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# "Internet Plus" Tea Industry

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***Abstract:*** **With the strong development momentum of "Internet Plus", Internet information technology has gradually become an internal engine to drive China's economical development. In terms of tea industry, "Internet Plus" plan serves as the external driving force and essential path to promote the development of tea industry. Based on the analysis of the new technologies of Internet (mobile Internet, cloud computing, big data and Internet of Things, etc.), development strategy of "Internet Plus Tea Industry" is put forward in this paper. In addition, this paper elaborates the specific application of "Internet Plus Tea Industry", and proposes the suggestions and prospects of "Internet Plus Tea Industry" development strategy.**

***Keywords:*** Internet Plus; Tea industry; Strategy; Prospects

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## 1. Introduction

The Third Session of the 12th National People's Congress was held on March 5th, 2015 in the Great Hall of People in Beijing. The Prime of the State Council, Li Keqiang proposed the action plan of "Internet Plus" in the government work report for the first time with the aim of promoting the development of other industries with the emerging information technology [1]. The national strategy of "Internet Plus" is not just an information technology revolution but also an industrial revolution with more and more industries moving close to it. Many domestic scholars have begun to conduct research on the deployment and implementation of "Internet Plus" in specific industries. Liu Yunsheng elaborated the changes brought by "Internet Plus" strategy to educational industry [2]; Cui Zhen expounded the integration of "Internet Plus" with broadcasting business [3]; Cheng Zhongliang analyzed 3 strategic competitive models of TV industry in the age of "Internet Plus" [4]; Fu Pingjiang analyzed the current practices of "Internet Plus" in the banking industry [5]; Yang Jirui et al. explored the business thinking and new innovative path of "Internet Plus Modern Agriculture" [6]; Zhang Ruidong studied the development of China's media industry under the wave of "Internet Plus" [7]; Yang Suli discussed the changes brought by "Internet Plus" to forest industry with the forest farm as an example [8]. This paper explores the innovative development brought by "Internet Plus Tea Industry" strategy to all dimensions of tea industry, and provides suggestions and prospects for the strategy's implementation.

## 2. Definition of "Internet Plus Tea Industry"

"Internet Plus Tea Industry" is to apply the new technologies of Internet (mobile Internet technology, cloud computing, big data, Internet of Things, etc.) into traditional tea industry, including each link of tea industry chain, such as fertilizer production, tea planting, pest control of tea trees, tea processing, tea storage, tea transport, tea sales, and supervision over tea quality and security, so as to improve production efficiency, production quality and economic benefits of tea industry [9]. The ultimate goal of "Internet Plus Tea Industry" lies in realizing the intelligence and sustainable development of tea industry. Currently, the technologies of "Internet Plus" having been applied in tea industry include Mobile Internet technology, cloud computing technology, big data technology, Internet of things technology, as shown in Figure 1.

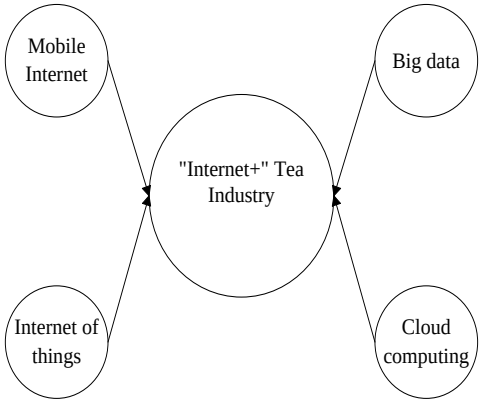


**Figure 1. Internet plus tea technology composition diagram.**

### *2.1. Mobile internet technology*

Mobile Internet is the product of the integration between mobile communication technology and Internet technology. It has two technologies at its core, mobile communication technology and Internet technology. Mobile Internet provides a service which allows users to access the Internet via mobile network whenever and wherever, and it has 3 key elements, namely mobile terminal, mobile network and application services. This paper argues that mobile Internet boasts two major functions.

(1) It is easier for users to access Internet [10] via mobile terminal by using wireless mobile communication network (3G network, 4G network, WLAN and WiMAX, etc.);



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(2) Mobile Internet has also brought about many new, personalized and customized applications to meet different requirements of mobile users, such as mobile video/mobile TV, mobile games, mobile positioning as well as receiving and sending e-mails.

