# Research and Policy Suggestions on the Way of Digital Economy and Helping Rural Revitalization

## -- Based on the SWOT--AHP Analysis Method

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## Abstract

**Rural revitalization is a systematic project, and the achievements and achievements accumulated over the years are difficult to obtain scale benefits. On the contrary, there should be more attention paid to the effective unification of resources, policies and methods. The breakthrough is to make reasonable use of the current digital economy model, promote the high-quality development of rural economy, and enhance the ability and cohesion of rural autonomy. Therefore, this paper based on the new concept and new mode of digital economy, for the rural revitalization problems to be solved, using SWOT method to analyze the influencing factors, on this basis, the application of AHP method to evaluate the digital economy development path evaluation, finally put forward targeted digital economy help rural revitalization policy Suggestions.**

## Keywords

**Rural revitalization; Digital economy; SWOT-AHP analysis.**

## 1. Research Background

### 1.1. The Dilemma of Rural Revitalization

After eight years of continuous efforts and poverty alleviation victory, at present, our rural revitalization is in the key opportunity to consolidate its achievements, rural construction promotion scale, low-income population also catch up with other living standards, but how to further promote the development of rural economy, and the masses hope, there is still a big distance and many problems. According to past experience, the national strategy is to be explored and adjusted from a policy perspective, with overall consideration and reasonable planning. However, the key to effectively promoting rural revitalization is in how to solve the problem. Review rural revitalization stage achievements, in rural construction, industrial support, life security, achievements behind the masses out of poverty foundation is not solid, rural construction imbalance, built industry difficult to form scale phenomenon still exist, also reflects the poverty crucial achievement transformation and rural revitalization of the overall systemic is not strong, information asymmetry problem is particularly prominent. The lack of technical support, many grass-roots work burden is heavy and complex, which is more serious for the lack of talent at the grass-roots level. At the same time, the demand of the masses in life services and production needs to be solved and adjusted urgently. Therefore, the effective connection between rural revitalization and poverty alleviation requires not only policy adjustment, but also model innovation.

### 1.2. The Path of Digital Economy to Help Rural Revitalization Is Proposed

Rural revitalization is a systematic project, and it is indeed difficult to improve the achievements and achievements accumulated over the years in temporary scale. More attention

should be paid to the effective unity of resources, policies and methods. The real implementation of effective coordination must be more systematic, integrated and coordinated. The traditional planning, investment, construction and other models alone cannot achieve high-quality rural development and effectively solve the current problems of agriculture, rural areas and farmers. And break, reasonable use of the current digital economy model, through the digital economy in the Internet and big data era development elements into rural revitalization, stimulate rural potential productivity, improve rural residents' digital economy consciousness, improve rural digital governance, improve rural autonomy ability and cohesion, at the same time to upgrade grassroots service ability, improve the efficiency of problem solving, help rural revitalization.

Based on the above analysis, this paper conducts the research and analysis of the path of helping rural revitalization from the level of digital economy mode. With the continuous development of digital technologies such as big data and electronic trade, the digital economy model has gone deep into the urban industrial and commercial fields, and is also gradually sinking into rural areas, which has also brought innovative development to the rural revitalization model. Therefore, this paper is based on the new concept and new digital economy model, and the rural revitalization problems to be solved, using SWOT method analysis of various factors, on this basis, the AHP method to evaluate the digital economy model development path rating, finally put forward targeted digital economy power rural revitalization policy Suggestions.

## 2. Analysis of the Factors Influencing the Development Path of the Digital Economy Mode Based on the SWOT Method

### 2.1. Internal Advantages

#### 2.1.1. Scale of Rural Digital Construction S1

In recent years, our country has implemented the "broadband into rural family project", "thousand township market information service project", "rural 4G popularization deepening" and a series of perfect rural digital infrastructure, rural fiber and network coverage more than 98%, greatly expand the coverage of rural information network, promote the development of rural digital.

#### 2.1.2. High Rural Digital Construction Acceptance S2

The digital economy model relies on modern digital technology, free by time and region, which has greatly improved rural development to a large extent. On the one hand, digital economy mode digital technology penetration into rural public services, in the digital government affairs system and processing system, rebuild the public service process, simplify the working process, improve work efficiency, integrate department resources, realize data collaborative construction, sharing, interconnection, reduce the middle offline handover work, innovative rural public service mode. On the other hand, the digital economy model can greatly improve the experience and efficiency of residents 'life services and agricultural production, but also meet residents' expectations for a better life, and improve residents' happiness.

