Research on the Problems and Countermeasures of Rural E-commerce Talent Competence under the Comprehensive Revitalization Strategy of Rural Areas

Wei Tang[1,2,a*], Qingwei Song[1,2,b], Dan Zhang[3,c]

[1]*School of Accounting and Finance, Shaanxi Business College, Xi'an, Shaanxi, China*
[2]*School of Accounting and Finance, The Open University of Shaanxi, Xi'an, Shaanxi, China*
[3]*School of Economics and Management, Ankang University, Ankang, Shaanxi, China*
[a]*tangwei070504@126.com,* [b]*1024689074@126.com,* [c]*1190511016@stu.xaut.edu.cn*
[*]*Corresponding author*

Abstract: Rural e-commerce is a vital part of the rural digital economy. It integrates digital technologies-live streaming, big data, IOT—with agricultural production, rural governance, and farmer lifestyles. It drives agricultural supply-side reform via demand-oriented production, branding, and value chain extension, accelerating modernization of the rural industrial system. As a strategic pillar for urban-rural integration, it bridges market information, logistics, and capital flows, activating new rural productive forces. Rural e-commerce talents are the core executors of sustainable development. They are essential to national rural revitalization and critical for transforming traditional farming into integrated production-marketing-service businesses. They drive farmers' digital and media literacy, cultivate skilled new-generation farmers, and stimulate endogenous rural momentum. Yet major challenges persist: (1) supply-demand imbalance and high talent turnover; (2) misalignment between education/training and real industry needs; (3) weak policy support and an underdeveloped entrepreneurship/employment ecosystem. To address these, this paper proposes four targeted policies: First, establish a cross-departmental collaborative platform for integrated policy implementation, enhancing resource coordination and regional linkage. Second, develop a dynamic, modular curriculum system to reform training supply—adapting rapidly to market shifts. Third, implement a "dual-track assessment+dynamic incentive" mechanism to strengthen accountability and value orientation. These measures aim to build a resilient, adaptive, and inclusive talent system that sustains rural e-commerce growth and advances comprehensive rural revitalization.

1. Introduction

Rural e-commerce, as a crucial component of the rural digital economy, represents an innovative field where digital technology deeply integrates with agriculture and rural development. It serves as

a core engine driving the reform of agricultural supply structures and the modernization of the industrial system, while also providing strategic support for building a new pattern of urban-rural integration and activating new productive forces in rural areas. Correspondingly, rural e-commerce talents, as the key actors ensuring the sustainable development of this sector, are not only essential for implementing the rural revitalization strategy but also play a vital role in facilitating rural industrial transformation and upgrading. Furthermore, they act as a core driving force in enhancing farmers' media literacy and stimulating new productive forces in the countryside. However, several prominent challenges persist in the development of rural e-commerce talent, including imbalances between supply and demand, difficulties in talent retention, a disconnect between education and industry needs, insufficient diversity and integration of skills, as well as lagging policies and a weak supportive ecosystem. Given this context, against the backdrop of the comprehensive rural revitalization strategy, it is imperative to conduct research on constructing a competency index system for rural e-commerce talents.

2. Problems in the Development of Rural E-commerce Talents under the Comprehensive Rural Revitalization Strategy

2.1. There is a coexistence of a shortage in the total talent pool and an imbalance in talent structure, with an acute scarcity of high - end interdisciplinary talents

Currently, the primary challenge facing rural e-commerce talent is the dual issue of insufficient quantity and suboptimal quality. In terms of total numbers, despite large-scale training nationwide (e.g., over 100,000 trainees in Zhejiang and 320,000 in Longnan, Gansu), the professional talent gap remains vast relative to the extensive rural market and rapidly evolving industry demands. Industry forecasts indicate a need for over 2 million e-commerce professionals in county-level online commerce, far exceeding current supply. More critically, there is a severe structural imbalance. The existing talent pool exhibits a distorted "pyramid" structure: a large base but a serious shortage at the middle and upper levels. Specifically, the number of basic operational talents (e.g., capable of setting up shops, managing listings, and handling basic customer service) has increased through years of universality training. However, there is an extreme scarcity of advanced operational talents and strategic management talents at key points in the industrial chain. This manifests as: 1) a lack of professional operational and marketing talents skilled in traffic acquisition, data analysis, and brand promotion[1]; 2) a shortage of design talents for product packaging and visual enhancement; and 3) a deficiency in entrepreneurial, managerial talents who can integrate supply chains, plan cold-chain logistics, conduct financial analysis, and lead teams. For instance, e-commerce teams in Lingshan County, Guangxi, report that their greatest need is for operational talents who can provide excellent product strategies. This structural shortage keeps many rural e-commerce projects in a "small, scattered, and weak" state, hindering branding, scaling, and sustainable development. Many village e-commerce service points, due to a lack of professional operators, remain unused or function merely as small shops, failing to fulfill their core role of promoting agricultural products. In impoverished areas, where educational resources are inherently inadequate, this problem is particularly acute, with slow local talent incubation and significant challenges in cultivating high-end professionals[2].

