



Overcoming Financing Constraints Through Digital Financial Inclusion: Strengthening Rural Household Entrepreneurship Through E-Commerce

Mengatasi Kendala Pembiayaan Melalui Keuangan Inklusif Digital: Memperkuat Kewirausahaan Rumah Tangga Pedesaan Melalui E-Commerce

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Abstrak

Kewirausahaan rumah tangga memiliki peran strategis dalam mendorong pembangunan ekonomi pedesaan yang inklusif. Akan tetapi, aktivitas kewirausahaan di wilayah pedesaan masih menghadapi berbagai kendala, terutama keterbatasan akses pembiayaan, tingkat literasi keuangan yang rendah, serta pengucilan finansial. Seiring berkembangnya keuangan inklusif digital, hambatan-hambatan tersebut mulai teratasi melalui perluasan akses layanan keuangan berbasis teknologi. Kegiatan pengabdian kepada masyarakat ini bertujuan untuk memperkuat kewirausahaan rumah tangga pedesaan melalui pendampingan pemanfaatan keuangan inklusif digital dan e-commerce. Metode pelaksanaan terdiri atas dua tahap, yaitu survei pra-kegiatan untuk memperoleh gambaran deskriptif hubungan antara tingkat kepercayaan dan inklusi keuangan digital, serta tahap pendampingan kewirausahaan. Hasil survei dan pendampingan menunjukkan bahwa pemanfaatan keuangan inklusif digital mampu mempermudah pengambilan keputusan kewirausahaan, menurunkan kendala pembiayaan, serta mendorong perilaku inovatif rumah tangga usaha. Selain itu, integrasi layanan keuangan digital dengan e-commerce berperan sebagai katalis dalam memperluas akses pasar dan meningkatkan keberlanjutan usaha rumah tangga pedesaan. Kegiatan pengabdian ini memberikan implikasi praktis bagi penguatan kapasitas kewirausahaan masyarakat serta mendukung perumusan program pemberdayaan berbasis transformasi digital untuk mendorong pertumbuhan ekonomi pedesaan yang lebih inklusif dan berkelanjutan.

Keyword: Keuangan Inklusif Digital, Kewirausahaan, Kendala Pembiayaan, E-Commerce

Abstract

Household entrepreneurship plays a strategic role in promoting inclusive rural economic development. However, entrepreneurial activities in rural areas continue to face various constraints, particularly limited access to finance, low levels of financial literacy, and financial exclusion. With the rapid development of digital financial inclusion, these barriers have gradually been reduced through the expansion of technology-based financial services. This community service activity aims to strengthen rural household entrepreneurship through mentoring on the utilization of digital financial inclusion and e-commerce. The implementation method consists of two stages: a pre-activity survey to obtain a descriptive overview of the relationship between trust and digital financial inclusion, followed by entrepreneurial mentoring activities. The survey and mentoring results indicate that the use of digital financial inclusion facilitates entrepreneurial decision-making, alleviates financing constraints, and encourages innovative behavior among household entrepreneurs. Furthermore, the integration of digital financial services with e-commerce serves as a catalyst for expanding market access and enhancing the sustainability of rural household businesses. This community service activity provides practical implications for

strengthening community entrepreneurial capacity and supports the formulation of empowerment programs based on digital transformation to foster more inclusive and sustainable rural economic growth.

Keyword: Digital Inclusive Finance, Entrepreneurship, Financing Constraints, E-Commerce

1. Introduction

Entrepreneurship not only play a role in creation field work, but also become instrument strategic in push growth economy from corner view policy public. Various studies show that entrepreneurship is a factor important in the development and innovation economy [1], [2], [3]. Along with externalities generated, factors that influence entrepreneurship get more attention mainly from the maker's policy in a number of year finals [4], [5], [6]. From the perspective of the nation, innovation and entrepreneurship are viewed as strengths in strengthening the economy. However, thus, the determinant entrepreneurship until now still not yet fully understood in a way comprehensive [7]. Therefore, devotion this give contribution to development literature will evaluate in a way causal influence inclusive digital finance to entrepreneurship House ladder.

Startup companies make a huge contribution to the economy, in particular in the creation field work aggregate and improve productivity [8], [9]. Therefore, the effort to reduce obstacle financing for company new has been one of priority main policies in various countries [10]. Although issue this get attention wide and has give birth to various policy for push entrepreneurship, understanding about impact easing constraint financing to decision individual for become entrepreneur still relatively limited. This covers change characteristics perpetrator incoming business and performance of the company they establish. Besides that, understanding about shift composition candidate entrepreneur consequence easing constraint financing become important for evaluate effectiveness policies that are wide, especially remember existence proof strong about heterogeneity motivation as well as difference type obstacles faced by candidates entrepreneur [11], [12], [13]. Experience and skills entrepreneurship in a way generally believed as a factor important thing that determines success in business. Therefore, limitations experience relevant in identified entrepreneurship in study this can be perceived as behavior that is speculative or driven by individuals with relative level of human capital low [14]. On the other hand, the condition can also reflect existence restrictions on access credit for candidate difficult entrepreneurs selected based on characteristics that can be observed [10], however still capable of building and developing legitimate business.

Constraint finance is one of the main influencing factors of entrepreneurship House ladder [15]. Considering activity entrepreneurship generally require financial capital in amount certain, home stairs that have limited funds tend to depend on institution finance traditional, such as banking, for get financing and loans at stage beginning establishment business [16]. However thus, the house ladder with condition weak finances often face problem adverse selection and moral hazard, so that experience difficulty in get support adequate financing from financial markets, especially when no own sufficient guarantee [17], [18]. Conditions that in the end hinder participation in activity entrepreneurship. Besides that, limitations exist for institution finance in rural and remote areas the more make things worse difficult House stairs in the area the in access service finance.

