sustainability

MDPI

Article

The Performance Improvement Mechanism of Cross-Border E-Commerce Grassroots Entrepreneurship Empowered by the Internet Platform

Zhigang Fan and Xuanshun Zhai *

Alibaba Business School, Hangzhou Normal University, Hangzhou 311121, China
* Correspondence: zhaixuanshun@sina.com

Abstract: In the cross-border e-commerce industry, millions of small and medium-sized sellers have emerged in recent years. With the empowerment of the Internet platform, these grassroots entrepreneurs, which are generally disadvantaged in terms of resources, capabilities, costs, etc., have overcome a number of barriers and acquired more equitable participation opportunities in the fierce market competition. This study explores the performance improvement mechanism of platform empowerment for grassroots entrepreneurs and tests the mediating effect of resource bricolage. After descriptive statistical analysis, applying the common method variance test, and reliability and validity verification of the 336 valid questionnaire sample data, a path analysis of the structural equation model and an intermediary effect test were conducted. The results indicated that the structural empowerment of the platform could significantly and positively improve the entrepreneurial performance of grassroots entrepreneurs, while the psychological empowerment of the platform has no significant effect. In addition, the resource bricolage played a completely mediating role in the impact of platform empowerment on entrepreneurial performance. By deepening our understanding of the platform empowerment mechanism and grassroots entrepreneurs' resource bricolage behavior, this study provided guidance and reference for the platform to better play its empowerment role and for the grassroots entrepreneurs to achieve their own growth.

Keywords: internet platform; cross-border e-commerce; grassroots entrepreneurship; entrepreneurial performance; empowerment

Citation: Fan, Z.; Zhai, X. The Performance Improvement Mechanism of Cross-Border E-Commerce Grassroots Entrepreneurship Empowered by the Internet Platform. *Sustainability* **2023**, *15*, 1178. https://doi.org/10.3390/su15021178

Academic Editor: Grigorios L. Kyriakopoulos

Received: 24 November 2022
Revised: 18 December 2022
Accepted: 5 January 2023
Published: 8 January 2023

1. Introduction

In recent years, the fast expansion of cross-border e-commerce (CBEC) has injected fresh vitality into international trade. In the wake of the COVID-19 pandemic, CBEC has been crucial in restoring production and social order, as well as stabilizing commodity prices. With the rise in demand for products such as medical supplies and telecommuting equipment during COVID-19, CBEC has rapidly advanced to meet these needs. CBEC has not only provided more benefits for buyers but also brought more opportunities for sellers from all over the world [1], especially for those resource-constrained entities that face a series of challenges in the context of traditional international business [2,3]. The CBEC model has drastically lowered the threshold for entry into international trade, and a series of guidance and services from the Internet platform further help grassroots entrepreneurs to carry out entrepreneurial activities.

The Internet platform has set up a stage for grassroots entrepreneurs in the CBEC industry. According to a recent report from Marketplace Pulse, only approximately 60,000 of the millions of active third-party sellers on Amazon's global marketplace have annual sales of more than one million USD, and roughly 350,000 have annual sales of more than USD 100,000. The majority of sellers who are very engaged in CBEC are small and medium-sized businesses. Compared to those involved in traditional international trade, grassroots entrepreneurs in the CBEC market are at a disadvantage in terms of education,

experience, resources, etc. With the continual release of enormous development dividends and entrepreneurial chances in the CBEC business, the central question of this paper is how the Internet platform may assist grassroots entrepreneurs in acquiring more equitable opportunities and capacities to compete.

2. Literature Review

2.1. Empowerment Theory

The original concept of empowerment stressed that managers could improve employees' autonomy, enthusiasm, and creativity in work through delegation of authority, self-directed decision-making, information sharing, etc. [4]. The reason managers and academics are so interested in empowerment is that the concept of human resource management reflected in empowerment theory has become an essential element for organizations to build core competitiveness [5]. In an environment of severe market competitiveness, there is a continual emergence of new consumer demand and hot spots, and frontline workers are in a prime position to make sound decisions on the organization's behalf based on their professional expertise and experience [6].

In recent years, the concept of platform empowerment has been more focused on the exercise of platform functions. The majority of current research centers on platforms as a typical bilateral market, highlighting its empowering impacts in terms of traffic aggregation and resource sharing [7,8]; a few articles have begun to emphasize the platform's role in fostering innovation and nurturing new businesses [9,10]. Fu et al. proposed that Internet platforms have involved more marginalized people in value-creation activities by building more inclusive and innovative business models [11]. Innovation and entrepreneurship from the bottom of the pyramid (BOP) have emerged with the help of the Internet platform. The notion of platform empowerment has attracted considerable interest, and a variety of derived notions, including data empowerment, technological empowerment, and digital empowerment, began to emerge. However, few pieces of literature consider platform empowerment from a more comprehensive perspective that encompasses both the exertion of platform functions and the perception of the empowered.

2.2. Grassroots Entrepreneurship Theory and Resource Bricolage Theory

In recent decades, grassroots innovation and entrepreneurship have become increasingly prevalent in both practice and scholarly discourse [12]. In contrast to the inventive ideas generated in prestigious university laboratories and corporate R&D departments, grassroots innovation and entrepreneurship represent a type of resource-constrained entrepreneurial behavior [13,14]. In the spirit of "making do with what's at hand", grassroots entrepreneurs often make do with improvised tools and resources, utilizing their conventional knowledge, prior experience, and local relation networks to provide a workable but (in most cases) imperfect solution. Grassroots entrepreneurship offers enormous research value: not only did these bottom-up strategies generate substantial economic profit, but they also provided a frugal, inexpensive, and sustainable alternative for social development [15].