2.2. The talent cultivation system is fragmented and lacks effectiveness, and the integration of industry and education is not deep enough

The current rural e-commerce talent cultivation system suffers from severe "fragmentation" and "formality," failing to establish a systematic, long-term educational mechanism. First, training

content is "detached from agriculture and reality." Many programs, run by third-party institutions, feature urbanized, theoretical course designs that are severely disconnected from farmers' actual understanding levels and the real scenarios of rural e-commerce. Training often covers general e-commerce platform rules and marketing theories but lacks targeted content addressing specific agricultural product characteristics (e.g., fresh-keeping, quality control grading), local cultural contexts, and low-cost practical solutions, resulting in farmers being "unable to understand, learn, or apply" the knowledge[3]. Practices in regions like Xinjiang and Yunnan show that despite high participation, very few trainees successfully launch and sustain e-commerce operations. Second, the training model is "short, flat, and fast." Current training primarily consists of short-term classes or lectures lasting a few days, lacking the support of a long-term, systematic, and coherent vocational education system. This "campaign-style" training cannot support the growth process fromintroduction to mastery, nor can it cultivate the comprehensive abilities needed to solve complex problems. Trainees often only grasp isolated knowledge points and are helpless when facing practical operational issues like traffic fluctuations, customer disputes, or supply chain disruptions. Finally, there is a disconnect between industry and education. Although "deepening industry-education integration" has become a policy consensus, in practice, the collaborative education mechanism among schools, enterprises, and the government remains inefficient. The curriculum of e-commerce majors in vocational colleges lags behind the rapid development of the industry, with teaching content misaligned with the actual job requirements of rural e-commerce. Students lack necessary practical skills and a sense of connection to agriculture, rural areas, and farmers[4]. School-enterprise cooperation often remains superficial, failing to establish deep collaboration models involvingco-construction courses, shared faculty, and joint projects. Consequently, graduates are often ill-equipped to serve rural areas directly or are unwilling to engage in rural e-commerce ventures.

2.3. The "recruitment, training and retention" loop for talents has broken, resulting in significant talent loss and a lack of willingness to stay

Rural e-commerce talents are trapped in a vicious cycle of "unable to attract, unable to retain, and difficult to cultivate". The core issue lies in the insufficient overall attractiveness of rural areas in the competition for talents. Firstly, the weak industrial foundation leads to "unable to attract". In many rural areas, although there are a variety of agricultural products, there are problems such as scattered industries, small scale, low standardization, and weak brand influence. The weak industrial foundation means limited profit margins and career development ceilings, making it difficult to effectively attract external professional talents with advanced skills. Without stable and promising industrial platforms, empty talk about talent attraction is nothing but an illusion[5]. Secondly, the lack of environment and guarantees leads to "unable to retain". Compared to cities, rural areas have obvious gaps in soft environments such as convenience of life, cultural entertainment, medical education, and career development channels. In terms of salary and benefits, rural e-commerce positions generally lack competitive salary systems and clear promotion mechanisms. More crucially, the service guarantee mechanism for talents is seriously lacking. Many regions have not established special service networks for e-commerce talents, and they have nowhere to seek solutions to difficulties such as policy consultations, legal disputes, and resource connections when they encounter them in entrepreneurship. Therefore, even if excellent talents are cultivated locally, after accumulating certain experience, they are easily attracted by the more mature e-commerce ecosystem and better remuneration in cities, resulting in a predicament of "acting as a servant for others". There are grassroots officials who admit that some young people would rather work in big cities on basic jobs than develop in rural areas, believing that it is a move

to "a lower position". Finally, the weakening of emotional connection leads to "difficult to establish roots". For rural-origin college students who have studied in big cities and young people who work outside, the only thing that keeps them in the countryside is the memory of hometown. Without a strong sense of professional identity and career belonging, they will be pulled back by the village. Without effective mechanisms for "returning hometown sages" and role models to lead and demonstrate, relying solely on generalized policy calls is difficult to stimulate their internal motivation to return and start businesses[6].