In a number of years lastly, inclusion Digital Financial *Inclusion* (DFI) is growing rapidly as one of the innovations in the sector financial and attractive attention wide, and viewed as source financing potential for activity entrepreneurship House ladder [19]. DFI is a service model integrated finance digital technology to in system finance. In one side, DFI allows communities in rural and remote areas to open bank accounts and access various service finance online via utilization technology digital and telephone payments mobile [20]. On the other hand, DFI increases transparency, efficiency, and security transaction finance with depend on system evaluation credit big data- based approach. This capable reduce asymmetry information between institution finance and home stairs, expanding availability loan for individual and family, and ultimately push development entrepreneurship House ladder [21].

DFI plays a role in facilitating decision entrepreneurship at the level of house stairs. This shows that decision entrepreneurship influenced by intensity uses finance digitally inclusive, where increasingly tall levels its utilization, increasingly there is also a big tendency for the House ladder to take decision entrepreneurship. Besides that, finance proven digital inclusiveness can increase the performance entrepreneurship House ladder in a way significant, because improvement its use in the entrepreneurial process can in a way directly push achievement performance business. In practice, utilization finance digital inclusiveness is also effective in reducing impact of negative constraint financing during the implementation process innovation and activity economy, so that it contributes positively to improvement performance entrepreneurship House stairs. Advantages of digital inclusiveness are not only reflected in efficiency, cost and area range services, but also in its significant contribution to sustainability sector finance as well as influence directly to various activity economies. As a product from the information age, digital finance is developing along with progress technology, such as 5G networks and big data. This allows organization of various service finance digital-based which is not again limited by distance and existence physically, so that it can expand access information to remote areas as well as spread benefit development finance in a way more evenly to society. Considering that access credit for activity entrepreneurship is closely related with condition rich House stairs, application

policy finance inclusive digital focused on entrepreneurship family become important. This can clarify implications of policy finance digital inclusiveness towards effort to push the development economy in a sustainable way [3].

Finance inclusive has its own role important in overcoming exclusion finance, serving the vulnerable, as well as pushing for the formation of an inclusive economy [22]. In context this, finance digital inclusiveness is present For complete limitations service finance conventional through innovation based on data and information, with utilise superiority in the form of wide reach, cost relative low, and speed high service. The approach has proven effective in reducing constraint financing faced by the group not lucky enough, like poor farmers and business micro and small in rural areas [23], [24]. Moreover, Liu et al. [25] state that development digital finance contributes in creating an environment entrepreneurship more rural conducive and equal. Meanwhile, Luo et al. [26] confirm that finance digital inclusive provides access service relative finances easy and feasible for House ladder income low, so that allows them to overcome various related obstacles with activity entrepreneurship.

Connection synergistic between inclusion digital finance (DFI) and trade electronics (e-commerce) especially come true through the existence of a digital payment platform that is capable of lower obstacle transactions in a way significant as well as expand participation perpetrator business in the e-commerce ecosystem. The role of government through policy strategy as well as investment infrastructure, in particular in high-speed internet development height and network mobile, also become factor keys in push development the [27], [20]. Initiative which is supported by the improvement program literacy digital finance and expansion access banking based cellular in rural areas, has formed a robust ecosystem in push development of e-commerce at the same time strengthen inclusion finance. The integration between DFI and e-commerce creates mutual cycles, where increased adoption service digital finance drives e-commerce participation, which will then spur innovation in development product more finances specific and adaptive [28].

2. Materials and Method

The implementation method of this community service activity was systematically and operationally designed through three main stages, namely the preparation stage, implementation stage, and evaluation stage, to ensure that all activities were carried out in a structured and measurable manner.

In the preparation stage, the research team conducted coordination with the Sumberejo Village Government, Pagak District, to identify the primary problems faced by household entrepreneurs, particularly those related to limited access to financing and low levels of digital financial literacy. In addition, evaluation instruments in the form of pre-test and post-test questionnaires were developed, consisting of multiple-choice and conceptual questions covering three main aspects: business financing constraints, digital financial inclusion, and the utilization of e-commerce. A total of 20 participants were selected as the target group, consisting of novice household entrepreneurs based on the initial needs assessment.

The implementation stage was conducted on July 21, 2025, using an educational and participatory approach that combined material delivery, interactive discussions, and practical mentoring sessions. The activity began with the administration of a pre-test to measure participants' initial level of understanding, which was conducted through direct home visits to ensure active participation. Subsequently, the training materials were delivered using lecture and discussion methods that linked theoretical concepts to the real conditions faced by participants. The materials covered business financing constraints, the role of digital financial inclusion in expanding access to financial services, and the utilization of e-commerce as a tool for business development. This approach is consistent with the concept of mentoring as a mechanism for knowledge transfer and capacity building that encompasses not only cognitive aspects but also affective and practical dimensions [29], [30] [31]. Following the material delivery, practical mentoring sessions were conducted through simulations of digital financial services and the introduction of e-commerce platforms, enabling participants to not only understand the concepts theoretically but also apply them in practice. These activities are implemented through educational provision that links the learning process to real-world contexts and employs a collaborative approach focused on learning design to enhance participants' motivation [32].

The evaluation stage was carried out to measure the effectiveness of the program using both quantitative and descriptive approaches. Quantitative evaluation was conducted through the administration of a post-test using an instrument equivalent to the pre-test to ensure measurement consistency. The results of the pre-test and post-test were then analyzed using mean score comparison, percentage increase, and the Normalized Gain (N-Gain) approach to assess the level of improvement in participants' understanding. Meanwhile, descriptive evaluation was conducted by observing participants' engagement, participation, and ability to understand and apply the materials provided. This evaluation approach reinforces the role of mentoring not only as a knowledge transfer process but also as a means of building participants' confidence and readiness to face entrepreneurial challenges sustainably [33], [34].