### 2.2. Internal Disadvantage

#### 2.2.1. Lack of Digital Thinking Consciousness and Lack of Willingness to Participate W1

Compared with the city, due to the backward conditions in transportation, education, economic and social development and other aspects, the villagers need a relatively long process to understand, accept and grasp the new things. At the same time, most of the population in rural areas is the elderly, and most of the life and production mode retain traditional practices, lack of awareness of using digital thinking and tools to deal with affairs, and lack of understanding of the digital economy model hinders the process of rural digital construction to a certain extent.

On the other hand, due to the rural living habits, the rules under the digital economy model are relative to the villagers' life experience, and the villagers do not trust them highly, and it is difficult to change most of the life models. The willingness to participate is not enough to promote the digital economy to sink to rural areas.

### 2.2.2. Digital Infrastructure Is Backward, and Data Fusion Is Poor W2

Due to the negative impact of serious aging such as inconvenient transportation, population outflow and narrow consumer market in rural areas, the cost of digital infrastructure construction and the long investment recovery period are large, thus leading to the serious lack of investment in digital facilities projects. According to the National Bureau of Statistics, as of December 2020, the Internet penetration rate in rural areas was 55.9%, which is still a big gap between the urban Internet penetration rate of 70.4%.In addition, the rural population is mainly the elderly, the use of digital equipment is not high, and the insufficient degree of utilization, which indirectly leads to the poor digital information integration of users in rural areas, the weak data joint construction and sharing ability, and there is still great resistance to the construction of digital economy model. At the same time, compared with the urban digital mode gradually mature and unification, rural areas due to data economy model is still in the exploration stage, for different situations is not standardized, lead to data collection, storage, application and inconsistent process, and then various departments data connectivity ability is weak, data collaboration ability, data economy mode advantage is difficult to play an effective role.

## 2.3. External Opportunities

### 2.3.1. Selection of National Development Strategy O1

In 2018, the document of the Rural Revitalization Strategic Plan (2018-2022) proposed to "implement the 'Internet + Rural Communities' plan and promote the construction of a comprehensive public service information platform for rural communities".In 2021, the No.1 document of the CPC Central Committee proposed to strengthen the digital and intelligent construction of rural social governance.Promoting the digital construction of rural areas has also become an important part of the rural revitalization strategy. The continuous improvement of infrastructure and the continuous policy support have provided a favorable basis for the digital economy model to promote rural revitalization.

### 2.3.2. The Rapid Development of Information Technology O2

In recent years, the digital economy model has developed rapidly, and the number of application scenarios of digital technology have been developed and applied more and more widely.Digital economy models and emerging products such as the "Internet +" and big data of the Internet of Things are gradually being applied to rural construction, agricultural production and farmers' life.The digital economy is also gradually promoting the rural agriculture and other industries to become digital, intelligent and intelligent, promoting the high-quality development of the rural economy, and also providing favorable support for the rural digital construction.

## 2.4. External Challenges

### 2.4.1. Strange Shortage of Digital Talents and Insufficient Development Motivation T1

With China's urbanization, a large number of rural labor force is outflow, and there is very a lack of talents who can serve the digital construction of rural areas, which also makes it difficult to carry out the digital economy model in rural areas. At present, with the initial scale of the digital economy model, there is a large gap in digital talents in China. Few people have digital literacy, digital thinking and can use the digital economy model to carry out their work, especially in rural areas. At the same time, due to the relatively low cultural level of rural cadres at the grassroots level, even if there are appointed college student village officials or village

officials, they themselves may not necessarily learn information-related majors, fail to grasp and understand the information technology, and cannot be effective and able to use the new technology to promote rural reform.

### 2.4.2. Low Market and Social Participation Enthusiasm T2

On the one hand, because most agricultural production in rural areas is still decentralized, it is difficult to form an economy of scale; Meanwhile, some industries in rural areas have backward production level and small scale effect, so it is difficult to attract market investment. On the other hand, in promoting the construction of digital rural areas, the government failed to make full use of the market mechanism, mobilize social forces, make the market and society participate in the rural society inactive, failed to effectively play the role of the government, market and society, and restricted the sustainable digital construction of the rural society.