The resource bricolage activity of the grassroots might be viewed as a "reaction" to a shortage of resources [16]. Baker and Nelson pioneered the notion of "Bricolage" in the field of entrepreneurial management, describing how businesses utilize "already available resources" to overcome challenges and seize opportunities [17]. Ever since the advent of the digital economy, scholarly interest in intangible resource bricolage has grown. Duymedjian and Rüling suggest that the worldview is of great importance in an entrepreneur's bricolage practices [18], and grassroots entrepreneurs have to frequently adjust their cognitive resources to meet prospective difficulties and possibilities. In a specific entrepreneurial context, entrepreneurs usually make up for the defects in the formal institutional environment through some informal mechanisms, which can be seen as typical institutional behavior [19]. The knowledge networks, value chain networks, and innovation networks have further facilitated the circulation and reorganization of network

resources. In cross-boundary and cross-network activities, enterprises usually create value using resources that they do not entirely own or control [20].

3. Theory and Hypotheses

3.1. Platform Empowerment and Resource Bricolage

In the era of the digital economy, grassroots entrepreneurs that are relatively disadvantaged in cost, resources, and capabilities benefit much from the Internet platform empowerment due to its accessibility, interactivity, and connectivity. Based on the concept of empowerment in the field of human resource management, this paper deconstructs platform empowerment into psychological empowerment and structural empowerment, investigating the impact of both on grassroots entrepreneurship.

3.1.1. Psychological Empowerment of Internet Platform and Resource Bricolage

Individual psychological capital is malleable [21]. Frese et al. indicate that when individuals perceive their tasks as having greater "meaning," they demonstrate greater enthusiasm and initiative [22]. Psychological efficacy may influence how individuals perform in the face of obstacles [23]. Relevant research in the field of entrepreneurial cognition suggests that the psychological capital of individual entrepreneurs influences the formation of their cognitive style and mode of thought [24,25]. With a deeper integration of institutional theory and entrepreneurship research, researchers discovered that entrepreneurs exhibit a variety of behaviors to circumvent institutional limitations during entrepreneurial activities [26]. In addition, individual psychological state, psychological characteristics, and other factors will affect their performance and behavior in the social network. According to Johnson et al., employees with psychological withdrawal effect are more likely to have tense relationships with others (such as family, colleagues, etc.) in the social network [27], whereas employees with a positive core self-evaluation will more actively explore the potential resources and opportunities in the networks. Accordingly, we propose several hypotheses as follows:

Hypothesis 1a: *The psychological empowerment of the Internet platform has a positive impact on grassroots entrepreneurs' cognitive bricolage.*

Hypothesis 1b: *The psychological empowerment of the Internet platform has a positive impact on grassroots entrepreneurs' institutional bricolage.*

Hypothesis 1c: *The psychological empowerment of the Internet platform has a positive impact on grassroots entrepreneurs' network bricolage.*

3.1.2. Structural Empowerment of Internet Platform and Resource Bricolage

Platform architecture consists of relatively stable infrastructure and a set of modules that facilitate the reorganization of various resources [28]. The resource-constrained participants can benefit a lot from the separation of ownership and use of the resources in the platform ecosystem [29]. The cognitive school of entrepreneurship studies holds that entrepreneurs' thought processes and cognitive styles are strongly influenced by the specific contexts in which they operate [30,31]. Yong et al. believe that the enhancement of the stability of the entrepreneurial support system can drive grassroots to bridge the institutional gap between markets and achieve entrepreneurial leap [32]. Moreover, the culture and climate of the entrepreneurial ecosystem will influence the behavior of individual entrepreneurs in official and informal social networks [33]. Accordingly, we propose hypotheses as follows:

Hypothesis 2a: *The structural empowerment of the Internet platform has a positive impact on grassroots entrepreneurs' cognitive bricolage.*

Hypothesis 2b: *The structural empowerment of the Internet platform has a positive impact on grassroots entrepreneurs' institutional bricolage.*

Hypothesis 2c: *The structural empowerment of the Internet platform has a positive impact on grassroots entrepreneurs' network bricolage.*

3.2. Resource Bricolage and Entrepreneurship Performance

In order to thrive in today's competitive business climate, startups need to be able to rapidly and agilely reallocate resources in response to shifting market demands. Hmieleski and Baron argue that cognitive fit, which represents the flexibility generated by the mix of an entrepreneur's own cognitive resources and the real world, is vital to the identification and production of entrepreneurial chances [34]. The influence of institutional environment elements on the performance of startups in emerging economies has long been the subject of academic research. Landau et al. argued that the local institutional environment could be a source of advantage for foreign companies, and the institutional advantages can be firm-specific in nature, which further depends on firms' capacity to configure and integrate resources in the institutional environment [35]. In varied circumstances, entrepreneurs build and utilize network resources in a variety of ways. Adler and Kwon proposed that by joining dispersed clusters in the social network, startups can acquire more complicated information and explicit knowledge and thereby improve entrepreneurial performance [36]. Accordingly, we propose hypotheses as follows:

Hypothesis 3a: *Grassroots entrepreneurs' cognitive bricolage has a positive impact on entrepreneurship performance.*

Hypothesis 3b: *Grassroots entrepreneurs' institutional bricolage has a positive impact on entrepreneurship performance.*

Hypothesis 3c: *Grassroots entrepreneurs' network bricolage has a positive impact on entrepreneurship performance.*

3.3. Platform Empowerment and Entrepreneurship Performance

3.3.1. Psychological Empowerment of Internet Platform and Entrepreneurship Performance

In a volatile, uncertain, complex, and ambiguous (VUCA) environment, psychological capital may be more important than other forms of "hard" capital (i.e., money, building, etc.) [37]. Luthans et al. noted that leaders or managers might increase their own psychological capital and that of their staff through a series of activities, thus enhancing the enterprise's overall performance and competitive advantage [38]. Zhou et al. conducted relevant research on the empowerment mechanism of Haier's open entrepreneurial platform, concluding that Haier's open entrepreneurial platform has psychologically empowered ThundeRobot's entrepreneurial team through three dimensions of control, influence, and sense of efficacy, thereby enhancing the entrepreneurial team's competitiveness and profitability [39]. The following hypothesis is thus formulated:

Hypothesis 4a: *The psychological empowerment of the Internet platform has a positive impact on entrepreneurship performance.*

3.3.2. Structural Empowerment of Internet Platform and Entrepreneurship Performance

Structural empowerment emphasizes that individuals can get more knowledge, support, and opportunities by participating in an environment that can fully empower them [40]. Isaksen et al. believe that organizational values, beliefs, history, and traditions have a significant impact on employees' innovation behavior, and the creativity of employees can be improved by cultivating an environment that supports risk-taking and embraces uncertainty. In addition, enterprises can also activate the potential of individuals by establishing

a more flexible employee assessment index system, establishing a flatter communication and management mechanism, and constructing an open ecosystem, thereby enhancing enterprise performance [41]. In the context of the digital economy, the "empowerment" enterprise structure and a brand-new type of collaboration beyond traditional employment relationship have been formed, therefore strengthening the autonomy, independence, creativity, and enthusiasm of organizational members [42] and the following hypothesis is subsequently developed:

Hypothesis 4b: *The structural empowerment of the Internet platform has a positive impact on entrepreneurship performance.*

3.3.3. Mediation Effect of Resource Bricolage

Based on cutting-edge digital technologies such as artificial intelligence, big data, blockchain, and cloud computing, the Internet platform provides a wealth of opportunities for entrepreneurs by fully activating bilateral or multilateral network effects [9]. With the Internet platform's empowerment, the entrepreneurial processes and outcomes become less bounded, which further encourages the resource bricolage activities of grassroots entrepreneurs [10]. On the one hand, the Internet platform itself is a huge pool of resources; creating links, enhancing exchanges, and promoting resource recombination are important ways for the Internet platform to create value. Therefore, the Internet platform encourages grassroots entrepreneurs to actively start businesses and bricolage resources. On the other hand, the openness of the Internet platform has broadened the cognitive boundaries, information sources, social networks, and entrepreneurial scope of grassroots entrepreneurs, allowing them to receive extensive environmental feedback from the open system and to make rapid adjustments.

Taking grassroots entrepreneurs that rely on the short video platform for content creation as an example, an increasing number of grassroots entrepreneurs share their lives through the short video platform. The platform will give more exposure to popular works and further generate positive feedback for the grassroots content producer [43]. After receiving the platform's tool support, traffic support, and psychological incentives, grassroots content creators actively seek relevant skills training on the platform and opportunities for communication and cooperation with others in order to create higher-quality content. Therefore, the platform may, to some extent, encourage grassroots entrepreneurs to bricolage resources, assist them in establishing a virtuous circle to strengthen their own skills, and further enhance their performance.

The Internet platform's empowerment mechanism for startups and grassroots entrepreneurs, whether from a psychological or structural perspective, is ultimately realized in the actions of the resource-constrained groups. In the innovation ecosystem with the platform at its center, the boundaries between the innovation entities become more blurred, and the interaction between the entities and their environment becomes more active. As a collection of intangible resources (i.e., knowledge, connections, etc.), the Internet platform encourages the recombination of resources and stimulates new ventures' innovativeness. Grassroots entrepreneurs can further improve entrepreneurial performance by integrating intangible resources into the innovation ecosystem. Therefore, the following hypotheses are put forward about the mediating role of resource bricolage in the empowerment mechanism of the Internet platform:

Hypothesis 5a: *Grassroots entrepreneurs' cognitive bricolage plays a mediating role in the relationship between the psychological empowerment of the Internet platform and entrepreneurship performance.*

Hypothesis 5b: *Grassroots entrepreneurs' cognitive bricolage plays a mediating role in the relationship between the structural empowerment of the Internet platform and entrepreneurship performance.*

Hypothesis 5c: *Grassroots entrepreneurs' institutional bricolage plays a mediating role in the relationship between the psychological empowerment of the Internet platform and entrepreneurship performance.*

Hypothesis 5d: *Grassroots entrepreneurs' institutional bricolage plays a mediating role in the relationship between the structural empowerment of the Internet platform and entrepreneurship performance.*

Hypothesis 5e: *Grassroots entrepreneurs' network bricolage plays a mediating role in the relationship between the psychological empowerment of the Internet platform and entrepreneurship performance.*

Hypothesis 5f: *Grassroots entrepreneurs' network bricolage plays a mediating role in the relationship between the structural empowerment of the Internet platform and entrepreneurship performance.*

4. Methodology

4.1. Variable Measurement

This study's questionnaire consists of two sections. The first section is about background and basic information, including the respondent's highest level of education, business model, number of team members, time of entrepreneurship, and the amount of CBEC transactions from the previous year. The second section measures the three core variables of "platform empowerment", "resource bricolage", and "entrepreneurial performance". Likert 7-level scale was used to measure the core variables in this study.

This study uses the classic scale of psychological empowerment developed by Spreitze [44] and combines it with the specific circumstance of CBEC to evaluate the platform's psychological empowerment for entrepreneurs from four perspectives: meaning, competence, self-determination, and impact. Based on Kanter's [45] deconstruction of structural empowerment, Lashinger et al. [40] constructed a structural empowerment scale with six dimensions: opportunity, information, support, resources, formal power, and informal power. While drawing on this classic scale, this study measures the platform's structural empowerment for entrepreneurs based on Zhou's [39] deconstruction of the entrepreneurial platform's structural empowerment along the three dimensions of information acquisition, extensive and stable connectivity, and potential opportunities.

