

Three-Dimensional Drive, Four-Way Collaboration: The Huanghai Model of Applied Universities Empowering Rural Revitalization

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Abstract: To address bottlenecks in rural development such as talent shortages, technological gaps, and industrial integration, Qingdao Huanghai University leverages its regionally-oriented applied education model and commitment to serving local rural revitalization. By capitalizing on its disciplinary strengths, the university has established a “Three-Dimensional Drive and Quadruple Collaboration” framework. Employing field research, university-local collaboration, targeted empowerment, and academic-research conversion, the study focused on multiple townships in Qingdao West Coast New Area. Practical initiatives were implemented in areas such as homestay upgrades, agri-cultural-tourism integration, and e-commerce support for agriculture. Results demonstrate significantly enhanced rural industrial benefits, establishing a replicable university-local collaborative revitalization paradigm. The project yielded multiple theoretical monographs, secured provincial-level talent team approval, and was selected for the National Rural Revitalization Industry-Education Integration Consortium. This research provides a practical model for applied universities to empower rural revitalization, helps resolve challenges in university-local resource integration, and holds significant implications for advancing the digital transformation of rural industries and achieving mutual benefits among universities, local authorities, and enterprises.

Keywords: Rural Revitalization; Industry-Education Integration; Digital Transformation; Three-Dimensional Drive; Four-Party Collaboration

1 Introduction

As a regional applied undergraduate institution, Qingdao Huanghai University has consistently

adhered to its educational mission of “serving local communities and empowering industries.” Leveraging strengths in disciplines like International Business and Digital Commerce, the university established the Rural Revitalization Industry Research Institute. It partnered with local governments and enterprises to create the “Rural E-commerce Collaborative Research Center” and formed the “Digital Economy Empowering Comprehensive Rural Revitalization Innovation Team,” which was approved as the fourth batch of Shandong Provincial Philosophy and Social Sciences Young Talent Teams. Focusing on the development needs of towns like Langya, Tieshan, Liuwang, Baoshan Town, and Dacun Town in Qingdao West Coast New Area. Using digital technology as its foundation and university-local collaboration as its bridge, the university has made precise efforts in areas such as homestay upgrades, agri-cultural-tourism integration, and e-commerce support for agriculture. It has forged a distinctive development path where expertise empowers industries and talent drives revitalization, establishing the “Three-Dimensional Drive and Multi-Dimensional Collaboration” model for rural revitalization—the Huanghai Model. Through concrete actions, it has demonstrated the social responsibility and mission of private universities.

2. Specific Measures for Rural Revitalization

2.1 Partnering with Langya Town: Breaking Through with Homestay Online Platforms to Revitalize Rural Tourism

2.1.1 Challenges facing traditional homestays
Since 2022, the university's Digital Economy Empowering Rural Revitalization Innovation Team has conducted multiple professional surveys in Langya Town. Research revealed the town possesses abundant premium tourism resources, including the Langya Terrace scenic

area and coastline. While hosting nearly 100 homestays, the town long faced developmental challenges characterized by “fragmentation, small scale, and weakness.” Most homestays rely on traditional offline operations, maintaining daily business through travel agency referrals and repeat customers. Operators lack professional management concepts, brand awareness, and online visibility, with limited order sources and insufficient service standardization. This hinders the conversion of tourism resources into economic advantages. Field research revealed that 80% of homestays are not listed on major e-commerce platforms, and 70% of operators cannot utilize online marketing tools, making industry upgrading urgent.

2.1.2 Customized training + full-process guidance

Addressing Langya Town's homestay challenges, the team developed a tailored “online operations + precision guidance” training program. Three specialized workshops were conducted in Langya Town, reaching over 90 homestay operators. Content covered practical skills including: techniques for listing on major travel platforms, property photography and image enhancement, order processing workflows, and customer communication etiquette. A teacher-student technical team was formed to assist homestays in launching listings on platforms like Meituan and Ctrip, optimizing over 30 property detail pages to build differentiated competitiveness. Through regular follow-ups on homestay operations, real-time solutions were provided for online booking management and customer review handling, guiding operators to establish online visitor entry points and continuously refine operational strategies.