## 3. Calculation of the Strength if Influence Factors under AHP Method

Based on the results of SWOT analysis, the influence factors of digital economy model path development are summarized, and accurate development strategies are formulated to further compare the influence weights of each factor. This paper introduces the hierarchical analysis method (AHP method) to evaluate the path development degree of the digital economy model.

### 3.1. The Hierarchical Structure of the Development Path of the Digital Economy Model

According to the steps of the hierarchical analysis method, the hierarchy of the development path of the digital economy model is established first, as shown in Table 1.

**Table 1.** Hierarchy structure of the development path of the digital economy model

| | |
|---|---|
| **superiority** | Initial scale of Rural Digital Construction (S1) |
| | High acceptance of rural digital construction (S1) |
| **inferior strength or position** | Lack of digital thinking awareness and insufficient willingness to participate (W1) |
| | Poor digital infrastructure, poor data fusion (W2) |
| **chance** | The Selection of the National Development Strategy (O1) |
| | The Rapid Development of Information Technology (O2) |
| **threaten** | Lack of digital talent and development motivation (T1) |
| | Low enthusiasm for market and social participation (T2) |

### 3.2. Establish Matrix Judgment

Secondly, establish the matrix judgment.Before constructing the judgment matrix, the group invited relevant practitioners and field scholars in the digital information industry through questionnaire survey and petition to score between various factors. At the same time, we stipulated the quantitative values on the comparison between indicators, as shown in Table 2.

**Table 2.** Description Table of Quantifying Values

| Factor i / factor j | Quantification value |
|---|---|
| Equal impact | 1 |
| The impact is slightly heavier | 3 |
| The impact is heavy | 5 |
| Strong influence | 7 |
| Significant impact | 9 |
| The median of the two adjacent judgments | 2,4,6,8 |

Although less than 20 copies of the recovered data, there is still reference value for understanding the impact of each factors. Organize the data, make the development path judgment matrix of the digital economy model, and calculate the results according to the following table 3.

**Table 3.** The Judgment Matrix

|  | superiority | inferior strength or position | chance | threaten | ω |
|---|---|---|---|---|---|
| **superiority S** | 1 | 6 | 3 | 1/3 | 0.3555 |
| **inferior strength or position W** | 1/6 | 1 | 1/5 | 2 | 0.1087 |
| **chance O** | 1/3 | 5 | 1 | 4 | 0.3111 |
| **threaten T** | 3 | 1/2 | 1/4 | 1 | 0.2248 |

Further analyzing the weight ratio of each index layer, the advantage judgment matrix, disadvantage judgment matrix, opportunity judgment matrix and threat judgment matrix were determined. However, due to the word limit, only the advantage judgment matrix is made, and other matrices are calculated in the same method to give the results.

**Table 4.** The Judgment Matrix

|  | Initial scale of Rural Digital Construction (S1) | High acceptance of rural digital construction (S2) |  |
|---|---|---|---|
| **Initial scale of Rural Digital Construction (S1)** | 1 | 1/2 | 0.3920 |
| **High acceptance of rural digital construction (S2)** | 2 | 1 | 0.5813 |

## 3.3. One-time Test and Eigenvalue Calculation

Finally, a one-time test and an eigenvalue calculation were performed.To test the accuracy of the obtained data and the credibility of the judgment matrix, the correlation formula according to AHP analysis,

$$\lambda \max = \sum_{i=1}^{n} \frac{[A\omega]_i}{n\omega_i}$$

$$CR = \frac{CI}{RI} = \frac{\lambda\max - n}{n-1}$$

The consistency test RI value was obtained, order 3, RI value 0.52; order 4, and RI value 0.89.

The group used the Excel construction equation to calculate that the development path judgment matrix, the advantage judgment matrix, the disadvantage judgment matrix, the opportunity judgment matrix, and the eigenvalues of the threat judgment matrix were 4.0150,3.1366,3.2070,3.1023, and 3.1433, respectively. The calculated CR values were all less than 0.1, indicating that all the constructed matrices passed a one-time test.