3. Results and Discussion

Result

A. Pre-Test Results

The pre-test was administered prior to the delivery of instructional materials and the commencement of mentoring activities. Pre-test questionnaires were distributed in printed form through direct home visits to the 20 participants, who were novice household entrepreneurs. The instrument consisted of multiple-choice questions and conceptual understanding questions covering three main aspects: 1) understanding of business financing constraints; 2) knowledge of digital financial inclusion; 3) utilization of e-commerce in business development.

Based on the pre-test results, the following findings were obtained: 1) the average participant score was 55.25%, indicating that the initial level of understanding was relatively low; 2) the majority of participants did not yet have a comprehensive understanding of the concept of digital financial inclusion, particularly in relation to technology-based financing access; 3) only approximately 30% of participants were familiar with the use of e-commerce as a marketing tool; 4) most participants still relied on conventional methods in financial management and business marketing.

These findings indicate a significant knowledge gap among participants, highlighting the strong relevance and necessity of the mentoring activities.

B. Post-Test Results (After the Activity)

The post-test was administered after the completion of all stages of the community service program, including the delivery of instructional materials, interactive discussions, and practical mentoring sessions. The instrument used in the post-test was equivalent in structure and level of difficulty to the pre-test in order to ensure consistency and comparability of results.

The post-test results indicate a significant improvement in participants' understanding, as reflected in the following findings:

- 1) The average participant score increased to 85.75%, demonstrating a substantial enhancement in overall comprehension.
- 2) Approximately 85% of participants demonstrated a good understanding of digital financial inclusion, particularly in terms of access to technology-based financial services.
- 3) Around 80% of participants were able to identify and explain the benefits of e-commerce in expanding market access for their businesses.
- 4) Participants showed increased familiarity with the use of digital financial services, including digital payments, online financing platforms, and marketplace applications.

In addition, participants exhibited notable improvements in several key aspects: their ability to make business decisions based on digital information and financial considerations, their awareness of the importance of digital financial literacy, their readiness to adopt and implement digital technologies in their business activities.

C. Comparative Analysis of Pre-test and Post Test Result

To evaluate the effectiveness of the community service program, a comparative analysis was conducted between the pre-test and post-test results. This analysis aims to measure the extent of improvement in participants' knowledge and understanding after participating in the mentoring activities. Based on the results obtained, the average pre-test score was 55.25%, while the average post-test score increased to 85.75%. This indicates an absolute increase of:

$$85.75\% - 55.25\% = 30.50\%$$

Furthermore, the relative percentage increase in participants' understanding can be calculated using the following formula:

$$\begin{aligned} \text{Percentage Increase} &= \frac{\text{Post - Test Score} - \text{Pre - Test Score}}{\text{Pre - Test Score}} \times 100\% \\ &= \frac{85.75 - 55.25}{55.25} \times 100\% = 55.20\% \end{aligned}$$

This result shows that participants' understanding improved by approximately 55.20% compared to their initial level, indicating a substantial enhancement in knowledge following the intervention.

In addition, the effectiveness of the program can be further assessed using the Normalized Gain (N-Gain) index, which measures the proportion of actual improvement relative to the maximum possible improvement [35], [36]. The N-Gain is calculated as follows:

$$N - Gain = \frac{Post - Pre}{100 - Pre}$$

Substituting the values:

$$N - Gain = \frac{85.75 - 55.25}{100 - 55.25} = \frac{30.50}{44.75} = 0.68$$

According to standard interpretation criteria, an N-Gain score of 0.68 falls within the moderate to high category, indicating that the mentoring program was effective in improving participants' knowledge and understanding.

Moreover, the improvement was observed consistently across all three key aspects evaluated in the study:

- 1) Participants demonstrated a better understanding of business financing constraints, particularly in identifying barriers to accessing formal financial services.
- 2) There was a significant increase in knowledge related to digital financial inclusion, including awareness of digital financial tools and services.
- 3) Participants showed improved comprehension of e-commerce utilization, especially in terms of market expansion and digital transaction processes.

These findings suggest that the combination of instructional delivery, interactive discussion, and practical mentoring contributed significantly to enhancing participants' cognitive and practical competencies. Overall, the comparative analysis confirms that the community service activity had a strong positive impact, not only in increasing participants' knowledge but also in improving their readiness to adopt digital financial practices and e-commerce in their business activities.

Discussion

Activity devotion to the public this was implemented July 21, 2025 together with Government Village Sumberejo Subdistrict Pagak as Figure 1.



Figure 1. Activities Devotion to the community

Activity Mentoring with give material to participant devotion public covering discussion :

a) Constraint Financing and Finance Digital Inclusion

Activity devotion to the public This aim gives understanding to participants about constraint frequent financing faced perpetrator business small and home stairs, and role finance digital inclusiveness in overcoming it. Material delivered with emphasis that limitations on access financing are generally caused by asymmetry information, absence guarantee, and the height cost transactions, which ultimately hinder development business and entrepreneurship [37]. Through utilization of digital technology, digital inclusive finance can expand access service finance with higher costs low, increase efficiency distribution credit, as well as reduce exclusion finance, in particular for public rural and group income low [21]. Besides that, strengthening digital inclusive contributes in increase participation economy and resilience business with provide service digital payments, savings, and more financing easy accessible [38]. Through activity this, it is hoped public get comprehensive insight about importance utilization finance digital inclusiveness as solution strategic For overcome constraint financing and encouraging independence economy.