2.1.3 From “hidden gem” to “trending destination”

Through sustained targeted empowerment, Langya Town's homestay industry achieved leapfrog development. Online orders for listed homestays rose from under 10% to 45%, while core properties saw average occupancy rates climb from 55% to 78%, exceeding 90% during peak seasons. Average per-guest spending significantly increased, boosting operators' annual income by 30,000-50,000 yuan and markedly enhancing the rural tourism brand's influence. Simultaneously, students involved in the Langya homestay project secured

provincial-level approval for their national innovation training initiative, “Langchuang Cloud Construction—Qingdao Langya Tai Scenic Area One-Stop Cultural Tourism Smart Platform.” They also participated in the 15th National E-commerce Innovation, Entrepreneurship, and Creation Competition, winning a provincial second prize. This transformed rural revitalization project outcomes into innovation and entrepreneurship resources.

2.2 Deep Dive into Yangjiashanli, Tieshan Town: Integrating Agriculture, Culture, and Tourism to Forge a New Engine for Rural Development

2.2.1 University-community collaboration: charting a new course for integrated development

The Yangjiashanli area in Tieshan Town boasts rich red cultural resources and a strong foundation in ecological agriculture, producing specialty crops like cherries, chestnuts, and organic vegetables. However, its agricultural, cultural, and tourism resources were fragmented, lacking systematic integration and market-oriented operations. Qingdao Huanghai University engaged in in-depth discussions with the Tieshan Town government and signed a strategic cooperation agreement with Qingdao Yangjiashanli Development and Construction Co., Ltd. Centered on the integrated development of “red culture + ecological agriculture + rural tourism,” the parties jointly established the Yangjiashanli Agricultural-Cultural-Tourism Integration Demonstration Project to transform rural resources into developmental advantages. The project will establish an integrated development framework through on-site research and planning by university teams, tracing the lineage of red culture, consolidating surrounding agricultural resources, and achieving synergy among agriculture, culture, and tourism.

2.2.2 Digital marketing: bringing rural beauty within reach

Leveraging professional digital marketing expertise, the team crafted a comprehensive promotion strategy tailored for Yangjiashanli. By capitalizing on each village's unique strengths based on local development realities, they established the “Yangjiashanli Agri-Cultural Tourism” operational framework. This initiative integrates resources such as

revolutionary education bases, eco-picking gardens, rural homestays, and countryside film production, fully merging primary, secondary, and tertiary industries to deliver a one-stop experience. The team managed Yangjiashanli's e-commerce livestreaming and other new media accounts, creating over 50 high-quality content pieces like "Picking Season Check-in Guide." Both parties promoted the destination through short videos on platforms like Douyin and WeChat Video Accounts, building viral agricultural product IPs. Leveraging big data analytics to target specific customer segments, they integrated online and offline resources into a comprehensive marketing matrix, driving the upgrade of the region's agritourism and cultural industries.

2.2.3 Collaborative talent development: building new foundations for sustainable growth

Leveraging the university-local partnership platform, the college and Tieshan Town jointly established the "Rural Revitalization Talent Training Base," moving classrooms to the frontlines of rural areas. Capitalizing on the strengths of the Digital Marketing program, the college engaged in deep cooperation with Yangjiashanli in areas such as "Creative Communication on New Media Platforms" and "Precision Marketing in Live-Streaming E-commerce." Offering specialized courses like "New Media Marketing" and "Advertising Strategy," the college organized over 200 students to conduct fieldwork in Yangjiashanli, producing more than 60 research reports and 30 marketing plans. Students designed a brand strategy for Yangjiashanli's cherry industry, winning a national second prize in the National College Business Elite Challenge. Simultaneously, outstanding students were selected to form the "Agricultural-Cultural-Tourism Volunteer Service Team," providing long-term volunteer services including event planning, tour guiding, and new media operations for the local community, injecting youthful energy into rural revitalization.

2.3 Rooting in Liuwang Town: E-commerce Live Streaming Bridges New Channels for Production-Sales Integration

2.3.1 Strategic partnership: university-community collaboration ignites new journey of rural revitalization
Liuwang Town, a major agricultural hub in the

West Coast New Area, boasts premium agricultural products like blueberries, chestnuts, and wild mountain vegetables. However, it long faced challenges including low product branding, limited sales channels, and insufficient e-commerce live-streaming skills. In 2021, Liuwang Town and Qingdao Huanghai University signed a strategic cooperation agreement for university-local collaboration. Both parties established a "Rural E-commerce Live-streaming Base," creating a new "university + government + farmers" model for production-sales linkage.