## 3.4.  Total Ranking of the Index Layer

**Table 5.** Total ranking of the index layers

| SWOT | Influence weight | Indicator layer | Within-group weights | Total weight |
|---|---|---|---|---|
| **superiority** | 0.3555 | S1 | 0.3920 | 0.1934 |
| | | S2 | 0.1096 | 0.0390 |
| **inferior** | 0.1087 | W1 | 0.2536 | 0.0276 |
| | | W2 | 0.1982 | 0.0215 |
| **chance** | 0.3111 | O1 | 0.4562 | 0.1419 |
| | | O2 | 0.3121 | 0.0971 |
| **threaten** | 0.2248 | T1 | 0.2774 | 0.0624 |
| | | T2 | 0.3212 | 0.0722 |

# 4.  Research Conclusions and Path Countermeasures

## 4.1.  Research Conclusions

Using the SWOT method, the AHP method and other methods, the digital economy model helped the rural revitalization was quantitatively analyzed. From the data results obtained, the group obtained the following descriptive analysis:

First: in the comparison of the influence weight of each SWOT group, advantage S> opportunity O> threat T> disadvantage W, it can be seen that the advantage and opportunity favorable influence weight are dominant, and the development path of digital economy model is optimistic.

Second: in advantage S group, the largest rural digital construction high acceptance (S 2) indicators; in disadvantage group W, lack of digital thinking consciousness, insufficient participation (W1) indicators; in Opportunity group O, largest weight of national development strategy (O1) indicators; and T (T 2) indicators. Intuitively shows the favorable conditions and work focus of the current digital economy mode.

Third: the relationship between the total weight of each factor is that O2> S1> O2> T2> T1> S2> W1> W2. Although the advantage and opportunity proportion are in the top, the low market and social participation enthusiasm (T 2) index in the threat T group also indicates that there are still obstacles to the development path of digital economy mode.

## 4.2.  Policy Suggestions

Based on the above data analysis results, the reanalysis of the index layer with large influence weight gives the present solutions and development suggestions.

### 4.2.1.  Adhere to the Farmer-oriented Value Orientation

We must always continue to put the people first, focus on solving the most immediate and practical interests that farmers are most concerned about, and meeting their needs for a better life is always the starting point and goal of rural revitalization.First, to respect the dominant position of farmers.In the digital development, farmers are not only the main body of beneficiaries, but also the main body of construction.Let farmers become the real main body of rural social digital construction, fully stimulate their enthusiasm, initiative and creativity to carry out rural digital construction, and realize the effective interaction of "top to down" between the government and the masses "bottom to top".Second, to serve the actual needs of farmers, in rural life, use the e-commerce model, open the rural consumer market, to meet the living needs of rural residents; production, provide digital economy mode processing process, save production costs, improve service efficiency, open sales channels.

### 4.2.2. Accelerate the Construction of Digital Teams

Talent team is the most core and key factor in the construction of rural digital economy mode.As an innovative development path, digitalization has a great test to the thinking concept, knowledge quality, and coping ability of grass-roots cadres and staff.First, to promote the development and growth of the rural digital work team.Select the personnel with a strong sense of innovation and a high-level of knowledge, enrich the rural digital economy model construction team, and select and match the sufficient rural digital management team.Second, strengthen the education and training of rural digital work teams.According to the requirements of the construction of the digital economy model, targeted and effective education and training, improve the ability to apply the digital economy model, so as to better implement policies and serve farmers, and establish a good style, professional and solid digital work team with outstanding ability.

### 4.2.3. Build A Multi-collaborative Operation Mechanism

The sustainable development of the rural digital economy model cannot be separated from the guarantee of the mechanism.We will serve the practical needs of rural residents in living and production, give full play to the forces of the government, the market and the society, improve the multi-faceted and integrated operation mechanism, and effectively ensure the steady progress of the digital economy model in rural areas.First, the government should coordinate and do a good job of guidance.The government should accurately position and clarify its responsibilities, deepen the reform of decentralization of power and optimization services, promote the standardization of government digital services, improve policies and regulations on fiscal input, fiscal, taxation, government procurement, data security, supervision and management, and mobilize the enthusiasm of market and social forces to participate in the construction of digital economy in rural revitalization.Second, the market should respond to the policy and make effective operation.Effectively introduce market forces, give full play to the role of the market in resource allocation, integrate all kinds of data resources, and improve the input-output efficiency of rural social digital economy construction.Third, the society should assume the responsibility and participate in an orderly manner.Social organizations will actively promote the rural social digital economy model to the farmers, guide the farmers to build a digital platform for the rural society, make up for the dual "failure" gap between the government and the market, form a rural social digital continuous promotion mechanism integrating the government, market and society, and effectively promote the stable construction of the digital economy model.

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