

# Internet Platform Enterprises and Farmers Digital Literacy Improvement

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**Abstract.** Agricultural and rural informatization is the strategic commanding heights of agricultural and rural modernization, and the improvement of farmers' digital literacy is the core task of digital rural construction. In the digital age, the development of the platform economy has given Internet platform enterprises a new connotation of social responsibility to improve farmers' digital literacy. By strengthening platform governance to enhance farmers' willingness to use digital, promoting science and technology for good to enhance farmers' digital use skills, and innovating digital services to enhance farmers' digital use effects, Internet platform enterprises ultimately achieve the purpose of improving farmers' digital literacy.

## 1 The construction of digital villages is an important part of the strategic goal of rural revitalization

### 1.1 Digital rural construction plays an important role in the rural revitalization strategy

First of all, the construction of digital villages can promote the construction of rural infrastructure more accurately, the wisdom and ambition of farmers to be more effective, and the competitive characteristic agricultural industries to grow stronger. [1] Secondly, the construction of digital villages is conducive to giving play to the role of digital technology in promoting the construction of a modern agricultural production and operation system, and attracting and gathering more outstanding talents to devote themselves to rural revitalization. [2] Third, the construction of digital villages can mobilize the enthusiasm of social capital to participate in rural construction and agricultural development, and promote the integrated development of rural industrial structure from a single agricultural industry to the three industries of agriculture, industry and service industry. Finally, the construction of digital villages is conducive to further liberating and developing rural digital productivity, optimizing the allocation of production factors between urban and rural areas and between

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villages, establishing a modern rural economic development system with high levels, excellent structure and good sustainability, and an efficient and sensitive modern rural social governance system, becoming the "last kilometre" of digital China construction. [3]

## **1.2 The connotation of farmers' digital literacy under the vision of digital village construction**

With the penetration of digital technology into social production and life, digital literacy has become a precondition for obtaining other skills, which is a skill that people must master, and the issue of digital literacy improvement has received more and more attention. [4] Farmers' digital literacy refers to the ability of farmers to master the use of digital technology and use digital technology to engage in agricultural production, social interaction and rural governance, including digital equipment use literacy, digital resource acquisition literacy, digital communication literacy, digital content creation literacy, digital security literacy, digital problem solving literacy, digital supporting knowledge literacy, etc.

## **2 The problem of digital literacy of farmers in China is prominent, which is not conducive to the promotion of the strategy of rural revitalization**

The construction of rural digital infrastructure represented by the "Digital Rural Construction and Development Project" and "Smart Agriculture" is advancing rapidly. However, the popularization of rural digital infrastructure does not mean the improvement of farmers' digital literacy, only by vigorously improving farmers' digital literacy and improving farmers' adaptability to the digital age can digital technology truly empower farmers and enable farmers to have the opportunity and conditions to benefit from it. The implementation of the rural revitalization strategy requires farmers with digital literacy that matches the construction of digital villages to enhance the endogenous power of revitalization.

### **2.1 The lack of digital literacy of farmers is not conducive to the development of the rural digital economy**

At present, China is at a key node in the transformation and upgrading of economic structure, and digital technology is fully integrated into traditional industries, which has improved industrial efficiency. [5] However, in the field of agriculture, the lack of digital literacy of farmers and the lack of digital skills in rural areas have seriously affected the comprehensive and in-depth integration of digital technology and the development of "three rural areas", making it impossible for agriculture and rural areas and farmers to share the economic development opportunities brought about by digital resources. [6] The application of big data, artificial intelligence and the Internet of Things to promote precision production in agriculture, early warning of diseases and insect pests, and intelligent logistics of agricultural products is still in its infancy. [7] The key to the rural revitalization strategy is to promote agricultural modernization through digital village construction, and the digital divide among farmers has hindered the development of digital village construction and empowerment of agriculture.