2.4. The mismatch between the talent capability structure and the demand for industrial upgrading exists. "Understanding e-commerce but not agriculture, and understanding agriculture but not e-commerce

As rural e-commerce advances towards high-quality development, the demand for personnel has shifted from single skills to "specialized with multiple skills" comprehensive qualities. However, there is a serious mismatch between current capabilities and industrial needs. On one hand, "those who understand e-commerce don't understand agriculture." Urban e-commerce professionals or university graduates master digital tools but lack knowledge of agricultural cycles, product characteristics, storage logistics, and rural culture. Their marketing plans often "don't fit local conditions," leading to ineffective targeting and after sale disputes. On the other hand, "those who understand agriculture don't understand e-commerce." Local farmers know their products well but generally lack market awareness, brand concepts, data thinking, and digital skills. They struggle to convert product advantages into compelling online presentations and don't understand national consumer preferences or online competition. The deeper contradiction is "able to operate but not manage." Sustainable development requires leaders for strategic planning, resource integration, risk control, and team building[7]. Yet many practitioners remain in an "individual business" mindset, lacking enterprise operation, brand building, and supply chain collaboration abilities. For instance, during live-streaming sales, many farmer hosts only perform basic displays without content planning, fan operation, data analysis, or supply chain support, resulting in fleeting effects and unsustainable competitiveness[8].This capability mismatch is the core bottleneck preventing rural e-commerce from transitioning from "being able to sell" to "selling well" and "selling sustainably."

3. The path for enhancing the competence of rural e-commerce talents under the comprehensive rural revitalization strategy

3.1. Establish a collaborative training mechanism for rural e-commerce talents

To address the shortage of rural e-commerce talents and the mismatch of skills, the key solution is to establish a "collaborative training mechanism" led by the government and involving multiple parties. This mechanism focuses on "government, industry, enterprises, schools and farmers" collaborating, integrating industry demands, educational resources, policy support, and rural practices. Firstly, it is necessary to enhance coordination among governments and policy integration. Local governments should establish cross-departmental leading groups to unify e-commerce support, industrial revitalization, and talent policies[9]. They should also establish physical platforms such as "rural e-commerce industry (talent) parks" to provide policy services, practical training, and resource matching. Secondly, it is necessary to deepen industry-education integration and school-enterprise cooperation. Adopt the model of "industrial parks as classrooms", that is, vocational colleges and universities directly offer courses in the parks or on-site. Establish a progressive system of "theory + case study → project practice → enterprise internship" to ensure that learning aligns with work requirements. Form a "comprehensive" teaching team composed of

industry experts[10].Finally, it is necessary to stimulate the role of social forces and the main bodies within the rural areas. Mobilize industry associations, e-commerce platforms, MCN institutions, cooperatives, and village organizations to participate. Place farmers, returning young people, and other rural groups at the core, design personalized training paths. Establish a three-level training network of county, township, and village to expand the service scope and form a demonstration effect of "training one person, inspiring a group, and developing an industry".

3.2. Establish a targeted talent training system

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3.3. Establish a performance evaluation system for rural e-commerce talents

A scientific, fair and effective performance evaluation system is the core engine of the rural e-commerce talent management system. Its purpose is to accurately measure the value of talents, guide their behavior direction, stimulate their internal motivation, and provide objective basis for personnel decisions. The construction of this system must closely combine the unique attributes of the rural e-commerce industry, such as "the coexistence of public welfare and market nature", "the interweaving of individual entrepreneurship and organizational development", and "the emphasis on short-term sales and long-term brand". It should go beyond the single performance orientation of traditional enterprises and build a multi-dimensional, dynamic and integrated comprehensive evaluation system. First, establish the basic principles of "value creation and diversified orientation" for performance evaluation. The performance of rural e-commerce talents cannot be simply measured by financial indicators such as sales volume or profit, but should reflect their multi-dimensional contributions to the comprehensive revitalization of the countryside. The evaluation system should follow the following core principles: First, the principle of balance between public welfare and market, which not only assesses the direct economic benefits (such as agricultural product sales volume, profit contribution) but also the social benefits (such as the number of people employed, the number of farmers assisted, the improvement of regional public brand influence). Second, the principle of emphasizing both process and results, which not only