2.3.2 Capacity building: e-commerce training empowers new farmers

The team conducted e-commerce skill training for farmers and cooperative leaders in Liuwang Town, covering both theoretical knowledge and practical operations. Professor Chen Zhongquan delivered a lecture titled "County-Level E-commerce: Ecosystem Development and Policy Support," providing a comprehensive interpretation of Liuwang Town's e-commerce ecosystem development based on its actual conditions. Practical instructors delivered on-site case studies covering core modules such as Douyin livestream script design, livestream operation logic, and follower management. Through the "E-commerce Empowering Rural Revitalization" lecture series, over 80 new farmers were trained, and more than 100 farmers gained insights into e-commerce livestreaming. On-site guidance was provided for farmers to conduct livestreaming practice, with comprehensive support from account setup and script writing to equipment debugging and live interaction, fostering the cultivation of local new farmers.

2.3.3 Deep integration: university faculty appointed as rural revitalization partners

Leveraging the think tank resources of Qingdao Huanghai University, Liuwang Town selected university faculty as rural revitalization partners through a university-local collaboration initiative. This precisely aligned academic expertise with rural industrial development needs. Through regular on-site research, thematic seminars, and project supervision, these partners fully participate in formulating rural development plans. Addressing local challenges such as weak agricultural branding, unstandardized e-commerce operations, and low industrial integration, they spearhead specialized guidance teams. These teams

establish standardized livestreaming procedures and farmer training systems for e-commerce development, providing hands-on instruction to enhance local farmers' professional skills. Concurrently, they conduct research on rural industrial digital transformation, providing sustained intellectual support for Liwang Town's integrated development of agriculture, culture, tourism, and commerce, as well as for enhancing the quality and efficiency of its collective economy. This drives the transformation of university-local cooperation from short-term assistance to long-term symbiotic collaboration.

2.4 Connecting with Baoshan Town: Competitions Boost Efficiency, Solving New Challenges in Agricultural Product Sales

2.4.1 In-depth research: identifying pain points in apple sales

Baoshan Town cultivates over 10,000 mu (approximately 1,650 acres) of apple orchards, yielding more than 20,000 tons annually—a primary income source for local farmers. However, lacking brand awareness and marketing capabilities, apples are often sold in bulk at low prices, resulting in weak market competitiveness and even oversupply during bumper harvests. Through field visits, the team comprehensively assessed apple cultivation scale, quality characteristics, and sales challenges to formulate targeted solutions.

2.4.2 Multi-dimensional approach: new media boosts apple sales

Addressing Baoshan's apple sales challenges, the team focused on three key areas: brand building, channel expansion, and promotional campaigns. They established a regional apple brand with a custom logo and packaging, highlighting the product's "eco-friendly cultivation and crisp, sweet, juicy" characteristics to enhance brand recognition and reputation. The "Baoshan Cultural Festival" was launched, integrating apple-picking experiences, rural concerts, and agricultural markets to showcase the town's rural charm. Developed Baoshan cultural immersion tours, allowing visitors to experience the town's rural charm firsthand. Crafted brand narratives detailing the historical origins, cultivation techniques, and farmers' dedication behind Baoshan's Mingyue apples, strengthening emotional connections to the brand. Launched online campaigns encouraging users to share personal stories with

Baoshan Mingyue apples, leveraging UGC content marketing to broaden brand reach. The "Cloud Rural Sentiments" New Media Marketing Creative Contest, hosted by Baoshan Town Government, saw students create Douyin videos promoting Baoshan's Mingyue apples via their accounts. During the contest, individual videos on student accounts garnered over 50,000 views, driving additional apple sales revenue exceeding 10,000 yuan. The student-led creative project "Digital Fruit Prosperity: Innovating the Full Digital Commerce Industry Chain" won third prize in the public evaluation. This initiative both honed student capabilities and expanded apple marketing channels.

3. Achievements in Empowering Rural Revitalization through the Digital Economy

3.1 A New Paradigm for Rural Revitalization: "Three-Dimensional Drive and Four-Party Collaboration"

The university established a foundation for rural revitalization through a "one institute, one center, one team" three-dimensional drive model. The Rural Revitalization Industry Research Institute was founded to coordinate university-local government-enterprise resources, conducting policy research, industrial planning, and model innovation for rural revitalization, providing theoretical guidance and decision-making references[1]. In collaboration with the West Coast New Area government, township agricultural enterprises, and other stakeholders, the university co-founded the "Rural E-commerce Collaborative Research Center." This center focuses on rural e-commerce technology R&D, standard setting, and channel expansion to address challenges in connecting agricultural production with sales. The "Innovation Team for Digital Economy Empowering Comprehensive Rural Revitalization" integrates faculty and students from e-commerce, digital economy, and marketing disciplines. Serving as the core frontline support unit, the team undertakes tasks including research, training, and project implementation[2].