## **2.2 The lack of digital literacy of farmers is not conducive to farmers sharing digital dividends**

The higher the digital literacy, the more inclined it is to use developmental digital resources such as e-commerce, online diagnosis and treatment, science, education, culture and health, and to use digital capabilities for digital reproduction and dissemination, and continuously enhance the perceived benefits and practical utility of digital life participation. [8] Internet use with insufficient digital literacy is mainly based on entertainment, games and social networking, and the developmental benefits are low. [9] Low digital literacy makes it difficult for farmers to share the digital dividend through Internet applications. With the development of digital society, the lack of digital literacy will further exacerbate the dilemma of farmers' inability to share the digital dividend at least three levels. First, if digital resources cannot be effectively used to carry out agricultural production, the marginal growth rate of income brought about by traditional, primitive and simple agricultural production methods alone will continue to decline and it is very likely that farmers will return to poverty under the increasing pressure of rigid expenditure. Second, as the Internet becomes the main means of market integration, the lack of corresponding digital literacy will make it difficult for all kinds of tangible and intangible assets in rural areas to be integrated into the social market, and it will be impossible to alleviate poverty through asset appreciation. [10] Third, with intelligent, networked technologies increasingly embedded in agriculture, industry and service industries, the lack of necessary digital literacy not only makes it difficult for farmers to share dividends from the digital economy, but also very likely to exclude them from the labour market. The gap in farmers' digital literacy not only restricts farmers' participation in social and economic activities, causing them to fall into a state of relative poverty, making it difficult to completely get rid of poverty and even risk returning to poverty, but also restricts farmers' participation in social public affairs such as rural governance, making them absentees in digital public participation, unable to enter the economic and poverty alleviation decision-making vision of the information age as an expression of interests, and further disappointed in the desire to share digital dividends. [11]

## **2.3 Farmers' lack of digital literacy has led to frequent digital security problems**

Along with the "digital going to the countryside", typical scams have also begun to fiercely "go to the countryside", and the lack of digital literacy of farmers, especially the lack of digital security literacy, has gradually made rural areas become the hardest hit areas of telecommunications fraud. Digital security is related to the practical interests of farmers, and the economic losses caused by digital security to farmers are very likely to detract from the digital needs and willingness of rural areas, and even make farmers have the psychology of rejection and resistance to digital use, forming a resistance to the promotion of digital rural strategies. [12]

# **3 Internet platform enterprises have the advantage of improving farmers' digital literacy**

## **3.1 Resource advantage**

Improving farmers' digital literacy is a systematic long-term project, which requires the mobilization of resources from all parties and long-term sustainable investment, compared

with other enterprises; Internet platform enterprises have the resource advantage of improving farmers' digital literacy. First of all, compared with traditional enterprises, Internet platform enterprises are mostly "Big Mac" enterprises, with strong resources to invest in the cultivation of farmers' digital literacy. [13] Secondly, on the Internet platform, platform enterprises have the role of "quasi-government", and can guide enterprises in the platform ecosystem to participate in improving farmers' digital literacy through their leadership and influence in the platform ecosystem. [14] Finally, platform enterprises can also use their absolute advantages in technology within the platform ecosystem to embed corporate social responsibility into the platform governance system, and participate in the cultivation of farmers' digital literacy through reputation systems, incentive systems, punishment systems, and responsibility review systems.

### **3.2 Internet platform enterprises can benefit from the improvement of farmers' digital literacy**

With the development of the platform economy, platform enterprises have gradually created a value community with platform participants through their influence in the platform ecosystem, so as to win a competitive advantage in the market, and without paying attention to value co-creation, it is possible to cause the value of the entire ecosystem to be destroyed, such as the Didi platform neglecting the management of hitchhiking drivers and successive occurrences such as "flight attendant late-night murder incident" and "Yueqing girl murder incident", so that it has to face the punishment of suspension of business for more than 1 year, resulting in joint damage to the interests of the platform, drivers and users. [15] Realizing value co-creation is a process of deconstruction and reconstruction of multi-party interests, which requires the resource investment of multiple entities under the leadership of platform enterprises, and the lack of necessary resources (such as funds, literacy, time, technology, etc.) of either party will lead to the failure of value co-creation. [16] Taking online smart diagnosis and treatment as an example, the lack of medical literacy and language expression literacy of patients may lead to inaccurate online diagnosis and treatment, which will not only adversely affect the life and health well-being of patients, but also affect the public evaluation of online smart diagnosis and treatment, and damage its value. By managing the gap between farmers' digital literacy, Internet platform enterprises can effectively improve farmers' digital literacy, enable farmers to share digital dividends, and eventually move towards the co-creation of the value of the platform ecosystem, so as to avoid damaging the value creation of the entire platform ecosystem due to the low digital literacy of farmers.

