Kurtosis	Std. β
Entrepreneurial Inclination – Second-order				
Creativity	3.29 (0.69)	—0.17	—0.60	0.74
Entrepreneurial	3.55 (0.66)	—0.19	—0.52	0.92
Risk Taking	3.44 (0.64)	—0.05	—0.54	0.88
Business Ties (α = 0.78)				
I have a good relationship with suppliers	4.29 (0.79)	—1.42	3.12	0.85
I have a good relationship with competitor firms	4.04 (0.84)	—0.87	0.83	0.63
Government Ties (α = 0.85)				
Our firm has developed good connections with regulatory and supporting organizations (i.e., tax bureaus, banks, and commercial administration bureaus)	3.48 (1.29)	—0.72	—0.55	0.82
Our firm's relationship with local government agencies has been good	3.64 (1.29)	—0.94	—0.19	0.9
Our firm has spent substantial resources in building relationships with government agencies	3.40 (1.50)	—0.56	—0.83	0.88
Our firm has maintained good relationships with various levels of the government	3.62 (1.23)	—0.88	—0.19	0.89
Networkability (α = 0.84)				
Our firm has maintained good relationships with various levels of the government agencies	2.78 (1.35)	0.09	—1.29	0.9
Our firm has easy access to (finance, human and physical i.e. land/ property) capital, to support its operations	2.89 (1.35)	0.04	—1.30	0.93
We are able to obtain financial resources at short notice to support our operations	2.75 (1.34)	0.07	—1.29	0.82
We have substantial (financial, HR, physical) resources for funding expansion initiatives	2.89 (1.36)	—0.01	—1.27	0.85
Firm Performance (α = 0.90)				
Total sales	4.15 (0.88)	-0.35	—0.67	0.87
Ability to fund growth from profits	3.97 (0.90)	0.09	-0.094	0.88
Return on investment	4.05 (0.90)	-0.14	—0.83	0.89
Profit to sales ratio	4.05 (0.87)	-0.05	—0.97	0.89
Cashflow	4.18 (0.87)	-0.4	—0.69	0.88

Table 3. Discriminant validity - correlations and AV (Average Variance) extracted

	CR	AVE	1	2	3	4	5
1. Entrepreneurial Inclination	0.88	0.72	0.85				
2.Business Ties	0.71	0.56	0.35	**0.75**			
3. Government Ties	0.93	0.76	0.36	0.36	**0.87**		
4. Networkability	0.93	0.77	0.27	0.12	0.45	**0.88**	
5. Firm Performance	0.94	0.75	0.24	0.32	0.15	0.27	**0.87**

CR = composite reliability; AVE = average variance extracted. The bold elements diagonal matrix are the square root of the average variance extracted; interconstruct correlations is shown off-diagonal.
Note: All correlations are significant at the $p<0.001$ level.

Table 4. Bootstrap indirect effects of entrepreneurial orientation on firm performance

	Effect	SE	95% CI LLCI	ULCI
Direct effect				
EI → FP	0.212	0.062	0.089	0.335
Total effect	0.41	0.054	0.303	0.516
Indirect effect	Effect	$SE_{(Boot)}$	LLCI(Boot)	ULCI(Boot)
H5a: EI →GT→FP	-0.09	0.038	-0.167	-0.016
H5b: EI →BT→FP	0.193	0.039	0.119	0.274
H5c: EI →NA→FP	0.056	0.02	0.022	0.099
H6a: EI → GT →NA→FP	0.053	0.016	0.025	0.088
H6b: EI → BT →NA→FP	-0.014	0.007	-0.031	-0.022

Note: EI = Entrepreneurial Inclination; GT = Government ties; BT = Business ties; NA = Networkability ; FP = Firm Performance.

8.4 Testing the Mediating Effects

The indirect effect of EI on the performance of the firm was tested using mediation analysis via GT, BT, and NT. 10, 000 times bootstrap resampling was carried out. When 95% confidence interval (CI) doesn't fall on "0," the result is statistically significant. The summary of indirect effects is presented in EI had significant negative influence on FP via GT because the CI did not include "0," allowing H5a to be partially accepted. EI had a positive and significant indirect effect on FP through BT and NA, thereby supporting H5b and H5c. Then we began testing hypothesized sequential indirect effects.

The last hypotheses (H6a and H6b) conceptualizes influence of EI on FP would be consecutively mediated by PT, BT and NA. The outcomes show that the consecutive indirect effect of EI → PT → NA → FP was positive and significant, supporting H6 b outcomes of the study reveal EI has a negative sequential indirect effect on FP: EI → BT→ NA→ FP, partially supported H6 c. Considering together, the outcomes reveal that women entrepreneurs of startups, BT negatively influence their NA and GT have negative effects on firms performance owned by women entrepreneurs in Bengaluru City.

9.0 Discussions and Conclusions

Emphasizing on empirical results, results revealed that EI has direct effects on BT, GT, and NA. We also found that GT directly and significantly influence NA that is in alignment with earlier research[21,22]. Unexpectedly, outcome of BT on NA was significant, however negative, countering the previous research papers[9,16]. Furthermore, impact of GT on FP was significant however negative, contradicting previous research that found that in some countries, firms can increase their performance by balancing strong ties with government agencies and politics[1,12,16]. It was discovered that NA and BT have a positive impact on firm performance[1,39,25].