This study utilizes the classic scale of Senyard et al. [46] and Ronkko et al. [47] to measure entrepreneurs' resource bricolage behavior along three dimensions: cognitive bricolage, institutional bricolage, and network bricolage, along with the new characteristics of entrepreneurs in the process of resource bricolage in the context of digital entrepreneurship. This study uses financial and non-financial indicators to assess the entrepreneurial performance of grassroots entrepreneurs that use the Internet platform to undertake CBEC.

4.2. Sample and Data Collection

The questionnaire was distributed to CBEC entrepreneurs that are relatively vulnerable in terms of resources, capabilities, costs, etc. Considering the specificity of the study object, the availability of samples, research expenditures, and other variables thoroughly, this study adopts the snowball sampling method to collect relevant data. In order to ensure the authenticity and validity of the data, the questionnaires were collected through three channels. First, 140 copies of questionnaires were distributed to grassroots entrepreneurs who are in the earliest stage of entrepreneurship and have difficulties acquiring information and resources at the scene of four CBEC forums jointly held by local government, Industry association, and Cifnews (a well-known CBEC Internet platform in China). A total of 92 questionnaires were effectively collected; the efficiency rate was 66.7%. Second, 60 copies of questionnaires were distributed to grassroots entrepreneurs who benefit from the local government and university assistance initiatives at CBEC Industrial Park, Universities Students' Entrepreneurship Park, and Entrepreneurial Incubation Park in Zhejiang Province. Of those distributed, 44 effective copies were collected; the efficiency rate was 73.3%. Third, 300 copies of the questionnaires were indirectly distributed through CBEC Industry Association and other CBEC industry organizations. Of those distributed, 266 copies were effectively collected; the efficiency rate was 88.7%. In total, 500 copies of questionnaires were distributed, and 336 effective copies were collected; the efficiency rate was 67.2%. Moreover, the comparative analysis of the variance of questionnaire data col-

lected through different channels reveals no statistically significant differences, suggesting a degree of representativeness.

4.3. Data Analysis

4.3.1. Common Method Variance

In this study, the Harman single-factor method was first used to test possible common method variance. The results showed that the combination of the first six factors could account for 75.25% of the overall variation, with the variance of the principal factor being 46.87%, which was less than 50%. Second, this study examined the possibility of common method variance by comparing the confirmatory factor analysis results of the single-factor model with that of the multi-factor model. The results demonstrated that the single-factor model (CMIN/DF = 7.672, RMSEA = 0.141, CFI = 0.678, GFI = 0.589, TLI = 0.650) was much less suitable than the multi-factor model (CMIN/DF = 1.591, RMSEA = 0.042, CFI = 0.973, GFI = 0.904, TLI = 0.969). Therefore, it can be concluded that there is no significant common method variance in this study.

4.3.2. Reliability and Validity

First, this study utilized exploratory factor analysis (EFA) to examine the construct validity of sample data. The results, as summarized in Table 1, showed that KMO = 0.948 (greater than 0.7), the approximate chi-squared of Bartlett's test of sphericity was 6335.448, the degrees of freedom was 325, and the significance was 0.000 (very significant). The results indicated that the sample data had good construct validity. Principal component analysis was used to extract the factor, and six factors were obtained. The cumulative variance interpretation amount was 75.25% (greater than 50%), indicating that the extracted six factors were well represented. Additionally, the results of the confirmatory factor analysis showed that the standard factor loading of each item was greater than 0.7; The AVE was greater than 0.5, and the CR was greater than 0.7. Considering the above three indicators, it can be considered that the convergence validity of this model is good. At the same time, this study compared the absolute value of the correlation coefficient of each dimension with the square root of its AVE, and the results demonstrated that the absolute value of the correlation coefficient of each dimension is significantly less than the square root of its AVE, which can be considered that the model has good discrimination validity between each measurement dimension. Additionally, Cronbach's α of all items and the CR value of each construct were larger than 0.8, which indicated that the measurement had good reliability.

Table 1. CITC, factor loading, Cronbach's alpha, AVE, and CR.

Constructs	Items	CITC	Standard Factor Loading	Cronbach's α	AVE	CR
Psychological Empowerment	PE1	0.784	0.831	0.905	0.701	0.904
	PE2	0.789	0.831			
	PE3	0.794	0.857			
	PE4	0.779	0.829			
Structural Empowerment	SE1	0.715	0.773	0.882	0.648	0.880
	SE2	0.768	0.834			
	SE3	0.733	0.783			
	SE4	0.755	0.828			
Cognitive Bricolage	CB1	0.802	0.859	0.904	0.701	0.904
	CB2	0.808	0.877			
	CB3	0.768	0.810			
	CB4	0.760	0.801			
Institutional Bricolage	IB1	0.732	0.809	0.879	0.646	0.879
	IB2	0.759	0.814			
	IB3	0.772	0.850			
	IB4	0.689	0.738			

Table 1. *Cont.*

Constructs	Items	CITC	Standard Factor Loading	Cronbach's α	AVE	CR
Network Bricolage	NB1	0.793	0.863	0.903	0.700	0.903
	NB2	0.754	0.792			
	NB3	0.767	0.809			
	NB4	0.816	0.879			
Entrepreneurship Performance	EP1	0.753	0.783	0.911	0.625	0.909
	EP2	0.730	0.762			
	EP3	0.692	0.721			
	EP4	0.748	0.782			
	EP5	0.792	0.845			
	EP6	0.804	0.846			

5. Results

5.1. Correlation Analysis

The Pearson correlation is used to analyze the correlation between the variables. According to the statistic results in Table 2, the correlation coefficient of variables is between 0.414 and 0.676, showing a medium to low degree of correlation. The correlation coefficient analysis results among the variables meet the requirements for further data analysis.

Table 2. Correlation analysis.