Constraint financing is an obstacle mainly in development business, especially for small and medium enterprises (SMEs) [39], [40]. Barriers the sourced from various factors, such as asymmetry information, height cost transactions, requirements guarantee, as well as limitations history credit, which is together limit ability company For invest, respond market dynamics, financing activity operational, and pursuing growth business [41], [42]. Conventional financial institutions often make things worse. This through implementation conditions strict loans, incl obligation guarantees, warranties, and complex documentation, so that create obstacles significant, especially for company small and new businesses standing. In the market with level deepening low finance, quality system banking reported the same role importance to performance companies compared to with size sector finance in a way overall [43]. However, service finance traditionally still maintains threshold high access and complicated procedures, which in the end limit activity entrepreneurship as well as expansion of companies in a significant way [42]. Study empirical show that business small and medium sized enterprises (SMEs) are facing limitations access credit, tends to experience difficulty For entering the market, growing, or stay at the stage beginning its operations. With reduced obstacle financing said, finance digital inclusiveness (DIF) not only pushes entry companies new, but also improves resilience business pioneering, especially in the sector business rural areas that have been This own access limited to service finance conventional [44].

Implementation and deepening digital finance has pushed the improvement of digitalization companies. Development this is reflected in repairing digital infrastructure, business model adjustments in line with the digitalization process, as well as improving digital literacy among power workers [45], [41], [46]. Besides that, integration digital finance generates accumulation of data in a big open opportunity for implementation taking decision data- based. Conditions This demand availability source Power man with strong quantitative and analytical skills, which are generally correlated with level more education tall [47], [48].

First , finance digitally inclusive significantly expands access to public rural service finance. Through integration digital technology to in system finance, approach This capable overcome obstacle geographical as well as cover limitations of financial models conventional which is generally own level penetration low in rural areas. The digital transformation in a way real increases availability service rural finance [49]. Although Lots area rural Still experience limitations infrastructure physical, such as bank offices and ATM machines, the public now can utilise service finance through device mobile, so that digital transactions become more easy and exclusion geographical can minimized. Li and Pan [50] show that public rural is the group that feels it the most benefit from service digital finance, which emphasizes capacity digital finance in expanding coverage and availability of service finances in the region that have not been sufficiently served.

Second, digital inclusiveness plays a role in lower cost financing for entrepreneur rural areas. Digital finance provides various service finance with higher costs efficiently compared to conventional system finance conventional [49]. Progress digital technology also helps reduce asymmetry of general information happening in the financial markets traditionally through improvement of exchange information, reinforcement trust, and decline cost transaction [51]. In addition, the use of the internet and technology communication mobile allows provision of various platforms as well product online finance, such as loans between individuals (*peer-to-peer* /P2P) and schemes funding together (*crowdfunding*). Innovations in a way significant pressing cost financing and expanding choice funding for businessman rural [52].

Third, digital inclusive finance contributes to increase the efficiency of the financing process for entrepreneur rural areas. Activities entrepreneurship in rural areas generally own level relative risk high, so that often causes cost addition in the assessment process risk. Utilization digital technology makes it possible institution finance do evaluation risk in a way more accurate and efficient from aspect costs, so that entrepreneur rural can get financing with more fast and effective [53]. In general special, finance digital inclusive leveraging technology modern information, such as network social, machine search engines, and big data analytics, for collect as well as analyzing credit data customer approach This assist banks and institutions finance understand condition business as well as eligibility credit candidate debtor in a way more comprehensive, simplifying the assessment process credit, and speed up time agreement loan [54]. In addition,

digital inclusiveness also optimizes distribution service finance with a reduce gap between institution finance and society rural [50].

Lastly, finance digital inclusiveness plays a role in increasing resilience risk in rural areas. Roodman and Morduch [55] state that inclusion finance can strengthen stability finance perpetrator business, so that the increase ability to face shock business. Availability source Power adequate finances functioning as buffer to uncertainty and events not unexpected, and give protection for sustainability business entrepreneurship [56], [57]. With repair access financing and lowering cost transactions, finance digital inclusion reduces the level of general uncertainty attached to the activity of entrepreneurship in rural areas, so that it creates an environment more stable and sustainable [49].

b) Finance Digital Inclusion Drives Behavior Entrepreneurship

Activity devotion to public This gives material about the role finance digital inclusiveness in push behavior entrepreneurship, in particular for perpetrator business small and community income low. Digital inclusiveness enables improved access to service formal finance through digital technology, such as payment electronics, savings, and financing, so that capable lower obstacles enter into activity entrepreneurship [21]. With decreased constraint financing and increasing efficiency transactions, society pushed for more brave decision entrepreneurship as well as developing efforts that have been executed [38]. In addition, utilization service digital finance also strengthens capacity entrepreneurship through improvement of literacy finance, expansion market access, and support to innovation effort, which ultimately contribute to a better economy inclusive and sustainable [58]. Through delivery material this, it is hoped participants understand that finance digital inclusiveness is not only functioning as tool transactions, but also as driving important behavior entrepreneurship and independence economy.

To ensure sustainability in operational business, entrepreneurs need an environment supporting financing as well as channel funding that can be reliable [59]. Financial digital inclusiveness, characterized by wide access, efficiency costs and convenience use [60], provides opportunity for entrepreneurs in rural areas who are historically often marginalized by the system finance conventional For get access to service finance [52]. Access this in turn increases opportunity continuity and sustainability business there.

c) The Role of E-Commerce in Finance Digital Inclusion

E-commerce infrastructure plays a role as an important intermediary in strengthening influence inclusion digital finance (DFI) towards achieving entrepreneurship through various mechanisms. Conceptualization theoretical This shows existence connection synergistic, where the provision of architecture finance and digital tools by DFI combined with function market formation run by e-commerce platforms, create an ecosystem integrated that supports establishment as well as improvement scale business. Framework thinking this describes how second interconnected systems complete, namely infrastructure finance DFI -based and converged e-commerce market mechanisms in a push creation environment more entrepreneurship inclusive, easily accessible and efficient [28].