focuses on the final performance results but also pays attention to the performance in key process behaviors such as skill inheritance, model innovation, compliance operation, and customer service. Third, the principle of combining short-term and long-term, which sets short-term business indicators such as monthly and quarterly indicators, and also includes long-term development indicators such as talent cultivation, industry chain consolidation, customer relationship maintenance, etc. Fourth, the principle of combining qualitative and quantitative, which conducts data assessment for quantifiable performance and qualitative evaluation for qualities such as teamwork, innovation awareness, and professional ethics. For example, when Sichuan Province was building a team of rural e-commerce instructors, it clearly established a "multi-dimensional evaluation mechanism of villagers' evaluation, village 'two committees' assessment, township review, and county confirmation", and included grassroots satisfaction as a core assessment dimension. Secondly, design a "layered classification, precise profiling" performance evaluation index system[12]. For diverse roles in the rural e-commerce ecosystem (such as entrepreneurial hosts, operation specialists, supply chain managers, rural e-commerce instructors), differentiated evaluation indicators (KPI) must be designed. A four-pillar index system can be constructed with "performance contribution, ability growth, social value, and team collaboration" as the main pillars. For live-streaming sales talents, the core indicators should include: live-streaming sales volume, order conversion rate, fan growth rate, customer repeat purchase rate, after-sales satisfaction, and the number of public welfare live-streaming sessions, local agricultural product promotion proportion, etc[13].

3.4. Designing the salary management model for rural e-commerce talents

The salary management for rural e-commerce talents is the key material foundation for attracting, retaining and motivating them. Given the complex structure of talents (including returning young people, local elites, and enterprise employees) and the diverse payment entities (government, village collectives, small and medium-sized enterprises, etc.), the salary design cannot simply apply the standardized schemes of urban enterprises. Instead, it should adhere to the concepts of "market positioning, diversified composition, long-term orientation, and differentiated implementation", and construct a compound incentive system that combines external competitiveness and internal fairness, meets current survival needs and guides future development. The salary design needs to balance external competition and internal fairness. On the one hand, by referring to the market salary levels of similar e-commerce positions in the region and even in cities, ensure that the salary of core positions has external competitiveness, and resist the risk of talent flowing to cities or areas with higher salaries. On the other hand, fully consider the payment capacity (especially village collectives, start-up cooperatives) and internal fairness of the organization, balance the income gap between different positions (such as front-line sales and back-end support). The government can play a regulatory role, such as establishing an "e-commerce talent reward fund" and providing social security subsidies, to indirectly improve the actual income level of talents[14]. The salary structure should be "fixed-floating combined, long-short coexisting". The guarantee fixed salary (basic salary) is used to ensure basic living. The performance floating salary (bonuses or commissions) is directly linked to individual, team or organizational performance, and is the core means of motivating current performance. Long-term incentive salary (equity, options, project dividends, etc.) is applicable to core talents and entrepreneurs, and binds their personal interests with the long-term development of the organization deeply. In addition, special rewards such as "innovation technology awards" can be set up, and welfare allowances such as transportation and housing can be provided to enrich the incentive forms. The incentive system should "emphasize both material and spiritual, and consider both individuals and families". Besides salary, career

development incentives (clear promotion paths, systematic training, participation in important project decision-making), social honor incentives (recommendation for representative elections, awarding "Rural E-commerce Star" and other titles), and life care and security (assistance in solving actual difficulties such as children's education and family medical care) are also important. This can enhance the social status, sense of achievement and sense of belonging of talents, and solve their worries[15]. Salary management should establish a "dynamic adjustment, classified policy" operation mechanism. Regularly review the competitiveness, fairness and incentive effect of the salary system, and optimize and adjust it according to the enterprise's operating conditions, changes in market salary, performance achievement and feedback from talents. At the same time, implement classified policies for different types of talents: government-employed e-commerce instructors or public welfare hosts can adopt "work subsidy + performance reward + honor recognition"; village collectives or cooperatives that incubate local talents can adopt "guaranteed income + sales share + collective dividend"; market-oriented e-commerce enterprises that hire professional talents can adopt a more market-standardized combination of "position salary + performance bonus + long-term incentive". Through this flexible, precise and elastic salary management model, truly achieve "attracting people with salary, motivating people with salary, and securing people with welfare", laying a solid talent foundation for the sustainable development of rural e-commerce.