	Variables	1	2	3	4	5	6	7	8	9
1.	Age of Entrepreneurs	1								
2.	Entrepreneurial Time	0.630 **	1							
3.	Team Size	0.633 **	0.371 **	1						
4.	Psychological Empowerment	0.051	0.07	−0.042	1					
5.	Structural Empowerment	−0.002	−0.009	−0.046	0.425 **	1				
6.	Cognitive Bricolage	−0.044	−0.034	−0.113 *	0.496 **	0.414 **	1			
7.	Institutional Bricolage	0.01	0.029	−0.079	0.619 **	0.597 **	0.525 **	1		
8.	Network Bricolage	0.022	−0.002	−0.052	0.475 **	0.448 **	0.514 **	0.526 **	1	
9.	Entrepreneurship Performance	0.036	−0.001	−0.018	0.585 **	0.564 **	0.600 **	0.676 **	0.634 **	1

Note: N = 336, ** $p < 0.01$; * $p < 0.05$; two-tailed test.

5.2. Structural Model

The research hypothesis proposed in this study was tested by AMOS 24.0. The results of path analysis (refer to Table 3) showed that the coefficients of 11 paths were all greater than 0, among which 9 paths were significant at the level of *p*-value less than 0.001, 1 path was significant at the level of *p*-value less than 0.05, and 1 path was not significant. The *p*-value of the path of psychological empowerment and entrepreneurial performance is greater than 0.05, and the absolute value of C.R. is less than 1.96, indicating that the hypothesis of "psychological empowerment significantly positively affects entrepreneurial performance" is not supported by sample data.

Table 3. Results of path analysis.

Hypotheses	Path	Standard Path Coefficients	S.E.	C.R.	*p*
H1a	Psychological Empowerment —> cognitive Bricolage	0.440	0.061	7.234	***
H1b	Psychological Empowerment —> Institutional Bricolage	0.494	0.048	9.047	***
H1c	Psychological Empowerment —> Network Bricolage	0.388	0.063	6.479	***
H2a	Structural Empowerment —> Cognitive Bricolage	0.292	0.066	4.91	***
H2b	Structural Empowerment —> Institutional Bricolage	0.457	0.053	8.414	***
H2c	Structural Empowerment —> Network Bricolage	0.347	0.07	5.783	***
H3a	Cognitive Bricolage —> Entrepreneurship Performance	0.203	0.043	3.981	***
H3b	Institutional Bricolage —> Entrepreneurship Performance	0.316	0.073	4.076	***
H3c	Network Bricolage —> Entrepreneurship Performance	0.295	0.041	5.68	***
H4a	Psychological Empowerment—> Entrepreneurship Performance	0.110	0.056	1.63	0.103
H4b	Structural Empowerment —> Entrepreneurship Performance	0.128	0.058	2.007	*

Note: N = 336, *** $p < 0.001$; * $p < 0.05$.

5.3. Mediating Effect

This study adopts the Bootstrap method (repeated sampling 5000 times, 95% confidence interval) to test the intermediary effect of the three dimensions of resource bricolage (cognitive bricolage, institutional bricolage, and network bricolage) in the model. The results in the Table 4 show that in the path of "psychological empowerment–resource bricolage–entrepreneurship performance", the indirect effect is [0.392, 0.663] at the 95% confidence interval, and the confidence interval does not include 0, indicating that resource bricolage has a significant intermediary effect in the impact of psychological empowerment on entrepreneurial performance. At the same time, the direct effect of this path is [−0.071, 0.207] at the 95% confidence interval, including 0, indicating that the direct effect is not significant and this intermediary effect is a complete intermediary effect.

Table 4. Results of mediating effect test.

	Point Estimate	Product of Coefficients		Bootstrap 5000 Times 95%CI Bias-Corrected	
		SE	Z	Lower	Upper
Indirect Effect1 (PE-CB-EP)	0.111	0.038	2.921	0.045	0.197
Indirect Effect2 (PE-IB-EP)	0.241	0.053	4.547	0.146	0.357
Indirect Effect3 (PE-NB-EP)	0.156	0.041	3.805	0.084	0.246
Indirect Effect	0.509	0.068	7.485	0.392	0.663
Direct Effect	0.070	0.071	0.986	−0.071	0.207
Total Effect	0.579	0.054	10.722	0.479	0.692

The results in the Table 5 indicate that in the path of "structural empowerment–resource bricolage–entrepreneurship performance", the indirect effect is [0.418, 0.683] at the 95% confidence interval, which does not include 0, indicating that resource bricolage has a significant intermediary effect in the impact of structural empowerment on entrepreneurial performance. At the same time, the direct effect of this path is [−0.044, 0.239] at the 95% confidence interval, including 0, indicating that the direct effect is not significant and this intermediary effect is a complete intermediary effect.

Table 5. Results of mediating effect test (continued).

	Point Estimate	Product of Coefficients		Bootstrap 5000 Times 95%CI Bias-Corrected	
		SE	Z	Lower	Upper
Indirect Effect1 (SE-CB-EP)	0.118	0.035	3.371	0.058	0.198
Indirect Effect2 (SE-IB-EP)	0.256	0.062	4.129	0.143	0.387
Indirect Effect3 (SE-NB-EP)	0.167	0.044	3.795	0.087	0.262
Indirect Effect	0.540	0.068	7.941	0.418	0.683
Direct Effect	0.096	0.072	1.333	−0.044	0.239
Total Effect	0.636	0.065	9.785	0.519	0.773

6. Discussion and Conclusions

6.1. Conclusions

Based on the observation of the rise of grassroots entrepreneurship in the CBEC business, this study formulates scientific research questions by combining the platform empowerment theory, grassroots entrepreneurship theory, resource bricolage theory, and other theories. After sorting out the relevant theories, the research hypothesis and theoretical model are proposed. Relevant data were collected through questionnaires, and the research hypothesis was tested. The following two main research conclusions are derived through analysis.