Internet platform enterprises can also improve their business from the governance of the digital literacy gap among farmers. Digital village construction is the core of the national rural revitalization strategy, and the improvement of farmers' digital literacy is the key to the construction of digital villages, and the state will inevitably increase the resource investment of farmers' digital literacy. In the context of the diversified supply of public services, the government usually does not directly provide public services, but engages in public service production by third parties in the form of purchasing services. By participating in the government's farmers' digital literacy improvement action, Internet platform enterprises can broaden their business scope through cooperation with the government on the one hand, and on the other hand, they can also enhance the social reputation of platform enterprises and improve the sustainable competitiveness of platforms by participating in public services.

## **4 The path for Internet platform enterprises to improve farmers' digital literacy**

The lack of digital literacy of farmers includes three dimensions: "dare not use", "will not use" and "useless". Among them, "dare not use" governance can correspond to the legal responsibility of Internet platform enterprises, that is, Internet platform enterprises are required to strengthen platform governance, create a clean platform environment, and enhance farmers' willingness to use digital. "Will not use" governance can correspond to the technical responsibility of Internet platform enterprises, that is, Internet platform enterprises are required to give full play to science and technology for good, develop digital inclusive technologies and participate in farmers' digital literacy training, and improve farmers' digital applicable skills. "Useless" governance can correspond to the ethical responsibility of Internet platform enterprises, that is, Internet platform enterprises are required to innovate digital services, enhance farmers' sense of sharing digital dividends, and enhance the effectiveness of farmers' digital use. Among them, the governance of each dimension includes three aspects: Internet platform enterprises as independent market entities, as commercial operation platforms and social resource allocation platforms.

### **4.1 Strengthen platform governance to enhance farmers' willingness to use digital**

Some network platforms push customized goods or services through algorithms and data advantages, as well as improper behaviours such as frequent occurrence of telecommunications fraud due to non-attention to user information protection, which not only makes farmers resist the Internet, but also dispels the motivation of farmers to learn to use Internet skills, so the vicious dynamic cycle repeats, and finally makes the gap between farmers' digital literacy more and more obvious, becoming an insurmountable barrier. As the core of the Internet platform ecosystem, platform enterprises must strengthen platform governance, create a safe platform environment, eliminate farmers' resistance to the Internet, and enhance their willingness to learn and use digital resources.

### **4.2 Promote technology for good and improve farmers' digital skills**

"Will not use" is the core of farmers' lack of digital literacy, and it is precisely because "will not use" that they "dare not" use it, or think that the Internet is "useless". The key to improving farmers' digital literacy lies in improving farmers' digital use skills, and Internet platform enterprises should give full play to their technical advantages to develop platform services or products with inclusive digital access, and actively organize and participate in farmers' digital literacy improvement actions.

### **4.3 Innovative digital services improve farmers' digital use**

The demand for digital usage does not arise spontaneously, but is the result of utilitarian rational calculations. The "uselessness" of digital literacy and the reluctance and rejection of its use are important reasons for the lack of digital literacy of farmers. Internet platform enterprises can creatively use their technology, funds and influence to participate in the cultivation of farmers' digital literacy, and strive to improve the level of farmers' sharing of digital dividends, so that they can experience the benefits of digital literacy, and then enhance the motivation to actively improve digital literacy.