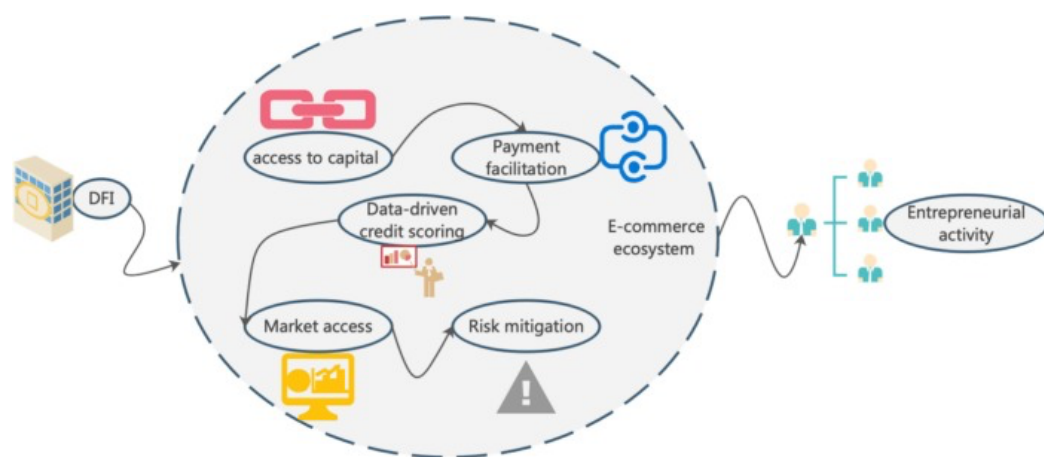


Figure 2. The Role of E-Commerce in DFI Infrastructure to Encourage Activities Entrepreneurship

The five mechanisms shown in Figure 2 are: access towards capital, facilitation system payment, assessment credit data-driven, expansion market access, and mitigation risk, in terms of collectively describe How inclusion digital finance (DFI) strengthens e-commerce capabilities. Strengthening the furthermore creates a better environment conducive for growth and development activity entrepreneurship.

To strengthen the findings presented, the results of this community service activity are further supported by empirical field data obtained during the mentoring process. Based on observations and direct interactions with participants, it was found that prior to the implementation of the program, the majority of participants had limited access to and experience with digital financial services. Out of the 20 participants, only 6 individuals (30%) had previously used digital payment services, while the remaining 14 participants still relied on cash-based transactions in managing their business activities. In addition, only 5 participants (25%) had utilized e-commerce as a marketing tool, and their usage was limited to basic social media platforms without optimal use of marketplace features.

Following the implementation of the mentoring program, a significant improvement was observed in both participants' understanding and practical skills. A total of 17 participants (85%) demonstrated a clear understanding of digital financial inclusion, particularly in relation to technology-based financing access. In terms of practical skills, 15 participants (75%) were able to perform digital transaction simulations, including QR-based payments and transfers through digital banking services. Regarding the utilization of e-commerce, 16 participants (80%) showed improved comprehension, as evidenced by their ability to create marketplace accounts, upload products, and apply basic digital marketing strategies.

Improvements were also evident in participants' attitudes and readiness to adopt digital technology. Prior to the program, most participants expressed hesitation in using digital tools due to limited knowledge and experience. After the mentoring sessions, participants exhibited increased confidence and readiness to utilize digital technologies to support their business activities. This was reflected in their active participation during practical sessions and their ability to follow and complete digital service simulations.

Furthermore, participant feedback indicated that the materials delivered were highly relevant to their needs, particularly in addressing financing constraints and limited market access. Participants also recognized that the integration of digital financial inclusion and e-commerce provides new opportunities for business development, especially in expanding market reach and improving transaction efficiency.

4. Conclusion

Activity devotion to the public shows that finance digital inclusive has a strategic role in reducing constraint financing and encouraging strengthening behavior entrepreneurship House stairs in rural areas. Based on results of survey pre-activity and mentoring process, found that improved access to service digital finance contributes to convenience taking decision entrepreneurship, improvement efficiency transactions, as well as decline obstacle financing that has been This faced society. Besides that, integration finance digital inclusive with proven use of e-commerce expands market access and creates an environment more conducive for growth and development business House ladder rural.

More continue, results devotion This confirms the importance of trust and literacy digital finance in strengthening effectiveness includings digital finance. Approach based survey early and mentoring sustainable allows design more material appropriate targets in accordance with society. With thus, devotion This No only give impact on increasing understanding and capacity entrepreneurship society, but also provide implications practical for formulation of empowerment programs and policies local oriented towards strengthening inclusion digital finance, e-commerce development, and achievements growth economy more rural inclusive and sustainable.

Based on results activity devoted to this, it is recommended that the mentoring program finance digital inclusiveness is implemented in a way sustainable with involving government village, institution finance, and actors business local for strengthening ecosystem entrepreneurship in rural areas. Improvement literacy, digital finance and e-commerce literacy are necessary done in a way periodically so that the community not only understand access service finance, but also be able to optimize its utilization for development business. Besides that, it is necessary to support more digital policies and infrastructure to evenly expand internet access as well strengthen integration between finance, digital inclusive and e-commerce platforms. With synergy said, empowerment entrepreneurship House ladder rural can ongoing more effectively, sustainable and impactful wide to grow the economy locally.

This community service activity demonstrates that the utilization of digital financial inclusion plays a significant role in reducing financing constraints and strengthening the entrepreneurial capacity of rural household businesses. This conclusion is supported by quantitative findings, which indicate an increase in the average participant score from 55.25% in the pre-test to 85.75% in the post-test, reflecting an absolute improvement of 30.50%. In addition, the Normalized Gain (N-Gain) value of 0.68 falls within the moderate to high category, indicating that the mentoring activities were effective in enhancing participants' understanding of digital financial inclusion and the utilization of e-commerce.

Beyond quantitative improvements, the results are further supported by empirical field data that demonstrate observable changes in participants' behavior and skills. Prior to the program, most participants had limited experience with digital financial services and relied predominantly on cash-based transactions. Following the mentoring activities, 85% of participants demonstrated a clear understanding of digital financial inclusion, 75% were able to perform digital transaction simulations, and 80% showed improved understanding of e-commerce utilization in business development. These findings indicate that the program contributed not

only to knowledge enhancement but also to the development of practical skills and participants' readiness to adopt digital technologies.