Moreover, the direct impact of EI on FP was positive and significant, supporting previous research findings.[13,15] Fundamentally, we discovered that EI influences FP indirectly through the mediating effects of GT, BT, and NA. Furthermore, our findings revealed that network approaches, GT, represent the most significant element for any firm to achieve networkability, and thus are indirectly related indicators of FP. To sum up, the results of this research make valuable additions to the existing literature on EI, NA, and FP, as well as appropriate applied conclusions.

10.0 Managerial Implications

There is a wide scope of additive manufacturing startups of mining industries to foster process improvements, greater responsiveness and innovations towards automation and aerospace. There is a lot of efforts towards standardization on processes, equipment, materials and finished parts. Large mega factories supported by digital technologies such as 3D printing is anticipated in the form of hybrid version of manufacturing to pace the future of mining industry.

In the first place, disregarding the way that the impacts of EI shifts across organizations in various areas and progressive phase inside the nation where they are working, and accessibility to resources, there is a by and large tremendous impact of EI in the contexts we have considered. Second, EI can be used to overcome impediments caused by inadequate admittance to assets i.e., monetary capital and in situations where novel opportunities are unusual as well as limited by a variety of aspects. Moreover, it suggests that women entrepreneurs might actually get benefitted by investing in such network improving. if they're keen on boosting their EI possibilities in accomplishing better performance, transforming their organizations from the competitors and in this manner assisting with adapting to the effects of the pandemic and accelerate the recuperation of their organizations.

We alarm women entrepreneurs in raising up their exterior network ties (for instance through enrolling and registering pertinent industries of same field and exchange associations, legitimizing their tasks, taking part in state-driven advancement drives) if they need to get really improving and compensating benefits for their enterprising exercises. At last, and comparable to strategy, state run administrations and improvement organizations in asset scant nations ought to support training and preparing plans to assist business people with understanding how to lay out more significant levels of EI and develop more grounded outside network ties important for additive manufacturing business endurance and development.

11.0 Avenues for Future Research

Further studies must probe into the understanding of the linkage between the EI-firm performance and gender influence related to accessibility to social networks in any business field. Further examinations ought to adopt longitudinal strategies to all the more likely comprehend whether and how entrepreneur's way of behaving develops over a period of time frame. The general achievement of firms drove by women entrepreneurs could prompt upgrading entrepreneur's insight, more prominent prosperity and worked on personal satisfaction[40]. Future

examinations could expand our proposed model and observationally test this connection by exploring whether impacts of EI, networkability and performance result leading to entrepreneurial prosperity plus personal satisfaction. This might be critical to comprehend whether firms with additional fulfilled proprietors proceed to explore and extend their organizations.

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Annexure: Questionnaire

Demographic data:

Email id-

Name of the entrepreneur-

Name of the firm

Marital Status : Single

Married

Living Together

Divorce / Separated

Widow

Education Level : Secondary School

High School

Technical/Vocational Education/junior College

Under Graduate Education

Post Graduate Education

Firm Size :

1-5

6-10 above

Firm Age :

1-5

6-10

11-15

16-20

More than 20 years

Note to the Respondents: The following variables will have data collection based on 5-point scale

1=Strongly Disagree

2=Disagree

3=Neither Agree or Disagree

4= Agree

5=Strongly Agree

Entrepreneurial Inclination:

Creativity (C)	**1**	**2**	**3**	**4**	**5**
C1 We introduce improvements & innovations in our business					
C2 Our business is creative in its methods of operation					
C3 We upgrade technology frequently					
C4. Our business seeks out new ways to do things					
C5. We are always working on something new					

Enterprising (E)	**1**	**2**	**3**	**4**	**5**
E1 I have the courage to seize opportunities					
E2 I am prepared to take financial risks					
E3 Our employees are fine to take up risks involving new ideas					
E4 Risk taking is a part & parcel of business					

Driving Forces (DF)	1	2	3	4	5
DF1. We are always forward to identify opportunities					
DF2. We take more initiatives					
DF3. We initiate steps to satisfy stakeholders					
DF4. We try to set benchmarking					
DF5. We proactively respond to changes in environment					

Networkability:

Government Ties (GT)	**1**	**2**	**3**	**4**	**5**
GT1. Our firm has developed good connections with regulatory and supporting organizations					
GT2. Our firm's relationship with local government agencies has been good					
GT3. Our firm has spent substantial resources in building relationships with government agencies					
GT4. Our firm is able to avail the various benefits and schemes of government					
GT5. Start-ups can get most of the required permits and licenses in about a week					

Business Ties (BT)	**1**	**2**	**3**	**4**	**5**
BT1. I have a good relationship with suppliers					
BT2. I have a good relationship with competitor firms					
BT3. We have frequent business collaborations					
BT4. I have a good rapport with investors					
BT5. We have a lot of international tie-up					

Firm's Performance (FP)

Firm's Performance	**1**	**2**	**3**	**4**	**5**
FP1. There is a progressive improvement in sales of our business					
FP2. Our return of investment is improving year after year					
FP3. Our ability to acquire profits is improving (Profit to sales ratio)					
FP4. Our cash flow is improving gradually					
FP5. We have a substantial market share					