First, although the Internet platform can empower grassroots entrepreneurs from both psychological and structural aspects, the role of structural empowerment is more direct and significant. Specifically, the Internet platform serves to strengthen grassroots entrepreneurship performance by facilitating networking, dialogue, and collaboration. The psychological empowerment of the platform has no significant impact on the improvement of grassroots entrepreneurial performance, but the grassroots that are encouraged and guided by the platform at the psychological level show greater enthusiasm in activities such as resource bricolage. Due to the low cost of platform migration and rapid changes in the competitive environment, grassroots entrepreneurs in the CBEC market always start a business on multiple platforms. It is challenging for Internet platforms to enhance grassroots entrepreneurial performance by building emotional ties and bolstering internal incentives.

Second, the three dimensions of resource bricolage (cognitive bricolage, institutional bricolage, and network bricolage) play a completely intermediary role in the relationship between platform empowerment and entrepreneurial performance. After being empowered by the Internet platform, it is the more active behaviors in resource integration, industry awareness building, and institutional environment adaptation that help improve grassroots entrepreneurial performance.

6.2. Theoretical Contributions

At present, the current research on platform empowerment mainly focuses on the process mechanism of platform empowerment based on the service dominant logic and value co-creation perspective but pays less attention to the premise of value creation, which is the process of overcoming resource constraints. Based on the existing theoretical views and relevant literature, this study conducted an in-depth analysis of the mechanism of platform empowerment and the resource bricolage of grassroots. The theoretical contribution of this study lies in the following two aspects:

First, this study explores the platform empowerment mechanism from the perspectives of subjective psychological perception and objective empowerment atmosphere. At present, the role of the Internet platform has been characterized as a comprehensive service provider [48], digital infrastructure builder [49], boundary resources tuner [50], etc. Various perspectives help us better understand the essence of the Internet platform [51] and how it

differs from the traditional multisided platform that mediates different actors (i.e., buyers and sellers) [52]. However, the mechanism of platform empowerment still remains undersearched and needs to be further studied. Based on classical empowerment theory, this study deconstructs platform empowerment into psychological empowerment and structural empowerment and studies the impact of these two dimensions on the entrepreneurial performance of grassroots entrepreneurs.

Second, this study introduces the resource bricolage of grassroots as a mediation variable into the theoretical model, which further enriches the relevant research. Although the essence of resource bricolage relies on the restructuring of various resources at hand, the complex combination of heterogeneous resources is the key to generating innovative solutions [53,54]. The Internet platforms provide grassroots entrepreneurs with various heterogeneous resources, and it is the resources bricolage activities of the empowered that eventually exert influence on their entrepreneurial performance. Combining the perspectives of platform empowerment and resource bricolage, this study investigates how and to what extent platforms assist grassroots entrepreneurs in breaking through resource constraints and improving capabilities, as well as the performance improvement mechanism of grassroots entrepreneurs.

6.3. Practical Implications

The convergence of the digital economy and international business has led to an increase in the number of subjects, elements, and factors involved in CBEC. As essential hubs in the business ecosystems, Internet platforms are receiving ever greater focus. Internet platforms are constructing important nodes to connect merchants, buyers, service providers, manufacturers, and other actors, therefore generating more opportunities for all participants involved (including the platform itself). Platform empowerment, accordingly, becomes an important way for the platform to connect with the largest number of novice sellers constrained by resources. This study provides practical implications for Internet platforms to better play their roles in empowering grassroots entrepreneurs.

This study demonstrates that, from a psychological and structural standpoint, the Internet platform can empower other participants in the ecosystem. Comparatively, structural empowerment has a bigger impact on the performance improvement of grassroots entrepreneurship than psychological empowerment. Therefore, for the Internet platform, it is required to construct a more inclusive, coordinated, and open platform ecosystem in order to facilitate the participation of other subjects. It is crucial to highlight, however, that different types of Internet platforms should configure network resources and modify their own structures based on their real conditions since this will affect the platform's future development route [55].

On the other hand, grassroots entrepreneurs must recognize that in the emerging industry of CBEC, where policies and rules continue to change, new technologies and new business models continue to emerge, and the scale of the network and ecosystem continues to expand, they must rely more on the Internet platform to improve cognitive capability and adapt to the changes in the institutional environment. However, even within the same platform ecosystem, grassroots entrepreneurs will experience various degrees of platform empowerment; grassroots entrepreneurs that rely on the Internet platform should learn to maximize the potential presented by the resource bricolage process.

Despite its growing importance, CBEC is still confronted with a variety of impediments (such as transaction cost) [56]. To further reduce the friction and cost in the CBEC industry, the government should better activate the platform's empowerment function by boosting the construction of essential infrastructure. At the same time, the government should promote the healthy development of the Internet platform through more active and powerful policies and make the platform-generated data play a larger role.

Author Contributions: Conceptualization, Z.F.; methodology, Z.F.; software, X.Z.; validation, X.Z. and Z.F.; formal analysis, X.Z.; investigation, Z.F.; writing—original draft preparation, Z.F. and X.Z.; writing—review and editing, X.Z.; supervision, Z.F.; project administration, X.Z.; funding acquisition, Z.F. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the 2021 National Social Science Fund of China, "Research on the mechanism and path of digital transformation of small and medium-sized enterprises enabled by Internet platform" (21BGL119), and the 2020 Humanities and Social Sciences Research Planning Fund Project of the Ministry of Education (20YJA630013).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