Furthermore, the integration of digital financial inclusion and e-commerce has been shown to expand market access and improve transaction efficiency among household entrepreneurs. Participants exhibited increased confidence in utilizing digital tools and demonstrated the ability to apply basic digital marketing strategies. This condition reinforces the role of digital financial inclusion as a strategic instrument in promoting economic independence in rural communities.

Based on these findings, this community service activity provides practical implications, suggesting that mentoring programs focused on digital financial inclusion and e-commerce should be implemented in a sustainable manner, involving village governments, financial institutions, and local business actors. Continuous improvement of digital financial and e-commerce literacy is necessary to ensure that communities are not only able to access financial services but also to optimize their use for business development. In addition, policy support and equitable digital infrastructure development are essential to expand access and strengthen the rural entrepreneurial ecosystem.

Reference

- [1] J. Lerner and U. Malmendier, "With a Little Help from My (Random) Friends: Success and Failure in Post-Business School Entrepreneurship," *Rev. Financ. Stud.*, vol. 26, no. 10, pp. 2411–2452, Oct. 2013, doi: 10.1093/rfs/hht024.
- [2] D. Kong and N. Qin, "China's Anticorruption Campaign and Entrepreneurship," *J. Law Econ.*, vol. 64, no. 1, pp. 153–180, Feb. 2021, doi: 10.1086/711313.
- [3] J. Wu and L. Wu, "Impacts of digital inclusive finance on household entrepreneurship," *Financ. Res. Lett.*, vol. 56, p. 104114, Sep. 2023, doi: 10.1016/j.frl.2023.104114.
- [4] D. Kong and N. Qin, "Does Environmental Regulation Shape Entrepreneurship?," *Environ. Resour. Econ.*, vol. 80, no. 1, pp. 169–196, Sep. 2021, doi: 10.1007/s10640-021-00584-8.
- [5] D. Kong, N. Qin, and J. Xiang, "Minimum wage and entrepreneurship: Evidence from China," *J. Econ. Behav. Organ.*, vol. 189, pp. 320–336, Sep. 2021, doi: 10.1016/j.jebo.2021.06.047.
- [6] N. Qin and D. Kong, "Access to Credit and Entrepreneurship: Evidence from China," *Econ. Dev. Cult. Change*, vol. 71, no. 1, pp. 295–331, Oct. 2022, doi: 10.1086/714440.
- [7] N. Qin and D. Kong, "Human Capital and Entrepreneurship," *J. Hum. Cap.*, vol. 15, no. 4, pp. 513–553, Dec. 2021, doi: 10.1086/716344.
- [8] M. Adelino, S. MA, and D. Robinson, "Firm Age, Investment Opportunities, and Job Creation," *J. Finance*, vol. 72, no. 3, pp. 999–1038, Jun. 2017, doi: 10.1111/jofi.12495.
- [9] J. Haltiwanger, R. S. Jarmin, and J. Miranda, "Who Creates Jobs? Small versus Large versus Young," *Rev. Econ. Stat.*, vol. 95, no. 2, pp. 347–361, May 2013, doi: 10.1162/REST_a_00288.
- [10] T. L. Jensen, S. Leth-Petersen, and R. Nanda, "Financing constraints, home equity and selection into entrepreneurship," *J. Financ. Econ.*, vol. 145, no. 2, pp. 318–337, Aug. 2022, doi: 10.1016/j.jfineco.2021.10.012.
- [11] B. H. Hamilton, "Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment," *J. Polit. Econ.*, vol. 108, no. 3, pp. 604–631, Jun. 2000, doi: 10.1086/262131.
- [12] R. Levine and Y. Rubinstein, "Smart and Illicit: Who Becomes an Entrepreneur and Do They Earn More?," *Q. J. Econ.*, vol. 132, no. 2, pp. 963–1018, May 2017, doi: 10.1093/qje/qjw044.
- [13] A. Bellon, J. A. Cookson, E. P. Gilje, and R. Z. Heimer, "Personal Wealth, Self-Employment, and Business Ownership," *Rev. Financ. Stud.*, vol. 34, no. 8, pp. 3935–3975, Jul. 2021, doi: 10.1093/rfs/hhab044.
- [14] S. Andersen and K. M. Nielsen, "Ability or Finances as Constraints on Entrepreneurship? Evidence from Survival Rates in a Natural Experiment," *Rev. Financ. Stud.*, vol. 25, no. 12, pp. 3684–3710, Dec. 2012, doi: 10.1093/rfs/hhs107.
- [15] R. G. King and R. Levine, "Finance, entrepreneurship and growth," *J. Monet. Econ.*, vol. 32, no. 3, pp. 513–542, Dec. 1993, doi: 10.1016/0304-3932(93)90028-E.
- [16] A. L. Paulson and R. Townsend, "Entrepreneurship and financial constraints in Thailand," *J. Corp. Financ.*, vol. 10, no. 2, pp. 229–262, Mar. 2004, doi: 10.1016/S0929-1199(03)00056-7.
- [17] T. Beck and A. Demircuc-Kunt, "Small and medium-size enterprises: Access to finance as a growth constraint," *J. Bank. Financ.*, vol. 30, no. 11, pp. 2931–2943, Nov. 2006, doi: 10.1016/j.jbankfin.2006.05.009.
- [18] S. Aiyar, C. W. Calomiris, and T. Wieladek, "Bank Capital Regulation: Theory, Empirics, and Policy," *IMF Econ. Rev.*, vol. 63, no. 4, pp. 955–983, Nov. 2015, doi: 10.1057/imfer.2015.18.
- [19] M. Ahmad, A. Majeed, M. A. Khan, M. Sohaib, and K. Shehzad, "Digital financial inclusion and economic growth: provincial data analysis of China," *China Econ. J.*, vol. 14, no. 3, pp. 291–310, Sep. 2021, doi: 10.1080/17538963.2021.1882064.
- [20] Y. Liu, L. Luan, W. Wu, Z. Zhang, and Y. Hsu, "Can digital financial inclusion promote China's