### *2.2. Cloud computing technology*

In 2006, Google and Amazon proposed the concept of "cloud computing". This paper holds that cloud computing is a concurrent and distributed system, which uses Internet to realize its service model of available, convenient and demand-oriented access to resource pool(network resources, server resources, storage resources and application programs) [11]. Servicization of computer resources is an important manifestation of cloud computing, where users can receive the required resources in a short time through fewer exchanges with service providers, with no need to devote huge efforts to management, thus avoiding excessive low amount and excessive use of resources.

### *2.3. Big data technology*

With the coming of Cloud era, big data has witnessed more and more widespread applications. At present, there still lacks a no unified definition of big data. This paper holds that big data refers to the huge scale of data unable to be managed and handled through manual work within a reasonable time period via specific software, or the set of data whose collection, management and processing via common software will take the time beyond tolerance. Big data technology should possess 6 fundamental features: capacity of processing large amount of data , capacity of processing wide types of data, wide channels to process data, high speed of receiving data to be processed, reliable result of data processing, and convenient management, as shown in Figure 2.

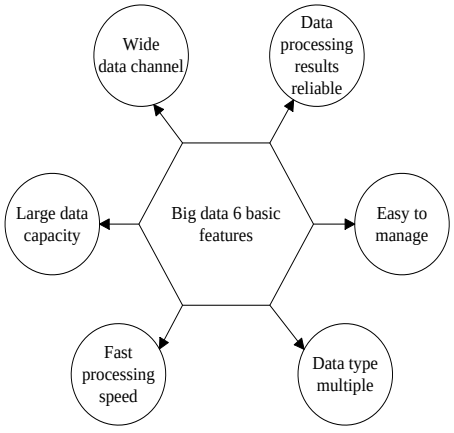


**Figure 2. Big data 6 basic features.**

### *2.4. Internet of things technology*

Internet of Things uses server to carry out information processing and data mining with information sensing devices [12] such as Radio Frequency Identification (RFID), infrared sensor, GPS and laser scanner according to the stipulated agreement and relying on the transmission of communication network, so as to realize the reliable mutual information transmission of human to thing and thing to thing. The framework of the Internet of Things includes perceptual interaction layer, network transmission layer and applicable service layer, the concrete structure is shown in Figure 3.

Perceptual interaction layer: classify and identify the type and origin of tea through bar code and QR code, and acquire the information through RFID technology; and process the data of the above perceptual equipment with card reader and PDA.

Network transmission layer: transmit the data collected by the perceptual interaction layer through WLAN to the applicable service layer, and guarantee the reliability and real-time of the transmission of the data collected.

Applicable service layer: this layer is the applied specific scenario and business of Internet of Things, which can be understood as the application system of Internet of Things technology to realize certain specific functions.

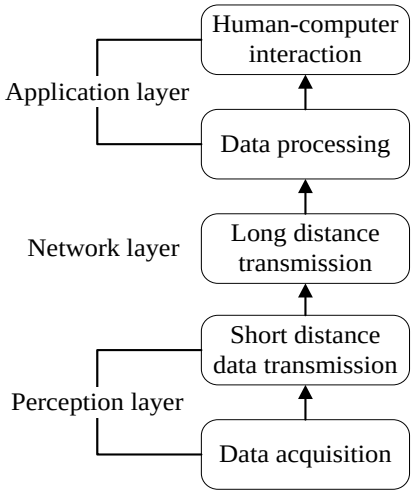


**Figure 3. Internet of things architecture.**

## 3. Strategic significance of "Internet Plus Tea Industry"

It was predicted in The Key Regional Development Plan of National Tea Industry that the total area of tea plantation of 4 key regions had reached 15 million acres in 2015 with the plantation area of clone tea of improved varieties being up to 8.7 million acres and the coverage of improved varieties being 58%; the total output had reached 1.02 million tons, an 90% increase than 2005, among which the output of quality tea accounted for 520,000 tons [13]. There is no doubt that the development of tea industry has achieved certain accomplishments, but there still exist some problems, such as small and scattered scale of production, lack of innovation in processing methods, and failure in