4. Conclusion

Under the strategic background of comprehensively promoting rural revitalization, rural e-commerce, as a key carrier for the deep integration of digital economy and agriculture, requires a high-quality, professional, and sustainable talent team for its healthy development. This study focuses on the issue of rural e-commerce talent's competence under the rural revitalization strategy, systematically analyzes the deep-seated contradictions currently faced by talent development, and constructs a four-dimensional improvement path centered on "collaborative training - precise training - scientific evaluation - effective incentives". The core conclusions and insights of this study are as follows: Firstly, the research reveals the multiple structural dilemmas faced by rural e-commerce talent development, whose root cause lies in the lack of systematic support. The current predicament is not a single issue but a systemic problem that is interrelated and mutually reinforcing. Specifically, in terms of quantity and structure, there are "insufficient total quantity" and "scarce high-end composite talents" dual pressures, and the distorted "pyramid" structure restricts the upgrading of the industry to branding and scale. In the training system, the training content is "de-agriculturalized", the mode is "short, quick, and superficial", and the integration of industry and education is "superficial", resulting in a serious disconnection between the supply of talents and the actual needs of the industry. In the talent ecosystem, the vicious cycle of "not being able to attract, not being able to cultivate well, and not being able to retain" is widespread, and behind it are multiple factors such as weak industry foundation, lack of competitiveness in salary, ambiguous career development channels, and insufficient life service guarantees. In terms of competence structure, the fragmentation of "knowing e-commerce but not agriculture, and knowing agriculture but not e-commerce" and the shortcomings of "able to operate but not manage well" have become the core capacity bottlenecks restricting the leap from "being able to sell" to "selling well" and "selling for a long time" in rural e-commerce. The interweaving of these problems indicates that any single breakthrough is unlikely to be effective, and top-level design and system reconstruction are necessary. Secondly, the study constructs a comprehensive countermeasure framework, emphasizing the use of mechanism innovation and system linkage to solve talent problems. In response to the above issues, this paper proposes a solution principle of "government leadership, multi-party collaboration, precise policy implementation, and ecosystem creation". Firstly, establish a collaborative training mechanism involving government, enterprises, schools,

farmers, and rural areas, aiming to break through departmental barriers and resource dispersion, and through the establishment of an entity-based collaboration platform (such as rural e-commerce industry talent park), integrate industry demands, educational resources, policy support, and rural practical scenarios, achieving the transformation from "each fighting alone" to "systematic operation". Secondly, build a stratified and classified precise training system, the key to which lies in changing the "one-size-fits-all" training model, based on the portraits of different roles such as entrepreneurial hosts, operation specialists, supply chain managers, and rural e-commerce instructors, designing modular and step-by-step course content, and deepening the "industrial park as classroom" model of industry and education integration, ensuring the seamless connection between talent cultivation and job requirements. Thirdly, design a scientific and fair performance evaluation system, its core is to go beyond the traditional single performance orientation, establish a multi-dimensional dynamic evaluation model covering "performance contribution, ability growth, social value, and team collaboration", and adhere to the principles of balancing public welfare and market, emphasizing process and results, combining short-term and long-term, and integrating qualitative and quantitative aspects, to use the assessment leadership baton to guide the direction of talent value creation. Fourthly, innovate a competitive composite salary incentive model, through the construction of "fixed and floating combined, long-term and short-term coexistence" salary structure, and "material and spiritual dual emphasis, personal and family co-concern", a comprehensive incentive welfare system, and implement a "dynamic adjustment, classified policy" operation mechanism, to effectively enhance the attractiveness of rural positions and the sense of belonging of talents. Finally, this study deepens the understanding of the logic of talent empowerment in rural revitalization and points out the future research direction. This study demonstrates that the improvement of rural e-commerce talent's competence is not a simple issue of skills training, but a systematic project involving multiple dimensions such as industry ecology, policy environment, education system, and social culture. Successful practice must integrate talent development into the overall planning of local industries and rural revitalization, achieving the coordinated advancement of the talent chain, industrial chain, innovation chain, and capital chain. The framework proposed in this study provides operational action references for local governments, vocational colleges, e-commerce platforms, and rural organizations. Of course, this study also has certain limitations. The research conclusions are mainly based on the inductive analysis of macro policy texts and existing literature. Future research can conduct in-depth case comparisons and large-sample empirical investigations to further quantitatively evaluate the actual effects of different policy paths and their influencing factors. Moreover, with the popularization of new-generation digital technologies such as artificial intelligence and metaverse, the forms of rural e-commerce and the talent capabilities required will continue to evolve. Future research needs to continuously pay attention to the new challenges and opportunities brought by technological changes to the rural digital talent competency model. In summary, cultivating a team of e-commerce talents who are rooted in rural areas, have excellent skills, and are full of vitality is a strategic fulcrum for connecting the "first mile" of agricultural products' upward movement and the "last mile" of industrial products' downward movement, and activating the internal driving force of the countryside. Only through systematic institutional innovation and persistent ecological construction can the talent predicament be solved, and enable the "new farmers" in the digital era to truly become the backbone force for comprehensively promoting rural revitalization.