- economic growth?," *Int. Rev. Financ. Anal.*, vol. 78, p. 101889, Nov. 2021, doi: 10.1016/j.irfa.2021.101889.
- [21] P. K. Ozili, "Impact of digital finance on financial inclusion and stability," *Borsa Istanbul Rev.*, vol. 18, no. 4, pp. 329–340, Dec. 2018, doi: 10.1016/j.bir.2017.12.003.
- [22] G. Corrado and L. Corrado, "Inclusive finance for inclusive growth and development," *Curr. Opin. Environ. Sustain.*, vol. 24, pp. 19–23, Feb. 2017, doi: 10.1016/j.cosust.2017.01.013.
- [23] G. Aisaiti, L. Liu, J. Xie, and J. Yang, "An empirical analysis of rural farmers' financing intention of inclusive finance in China," *Ind. Manag. Data Syst.*, vol. 119, no. 7, pp. 1535–1563, Aug. 2019, doi: 10.1108/IMDS-08-2018-0374.
- [24] Y. Luo and L. Zeng, "Digital financial capabilities and household entrepreneurship," *Econ. Polit. Stud.*, vol. 8, no. 2, pp. 165–202, Apr. 2020, doi: 10.1080/20954816.2020.1736373.
- [25] T. Liu, G. He, and C. G. Turvey, "Inclusive Finance, Farm Households Entrepreneurship, and Inclusive Rural Transformation in Rural Poverty-stricken Areas in China," *Emerg. Mark. Financ. Trade*, vol. 57, no. 7, pp. 1929–1958, May 2021, doi: 10.1080/1540496X.2019.1694506.
- [26] Y. Luo, Y. Peng, and L. Zeng, "Digital financial capability and entrepreneurial performance," *Int. Rev. Econ. Financ.*, vol. 76, pp. 55–74, Nov. 2021, doi: 10.1016/j.iref.2021.05.010.
- [27] L. Liu, J. Z. Zhang, W. He, and W. Li, "Mitigating information asymmetry in inventory pledge financing through the Internet of things and blockchain," *J. Enterp. Inf. Manag.*, vol. 34, no. 5, pp. 1429–1451, Nov. 2021, doi: 10.1108/JEIM-12-2020-0510.
- [28] F. Wei, B. Xie, and M. Chen, "Digital financial inclusion, e-commerce development and entrepreneurial activity," *Int. Rev. Financ. Anal.*, vol. 97, p. 103806, Jan. 2025, doi: 10.1016/j.irfa.2024.103806.
- [29] L. Xu and J. Ji, "Fostering newcomers' work well-being through mentoring: The mediating role of career calling and the nonlinear moderating effect of team relationship conflict," *Acta Psychol. (Amst.)*, vol. 262, p. 106159, Feb. 2026, doi: 10.1016/j.actpsy.2025.106159.
- [30] Å. D. Haugsevje and M. T. Heian, "Sustainable creative careers through mentoring: Understanding social resilience in the art field," *Poetics*, vol. 107, p. 101930, Dec. 2024, doi: 10.1016/j.poetic.2024.101930.
- [31] S. Son, "Facilitating employee socialization through mentoring relationships," *Career Dev. Int.*, vol. 21, no. 6, pp. 554–570, Oct. 2016, doi: 10.1108/CDI-02-2016-0014.
- [32] A. R. Amaliyah and R. Rehti, "MANAJEMEN KEUANGAN USAHA MIKRO, KECIL DAN MENENGAH : PEMBANGUNAN PEDESAAN MELALUI PERAN BADAN USAHA MILIK DESA," *Bakti Banua J. Pengabd. Kpd. Masy.*, vol. 6, no. 2, pp. 67–74, Nov. 2025, doi: 10.35130/a4qeb235.
- [33] S. Taylor and S. Luckman, "Mentoring as affective practice," *Int. J. Cult. Policy*, vol. 31, no. 2, pp. 253–266, Feb. 2025, doi: 10.1080/10286632.2024.2320427.
- [34] C. M. Underhill, "The effectiveness of mentoring programs in corporate settings: A meta-analytical review of the literature," *J. Vocat. Behav.*, vol. 68, no. 2, pp. 292–307, Apr. 2006, doi: 10.1016/j.jvb.2005.05.003.
- [35] R. R. Hake, "Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses," *Am. J. Phys.*, vol. 66, no. 1, pp. 64–74, Jan. 1998, doi: 10.1119/1.18809.
- [36] L. Bao, "Theoretical comparisons of average normalized gain calculations," *Am. J. Phys.*, vol. 74, no. 10, pp. 917–922, Oct. 2006, doi: 10.1119/1.2213632.
- [37] J. E. Stiglitz and A. Weiss, "Credit Rationing in Markets with Imperfect Information," *Am. Econ. Rev.*, vol. 71, no. 3, pp. 393–410, 1981. Available: <https://www.jstor.org/stable/1802787>.
- [38] A. Demircuc-Kunt, L. Klapper, D. Singer, S. Ansar, and J. Hess, *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. Washington, DC: World Bank, 2018. doi: 10.1596/978-1-4648-1259-0.
- [39] K. Mishra, R. A. Gallenstein, M. J. Miranda, A. G. Sam, P. Toledo, and F. Mulangu, "Insured Loans and Credit Access: Evidence from a Randomized Field Experiment in Northern Ghana," *Am. J. Agric. Econ.*, vol. 103, no. 3, pp. 923–943, May 2021, doi: 10.1111/ajae.12136.
- [40] P. Yue, A. G. Korkmaz, Z. Yin, and H. Zhou, "The rise of digital finance: Financial inclusion or debt trap?," *Financ. Res. Lett.*, vol. 47, p. 102604, Jun. 2022, doi: 10.1016/j.frl.2021.102604.
- [41] N. Wang, J. Wan, Z. Ma, Y. Zhou, and J. Chen, "How digital platform capabilities improve sustainable innovation performance of firms: The mediating role of open innovation," *J. Bus. Res.*, vol. 167, p. 114080, Nov. 2023, doi: 10.1016/j.jbusres.2023.114080.
- [42] D. Xu, D. Guo, P. Yue, and M. Li, "Household green consumption: Does digital inclusion matter?," *Int. Rev. Financ. Anal.*, vol. 91, p. 102977, Jan. 2024, doi: 10.1016/j.irfa.2023.102977.
- [43] L. Chauvet and L. Jacolin, "Financial Inclusion, Bank Concentration, and Firm Performance," *World Dev.*, vol. 97, pp. 1–13, Sep. 2017, doi: 10.1016/j.worlddev.2017.03.018.
- [44] F. Lu, X. Xia, and Y. Wu, "Does digital inclusive finance influence the entry and exit of agro-processing enterprises? Evidence from China," *Econ. Anal. Policy*, vol. 89, pp. 165–177, Jan. 2026, doi: 10.1016/j.eap.2025.11.034.
- [45] G. Graetz and G. Michaels, "Robots at Work," *Rev. Econ. Stat.*, vol. 100, no. 5, pp. 753–768, Dec. 2018,