References

1. Cui, Y.; Mou, J.; Cohen, J.; Liu, Y. Understanding information system success model and valence framework in sellers' acceptance of cross-border e-commerce: A sequential multi-method approach. *Electron. Commer. Res.* **2019**, *19*, 885–914. [CrossRef]
2. Fan, Q. An exploratory study of cross border e-commerce (CBEC) in China: Opportunities and challenges for small to medium size enterprises (SMEs). *Int. J. E-Entrep. Innov.* **2019**, *9*, 23–29. [CrossRef]
3. Ma, S.; Chai, Y.; Zhang, H. Rise of Cross-border E-commerce Exports in China. *China World Econ.* **2018**, *26*, 63–87. [CrossRef]
4. Konczak, L.J.; Stelly, D.J.; Trusty, M.L. Defining and measuring empowering leader behaviors: Development of an upward feedback instrument. *Educ. Psychol. Meas.* **2000**, *60*, 301–313. [CrossRef]
5. Pfeffer, J. Producing sustainable competitive advantage through the effective management of people. *Acad. Manag. Perspect.* **1995**, *9*, 55–69. [CrossRef]
6. Simons, R. *Control in an Age of Empowerment*; Harvard Business Review Press: Boston, MA, USA, 2008.
7. Harrison, T.; Waite, K.; Hunter, G.L. The Internet, information and empowerment. *Eur. J. Mark.* **2006**, *40*, 972–993. [CrossRef]
8. Yuksel, M.; Milne, G.R.; Miller, E.G. Social media as complementary consumption: The relationship between consumer empowerment and social interactions in experiential and informative contexts. *J. Consum. Mark.* **2016**, *33*, 111–123. [CrossRef]
9. Zahra, S.A.; Nambisan, S. Entrepreneurship in global innovation ecosystems. *AMS Rev.* **2011**, *1*, 4–17. [CrossRef]
10. Nambisan, S. Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrep. Theory Pract.* **2017**, *41*, 1029–1055. [CrossRef]
11. Fu, X.; Ghauri, P.; Ogbonna, N.; Xing, X. Platform-based business model and entrepreneurs from Base of the Pyramid. *Technovation* **2023**, *119*, 102451. [CrossRef]
12. Hossain, M. Grassroots innovation: A systematic review of two decades of research. *J. Clean Prod.* **2016**, *137*, 973–981. [CrossRef]
13. Gupta, A.K. Tapping the entrepreneurial potential of grassroots innovation. *Stanf. Soc. Innov. Rev.* **2013**, *11*, 18–20. [CrossRef]
14. Rajan, P. Making-Do on the Margins: Organizing Resource Seeking and Rhetorical Agency in Communities During Grassroots Entrepreneurship. *J. Bus. Tech. Commun.* **2021**, *35*, 254–292. [CrossRef]
15. Dodgson, M.; Perkmann, M.; Phillips, N. Introduction to the retrospective section: Innovation in China, grassroots innovation, and city regions. *Innov. Manag. Policy Pract.* **2016**, *18*, 411–412. [CrossRef]
16. Senyard, J.; Davidsson, P.; Steffens, P. The role of bricolage and resource constraints in high potential sustainability ventures. In Proceedings of the 2010 Babson College Entrepreneurship Research Conference, Babson, MA, USA, 10–12 June 2010.
17. Baker, T.; Nelson, R.E. Creating something from nothing: Resource construction through entrepreneurial bricolage. *Adm. Sci. Q.* **2005**, *50*, 329–366. [CrossRef]
18. Duymedjian, R.; Rüling, C.-C. Towards a foundation of bricolage in organization and management theory. *Organ. Stud.* **2010**, *31*, 133–151. [CrossRef]
19. Sun, P.; Wright, M.; Mellahi, K. Is entrepreneur–politician alliance sustainable during transition? The case of management buyouts in China. *Manag. Organ. Rev.* **2010**, *6*, 101–121. [CrossRef]
20. Gulati, R. Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strateg. Manag. J.* **1999**, *20*, 397–420. [CrossRef]
21. Jensen, S.M. Psychological capital and entrepreneurial stress: Propositions for study. In Proceedings of the United States Association for Small Business and Entrepreneurship, Conference Proceedings, San Antonio, TX, USA, 10–13 January 2008.
22. Frese, M.; Fay, D.; Hilburger, T.; Leng, K.; Tag, A. The concept of personal initiative: Operationalization, reliability and validity in two German samples. *J. Occup. Organ. Psychol.* **1997**, *70*, 139–161. [CrossRef]
23. Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychol. Rev.* **1977**, *84*, 191–215. [CrossRef]