Highlighting the university's leading role in rural revitalization, we establish a four-party collaborative network involving government, enterprises, universities, and rural communities. This network fosters complementary resources and multi-stakeholder empowerment to create a

synergistic force for rural revitalization. The government focuses on policy support and bridge-building to overcome resource-matching barriers; enterprises provide practical scenarios and market channels; universities leverage disciplinary strengths and research capabilities to deliver specialized talent and theoretical outcomes; and rural areas achieve economic benefits through local talent cultivation and project implementation[3]. This quadripartite collaboration transforms university-driven rural revitalization from “individual efforts” to “cooperative development,” overcoming the limitations of single-entity initiatives.

3.2 Joining the National Industry-Education Integration Consortium for Rural Revitalization

In 2024, the university became an executive council member of the National Industry-Education Integration Consortium for Rural Revitalization. This marks a new phase in the university's rural revitalization efforts, transitioning from “regional practice” to “national collaboration,” injecting stronger resource momentum and platform advantages into empowering rural revitalization[4]. Leveraging this consortium, the university will deepen existing achievements in rural revitalization while actively expanding its reach. By learning from fellow members' experiences, it will take decisive strides forward in supporting rural revitalization.

3.3 Theoretical and Practical Achievements in Rural Revitalization

Drawing on extensive agricultural assistance experience, the team has synthesized three monographs that ground themselves in local case studies while aligning with national rural revitalization strategies and digital village development requirements, achieving bidirectional conversion between practical outcomes and theoretical insights. Research on Long-Term Mechanisms for Rural E-commerce to Drive Digital Transformation of Rural Industries and Increase Farmers' Income focuses on “long-term sustainability,” establishing replicable and scalable mechanisms linking industrial digitization with farmer income growth. This provides practical solutions to bridge the gap between smallholder farmers and large markets. Research on the Impact of Rural E-commerce on High-Quality Agricultural

Economic Development under the Digital Village Strategy systematically analyzes the enabling role of rural e-commerce in optimizing agricultural industrial structures, revitalizing market vitality, and aggregating factor resources. It also proposes targeted optimization pathways to address regional development imbalances and homogenized competition. “Research on the Integrated Development of Agriculture, Culture, Tourism, and Commerce to Boost Rural Revitalization” draws upon the inherent agricultural, cultural, and tourism resources of rural areas. It provides an in-depth interpretation of integrated development cases like Haiqing Town's tea culture, offering theoretical support for the diversified upgrading of rural industries and the coordinated development of cultural heritage preservation and ecological conservation.

4. Experience Summary and Future Outlook

4.1 Establishing a Replicable University-Community Collaborative Revitalization Model

In empowering rural revitalization, Qingdao Huanghai University has developed six focused success strategies, providing a practical paradigm for similar institutions.

(1) Focusing on Demand-Driven Approaches to Precisely Address Pain Points. By forming research teams comprising faculty members, industry experts, and student leaders, the college conducted multiple rounds of field visits, focus group discussions, and data collection. This comprehensive approach identified core challenges in townships—such as homestay operations, agricultural product sales, resource integration, and talent development—leading to the creation of tailored support plans: “one township, one file; one industry, one solution.” This avoids one-size-fits-all approaches, ensuring interventions directly address developmental bottlenecks[5].

(2) Leveraging disciplinary strengths for targeted empowerment. Centered on flagship programs like E-commerce, Digital Economy, and Marketing, we integrated multidisciplinary resources from Visual Design, Tourism Management, and Cultural Creativity. Cross-disciplinary service teams transformed specialized competencies—branding, digital marketing, platform operations, and event planning—into direct drivers for rural industrial

upgrading, achieving precise alignment between academic expertise and rural needs.

(3) Focusing on Long-Term Mechanisms to Drive Sustainable Development[6]. Through collaborative platforms like talent training bases, industrial research institutes, and e-commerce incubation platforms, establish a cooperative model featuring short-term technical support, mid-term project implementation, and long-term joint talent cultivation. Supplement this with safeguards like regular follow-ups, outcome tracking, and resource iteration to ensure sustainable, uninterrupted assistance.