doi: 10.1162/rest_a_00754.

- [46] H. Xu, X. Han, Y. Shen, and M. Zhou, "Is internal control more efficient in employee-friendly firms?," *Int. Rev. Financ. Anal.*, vol. 97, p. 103875, Jan. 2025, doi: 10.1016/j.irfa.2024.103875.
- [47] M. Bai, Y. Li, and C.-F. (Jeffrey) Yu, "Business environment trustworthiness and employee income share," *Int. Rev. Financ. Anal.*, vol. 103, p. 104201, Jul. 2025, doi: 10.1016/j.irfa.2025.104201.
- [48] Q. Zhai and L. Xu, "Employee welfare and earnings management," *Int. Rev. Financ. Anal.*, vol. 102, p. 104076, Jun. 2025, doi: 10.1016/j.irfa.2025.104076.
- [49] X. Wang and Y. Fu, "Digital financial inclusion and vulnerability to poverty: evidence from Chinese rural households," *China Agric. Econ. Rev.*, vol. 14, no. 1, pp. 64–83, Jan. 2022, doi: 10.1108/CAER-08-2020-0189.
- [50] B. Li and Y. Pan, "Digital inclusive finance and rural entrepreneurial survival: The moderating role of digital and financial literacy," *Econ. Anal. Policy*, vol. 86, pp. 1119–1136, Jun. 2025, doi: 10.1016/j.eap.2025.04.025.
- [51] T. Beck, H. Pamuk, R. Ramrattan, and B. R. Uras, "Payment instruments, finance and development," *J. Dev. Econ.*, vol. 133, pp. 162–186, Jul. 2018, doi: 10.1016/j.jdeveco.2018.01.005.
- [52] J. Li and B. Li, "Digital inclusive finance and urban innovation: Evidence from China," *Rev. Dev. Econ.*, vol. 26, no. 2, pp. 1010–1034, May 2022, doi: 10.1111/rode.12846.
- [53] K. Li, H. Mengmeng, and J. Huo, "Digital inclusive finance and asset allocation of Chinese residents: Evidence from the China Household Finance Survey," *PLoS One*, vol. 17, no. 5, p. e0267055, May 2022, doi: 10.1371/journal.pone.0267055.
- [54] Y. Li, F.-J. Nie, and Z.-B. Yan, "Age and Geochemistry of Late Jurassic Mafic Volcanic Rocks in the Northwestern Erguna Block, Northeast China," *Minerals*, vol. 11, no. 9, p. 1010, Sep. 2021, doi: 10.3390/min11091010.
- [55] D. Roodman and J. Morduch, "The Impact of Microcredit on the Poor in Bangladesh: Revisiting the Evidence," *J. Dev. Stud.*, vol. 50, no. 4, pp. 583–604, Apr. 2014, doi: 10.1080/00220388.2013.858122.
- [56] I. Uzuegbunam, B. Ofem, and S. Nambisan, "Do Corporate Investors Affect Entrepreneurs' IP Portfolio? Entrepreneurial Finance and Intellectual Property in New Firms," *Entrep. Theory Pract.*, vol. 43, no. 4, pp. 673–696, Jul. 2019, doi: 10.1177/1042258717738247.
- [57] J. Wu, S. Si, and X. Wu, "Entrepreneurial Finance and Innovation: Informal Debt as an Empirical Case," *Strateg. Entrep. J.*, vol. 10, no. 3, pp. 257–273, Sep. 2016, doi: 10.1002/sej.1214.
- [58] M. Iltizam Fairuzi, W. EkoPujianto, A. Lucy Larassaty, and A. Sholikhah, "Building Resilient Entrepreneurship: How Financial Literacy and Digital Inclusion Drive Performance in SMEs?," *J. Manaj. dan Organ.*, vol. 16, no. 2, pp. 177–197, May 2025, doi: 10.29244/jmo.v16i2.63697.
- [59] A. M. Robb and D. T. Robinson, "The Capital Structure Decisions of New Firms," *Rev. Financ. Stud.*, vol. 27, no. 1, pp. 153–179, Jan. 2014, doi: 10.1093/rfs/hhs072.
- [60] N. Dutta and R. S. Sobel, "Entrepreneurship and human capital: The role of financial development," *Int. Rev. Econ. Financ.*, vol. 57, pp. 319–332, Sep. 2018, doi: 10.1016/j.iref.2018.01.020.