## **5 Safeguard measures for Internet platform enterprises to improve farmers' digital literacy**

"Voluntariness" was once considered to be the essential feature of corporate social responsibility, and enterprises mainly supported their social responsibility through their own internal ethics, and there was no external guidance and constraint. However, with the development of society, the connotation of corporate social responsibility has undergone a transformation from simple ethical responsibility to ethical responsibility, legal responsibility, economic responsibility and other comprehensive changes, and the fulfilment of corporate social responsibility needs not only to rely on the inner self-examination of enterprises, but also to the norms and guidance of the state.

### **5.1 Ensure that Internet platform enterprises fulfil their legal responsibilities for improving farmers' digital literacy through mandatory norms**

On the one hand, the state law enforcement and judicial organs must strengthen the law enforcement and judicial of the legal obligations of existing relevant Internet platform enterprises, such as article 286 of the Criminal Law of the People's Republic of China stipulates the crime of refusing to perform information network security management obligations, and the relevant law enforcement departments must strengthen the law enforcement of platform enterprises that do not perform information network security management obligations in accordance with this article. For another example, for bidding rankings, when the Advertising Law was amended in 2015, it was explicitly included in the scope of norms, and judicial organs should effectively strengthen the protection of advertising victims in accordance with the Advertising Law when making judicial decisions. On the other hand, the national legislature should respond to social concerns in a timely manner according to the rapidly changing development of the Internet market, scientific legislation to strengthen the governance of Internet platform enterprises, such as for the new thing of algorithm recommendation, the legislature should immediately start the relevant legislative work, by clarifying the algorithm standards and stipulating the principles, procedures, parameters of algorithm recommendation, etc., to establish the bottom line of Internet platform enterprises, break the algorithm black box, ensure the transparency and rationalization of algorithm recommendations, and prevent "information cocooning".

### **5.2 Guide Internet platform enterprises through cooperative norms**

The construction of digital villages is the key to the national rural revitalization strategy and a systematic project, which requires the systematic cooperation of multiple entities to achieve. The government should pay special attention to strengthening cooperation with Internet platform enterprises through cooperative norms, so as to give full play to the advantages of the latter in terms of technology, capital and influence. For example, the government can cooperate with Internet education platform enterprises through bidding and bidding in the form of farmers' digital literacy education projects, give full play to the technical advantages of education platform enterprises, and ensure the inclusiveness of the education projects through contracts. Another example is that local governments with abundant rural tourism resources can cooperate with Internet tourism platform enterprises by agreement, and the platform is responsible for planning creativity, giving full play to its advantages in resource integration in terms of housing and travel, and jointly creating rural tourism.

### 5.3 Incentivize Internet platform enterprises through incentive norms

Profit is the first responsibility of the enterprise, and the fulfilment of social responsibility is also a strategy for the pursuit of profits to some extent, that is, to shape the corporate image through the creation of social reputation. The government may regularly give commendations and awards to Internet platform enterprises that participate in the construction of digital villages, especially to improve farmers' digital literacy, and further stimulate the social responsibility of Internet platform enterprises to cultivate farmers' digital literacy. In addition, the government can also provide tangible economic benefits for Internet platform enterprises through taxation, preferential land policies and other measures, such as for Internet platform enterprises that produce and provide information on the three rural areas, the government can give them tax relief and encourage them to set up office space in rural areas through land lease concessions.

## 6 Conclusion

Agricultural and rural informatization is the strategic commanding heights of agricultural and rural modernization, through digital empowerment, promote agricultural modernization, so that the majority of farmers can live a better life. The key to the construction of digital villages lies in eliminating the urban-rural digital divide, and the core tasks include upgrading rural digital infrastructure and improving farmers' digital literacy. However, the existing policies mainly focus on the construction of rural digital infrastructure, and do not pay due attention to improving farmers' digital literacy. In the digital age, Internet platform enterprises can give full play to their technological and market advantages, participate in the cultivation of farmers' digital literacy, and help rural revitalization.

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