24. Venkataraman, S.; Sarasvathy, S.D.; Dew, N.; Forster, W.R. Reflections on the 2010 AMR decade award: Whither the promise? Moving forward with entrepreneurship as a science of the artificial. *Acad. Manag. Rev.* **2012**, *37*, 21–33. [CrossRef]
25. Salunke, S.; Weerawardena, J.; McColl-Kennedy, J.R. Competing through service innovation: The role of bricolage and entrepreneurship in project-oriented firms. *J. Bus. Res.* **2013**, *66*, 1085–1097. [CrossRef]
26. Garud, R.; Hardy, C.; Maguire, S. Institutional entrepreneurship as embedded agency: An introduction to the special issue. *Organ. Stud.* **2007**, *28*, 957–969. [CrossRef]
27. Johnson, E.C.; Kristof-Brown, A.L.; Van Vianen, A.E.; De Pater, I.E.; Klein, M.R. Expatriate social ties: Personality antecedents and consequences for adjustment. *Int. J. Sel. Assess.* **2003**, *11*, 277–288. [CrossRef]
28. Tiwana, A.; Konsynski, B.; Bush, A.A. Research commentary—Platform evolution: Coevolution of platform architecture, governance, and environmental dynamics. *Inf. Syst. Res.* **2010**, *21*, 675–687. [CrossRef]
29. Constantinides, P.; Henfridsson, O.; Parker, G.G. Platforms and Infrastructures in the Digital Age. *Inf. Syst. Res.* **2018**, *29*, 381–400. [CrossRef]
30. Bird, B. Implementing entrepreneurial ideas: The case for intention. *Acad. Manag. Rev.* **1988**, *13*, 442–453. [CrossRef]
31. Siu, W.S.; Lo, E.S.C. Cultural contingency in the cognitive model of entrepreneurial intention. *Entrep. Theory Pract.* **2013**, *37*, 147–173. [CrossRef]
32. Yong, M.; Liu, W.; Deng, R. Bridging the Institutional Gap between Informal and Formal Markets: Research on the Mechanism of Venture Advocate System to the Formalization of Peasant Entrepreneurship. *J. Manag. World* **2021**, *37*, 112–130. [CrossRef]
33. Cohen, B. Sustainable valley entrepreneurial ecosystems. *Bus. Strategy Environ.* **2006**, *15*, 1–14. [CrossRef]
34. Hmieleski, K.M.; Baron, R.A. Regulatory focus and new venture performance: A study of entrepreneurial opportunity exploitation under conditions of risk versus uncertainty. *Strateg. Entrep. J.* **2008**, *2*, 285–299. [CrossRef]
35. Landau, C.; Karna, A.; Richter, A.; Uhlenbruck, K. Institutional leverage capability: Creating and using institutional advantages for internationalization. *Glob. Strategy J.* **2016**, *6*, 50–68. [CrossRef]
36. Adler, P.S.; Kwon, S.-W. Social capital: Prospects for a new concept. *Acad. Manag. Rev.* **2002**, *27*, 17–40. [CrossRef]
37. Hmieleski, K.M.; Carr, J.C. The relationship between entrepreneur psychological capital and new venture performance. *Front. Entrep. Res.* **2008**, *2*, 285–299. [CrossRef]
38. Luthans, F.; Avolio, B.J.; Walumbwa, F.O.; Li, W. The psychological capital of Chinese workers: Exploring the relationship with performance. *Manag. Organ. Rev.* **2005**, *1*, 249–271. [CrossRef]
39. Zhou, W.; Li, B.; Zhou, Y.; Chen, L. The Impact of Entrepreneurial Platform's Empowerment on Entrepreneurial Performance: A Case Study Based on Haier + Thunderobot. *Manag. Rev.* **2018**, *30*, 276–284. [CrossRef]
40. Laschinger, H.K.S.; Finegan, J.; Shamian, J. The impact of workplace empowerment, organizational trust on staff nurses' work satisfaction and organizational commitment. *Adv. Health Care Manag.* **2002**, *3*, 59–85. [CrossRef]
41. Isaksen, S.G.; Lauer, K.J.; Ekvall, G.; Britz, A. Perceptions of the best and worst climates for creativity: Preliminary validation evidence for the situational outlook questionnaire. *Creat. Res. J.* **2001**, *13*, 171–184. [CrossRef]
42. Luo, Z.; Li, X.; Song, X.; Li, Y. Evolution of Enterprise Organization Structure Based on the Hypothesis of Empower to Enable: Based on the Case Study of Handu Group's Practice. *China Ind. Econ.* **2017**, *9*, 174–192. [CrossRef]
43. Xing, X.; Zhou, P.; Zhang, Z.; Tang, X. Digital technology, BOP business model innovation and inclusive market construction. *J. Manag. World* **2019**, *35*, 116–136. [CrossRef]
44. Spreitzer, G.M. Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Acad. Manag. J.* **1995**, *38*, 1442–1465. [CrossRef]
45. Kanter, R.M. Power failure in management circuits. *Health Care Forum J.* **1998**, *41*, 44–46.
46. Senyard, J.; Baker, T.; Steffens, P.; Davidsson, P. Bricolage as a Path to Innovativeness for Resource-Constrained New Firms. *J. Prod. Innov. Manag.* **2014**, *31*, 211–230. [CrossRef]
47. Rönkkö, M.; Peltonen, J.; Arenius, P. Selective or parallel? Toward measuring the domains of entrepreneurial bricolage. In *Entrepreneurial Resourcefulness: Competing with Constraints*; Emerald Group Publishing Limited: Bingley, UK, 2014; Volume 15, pp. 43–61. [CrossRef]
48. Li, L.; Su, F.; Zhang, W.; Mao, J.Y. Digital transformation by SME entrepreneurs: A capability perspective. *Inf. Syst. J.* **2018**, *28*, 1129–1157. [CrossRef]
49. Hanseth, O.; Lyytinen, K. Design theory for dynamic complexity in information infrastructures: The case of building internet. In *Enacting Research Methods in Information Systems*; Springer: Berlin/Heidelberg, Germany, 2016; pp. 104–142.
50. Eaton, B.; Elaluf-Calderwood, S.; Sorensen, C.; Yoo, Y. Distributed Tuning of Boundary Resources: The Case of Apple's iOS Service System. *MIS Q.* **2015**, *39*, 217–243. [CrossRef]
51. Gawer, A. Bridging differing perspectives on technological platforms: Toward an integrative framework. *Res. Policy* **2014**, *43*, 1239–1249. [CrossRef]
52. De Reuver, M.; Sørensen, C.; Basole, R.C. The digital platform: A research agenda. *J. Inf. Technol.* **2018**, *33*, 124–135. [CrossRef]
53. Cai, Q.; Ying, Y.; Liu, Y.; Wu, W. Innovating with limited resources: The antecedents and consequences of frugal innovation. *Sustainability* **2019**, *11*, 5789. [CrossRef]
54. Ying, Y.; Wang, S.; Liu, Y. Make bricks without straw: Eco-innovation for resource-constrained firms in emerging markets. *Technovation* **2022**, *114*, 102517. [CrossRef]

55. Chen, N.; Yang, Y. The impact of customer experience on consumer purchase intention in cross-border E-commerce—Taking network structural embeddedness as mediator variable. *J. Retail. Consum. Serv.* **2021**, *59*, 102344. [CrossRef]
56. Wang, Y.; Wang, Y.; Lee, S.H. The effect of cross-border e-commerce on China's international trade: An empirical study based on transaction cost analysis. *Sustainability* **2017**, *9*, 2028. [CrossRef]