(4) Focusing on Quadruple Collaboration to Unify Synergistic Efforts. Construct a collaborative network among governments, enterprises, universities, and rural communities, clarifying core responsibilities for each party: governments provide policy support, resource coordination, and endorsement; enterprises contribute market channels, practical scenarios, and industrial resources; universities deliver specialized talent, research outcomes, and technical support; rural communities leverage local endowments, cultivate local talent, and facilitate project implementation[7]. This forms a powerful synergy of complementary strengths and multi-party empowerment.

(5) Focus on Digital Empowerment to Innovate Assistance Methods. Leveraging digital technologies such as live-streaming e-commerce, new media marketing, and big data analytics, establish a comprehensive service system featuring online promotion matrices and offline experiential scenarios. This creates low-cost, high-efficiency channels for showcasing and selling rural products while optimizing industrial management processes through digital tools, thereby enhancing market competitiveness and resilience against risks.

(6) Focusing on Two-Way Transformation to Achieve Mutual Promotion Between Learning and Research. We convert real-world challenges encountered in agricultural assistance into research topics, yielding publications like Rural E-commerce Empowering the Digital Transformation of Rural Industries and a series of research outcomes. We transform rural revitalization projects into platforms for student innovation and entrepreneurship, helping students achieve outstanding results in high-level competitions. This creates a virtuous cycle where practice empowers research, research enriches teaching, and teaching

cultivates talent.

4.2 Deepening Comprehensive Rural Empowerment to Build the Huanghai Agricultural Assistance Brand

(1) Expanding Support Scope to Achieve County-Level Synergy. Establish customized promotion mechanisms tailored to county characteristics, collaborate with local governments to conduct county-level industrial research, and replicate successful models—such as e-commerce assistance for agriculture, brand building, and agri-cultural-tourism integration—from towns like Langya and Liuwang to all townships in the West Coast New Area and surrounding counties. This will foster a development pattern where each county cultivates a unique specialty and each region builds its own brand, driving complementary industrial resources and coordinated development across counties.

(2) Strengthen talent cultivation and optimize curriculum systems. Align training programs with rural revitalization needs by enhancing e-commerce and digital economy curricula. Introduce specialized modules such as rural e-commerce operations, rural brand strategy and promotion, and agri-cultural-tourism project planning. Develop practical teaching materials tailored to rural revitalization scenarios. Launch dedicated training camps to cultivate versatile professionals who master specialized skills, understand market dynamics, and are passionate about rural development.

(3) Deepening university-local government collaboration to enhance think tank support. We will promote joint establishment of physical platforms like rural revitalization industry research institutes and e-commerce incubation bases with local governments [8]. A think tank team comprising university faculty, industry experts, and government advisors will conduct specialized research on major topics such as county-level industrial planning, collective economic enhancement, and digital rural governance. This initiative will provide policy recommendations, planning proposals, and decision-making references to local governments, strengthening the depth and breadth of university-local partnerships.

(4) Drive technological iteration to enhance enabling efficiency. Integrate cutting-edge technologies like artificial intelligence, big data modeling, and the Internet of Things to upgrade

rural industrial service systems. Optimize agricultural product demand forecasting and precision marketing through AI, guide agricultural production planning with big data analytics, and achieve traceability and quality control via IoT. This creates an upgraded model of digital technology empowering rural revitalization, improving both precision and efficiency.

(5) Deepening cross-domain collaboration to integrate premium resources. Leveraging the National Industry-Education Integration Consortium for Rural Revitalization, proactively connect with top-tier universities, leading enterprises, and industry associations nationwide to introduce advanced rural revitalization expertise, established market channels, and cutting-edge technological achievements. Simultaneously, promote the university's proven agricultural support models and practical experience externally[9]. Collaborate with consortium members on joint projects, talent exchanges, and resource sharing to empower rural industries to “go global” and compete in broader markets.

(6) Building a Brand Matrix to Enhance Regional Influence. We are evolving from individual agricultural product branding to cultivating regional specialty brand clusters. By integrating West Coast New Area's homestays, specialty agricultural products, and cultural tourism resources, we are establishing the Yellow Sea Rural Assistance regional public brand. Through events like rural industry development forums, specialty agricultural product exhibitions, and agritourism experience seasons, we strengthen brand exposure and word-of-mouth promotion, enhancing the core competitiveness and market recognition of rural industries.

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