Acknowledgements

References

[1] Li X. Research on the development level of rural e-commerce in China based on analytic hierarchy and systematic clustering method. Sustainability, 2022, 14(14): 8816.

[2] Chen M, Long Y. RETRACTED ARTICLE: Empowering Rural Revitalization: Unleashing the Potential of E-commerce for Sustainable Industrial Integration. Journal of the Knowledge Economy, 2024, 15(4): 18813-18831.

[3] Gao P, Liu Y. Endogenous inclusive development of e‑commerce in rural China: A case study. Growth and Change, 2020, 51(4): 1611-1630.

[4] Cheng X, Su L, Zarifis A. Designing a talents training model for cross‑border e‑commerce: a mixed approach of problem‑based learning with social media. Electronic Commerce Research, 2019, 19(4): 801-822.

[5] Cui M, Pan S L, Cui L. Developing community capability for e‑commerce development in rural China: A resource orchestration perspective. Information Systems Journal, 2019, 29(4): 953-988.

[6] Karine H. E-commerce development in rural and remote areas of BRICS countries. Journal of Integrative Agriculture, 2021, 20(4): 979-997.

[7] Chen M, Long Y. Empowering Rural Revitalization: Unleashing the Potential of E-commerce for Sustainable Industrial Integration. Journal of the Knowledge Economy, 2024, 15(4): 18813-18831.

[8] Yin Z H, Choi C H. Does e-commerce narrow the urban‑rural income gap? Evidence from Chinese provinces. Internet Research, 2022, 32(4): 1427-1452.

[9] Zang Y, Hu S, Li J, et al. Reconfiguring rural development: Spatial diffusion of E-Commerce and its multifaceted effects. Habitat International, 2025, 163: 103496.

[10] Li W, He W. Revenue-increasing effect of rural e-commerce: A perspective of farmers' market integration and employment growth. Economic Analysis and Policy, 2024, 81: 482-493.

[11] Kovács I, Keresztes É R. Young employees' perceptions about employability skills for e-commerce. Economies, 2022, 10(12): 309.

[12] Liu X, Ma Y, Li Y, et al. Shaping learning aspirations: the influence of E-commerce clusters on rural entrepreneurs. Electronic Commerce Research, 2025: 1-30.

[13] Wang C C, Miao J T, Phelps N A, et al. E-commerce and the transformation of the rural: the Taobao village phenomenon in Zhejiang Province, China. Journal of Rural Studies, 2021, 81: 159-169.

[14] Huang L, Xie G, Huang R, et al. Electronic commerce for sustainable rural development: exploring the factors influencing BoPs' entrepreneurial intention. Sustainability, 2021, 13(19): 10604.

[15] Lin J, Li L, Luo X R, et al. How do agribusinesses thrive through complexity? The pivotal role of e-commerce capability and business agility. Decision Support Systems, 2020, 135: 113342.