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building flagship brands and global service platforms. With the rapid development of e-business of tea industry, the sales performance of tea physical stores is witnessing a general decline. Faced with the complicated and volatile environment of tea market and the constant rising market costs, it is urgent that tea marketing method needs to realize the strategic transformation from pure off-line physical terminal to simultaneous strike both on-line and off-line. "Internet Plus Tea Industry" can promote the transformation of traditional tea industry featured by extensive growth, low efficiency and lack of competitiveness, thus solving the problems occurred in the development of tea industry. By means of the development pattern of "Internet Plus Tea Industry", tea farmers can immediately receive the latest agricultural information, real-time meteorological information and leading-edge planting technology information, realizing scientific arrangement of agricultural production and improving the management level of tea industry and tea quality according to natural and market development conditions. At the same time, the development model of "Internet Plus Tea Industry" can quickly transmit advanced tea production technologies, scientific production standards and leading-edge management methods so as to efficiently improve tea production, process and management. In addition, "Internet Plus Tea Industry" model, with the help of the sales mode of Internet platform, can efficiently lower promotion and trading costs and improve the income of tea farmers as well as the economic benefits of tea companies; in virtue of "Internet Plus", the monitoring and control over circulation links of tea can be realized, thus efficiently uplifting supervision, boosting customers' confidence and expanding the group of consumers; relying on "Internet Plus", international business platform can be constructed, hence expanding the influence of Chinese tea, promoting tea export, and advancing the transformation and upgrading of traditional tea industry.

## 4. Application of "Internet Plus Tea Industry"

### *4.1. Mobile Internet Plus Tea Industry*

The functions of mobile Internet are standing out in communication and information sharing. In the age of mobile Internet, tea farmers can learn about the information that they need at any time; and tea dealers can use targeting advertisements to make their promotion information reach the targeted customers quickly; tea companies can also improve the brand value with the help of Internet; customers can buy tea on e-business platform and track its safety; and at the same time, supervision department can get a easy mastery over the developing trends of tea industry.

### *4.2. Cloud Computing Plus Tea Industry*

Deploying "Cloud Tea" with cloud computing technology can meet the requirements for tea information and technology of tea farmers and tea research staff from different provinces and technology, and realize tea information sharing across the country and efficient management. Supervision department, tea farmers and research staff can transfer data and information quickly to the Cloud, increasing the coordination of tea industry chain, and release tea related information to average consumers via the Cloud, which is beneficial for the management of supervision departments and enhancing consumers' confidence.

### *4.3. Big data Plus Tea*

Big Data Plus Tea refers to the application of big data technology in tea industry. Big data of tea industry, through collecting, storing and analyzing the data in terms of planting, production and sales, including plants information, meteorological information, soil information, pests and disease information, can not only provide a higher research platform for each link of industrial chains, but also be used to establish a big data service platform of tea, thus providing decision-making for the healthy development of tea industry.

### *4.4. Internet of things Plus Tea*

"Internet of Things Plus Tea" model is designed to rely on big data to analyze and process the data information collected via such Internet of Things technologies as sensors, bar code technology and RFID, thus realizing the network with specific functions. The application of Internet of Things Plus Tea involves all links of the whole tea industry chain, including tea plantation, processing, production, sales, distribution and marketing as well as each field of tea production and management, covering plantation and processing, production, quality tracking, logistics management, storage management, supply chain management, exclusive sales management and coordinated marketing. Therefore, this model is of great significance for the optimization and upgrading of tea industry, the promotion of technological innovation and the improvement of services and management.

## 5. Suggestions and prospects

At present, "Internet Plus Tea Industry" is still at its exploring stage, yet the integration of tea industry into Internet has been an inexorable trend. However, in the implementation of "Internet Plus Tea Industry", much attention has to be paid to the following problems.

(1) The government regulators are suggested to start designing from the top and formulate plans in combination with the development of tea industry. While adhering to the principles of "government led, demand driven, priority highlighted and cooperation coordinated", the government should formulate a strategic development plan from the top level, and issue relevant directive opinions and industrial development planning [14]. Local governments should integrate current tea industry information resources to establish an intelligent big data platform for tea industry facing all links, including tea production, management and supervision, thus realizing the precise decision-making of tea production and comprehensively improving the



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efficiency of tea production and management.

(2) Implementing "Internet Plus" strategy in tea industry should be led by popularizing "Internet Plus" knowledge and improving farmers' operational skills. First of all, the popularization of "Internet Plus" knowledge should be done well. The farmers and company managers should be trained by special technological agencies to let them understand the core ideas of "Internet Plus", which serves as the precondition of promoting this model. At the same time, a large number of well-educated, new professional farmers who are good at marketing and technologies and professional e-business personnel should be cultivated, providing talent support of the establishment of "Internet Plus Tea Industry". In addition, the education and training system for the new professional farmers should be established, forging a virtual network educational and training environment based on "Internet Plus"; and the research and development of intelligent terminal online classes [15] should be accelerated through actively promote the establishment of intelligent farmers' cloud platform, making "Internet Plus" really used by the farmers.

(3) It is necessary to go deep into rural areas in order to improve the infrastructure and technology of "Internet Plus Tea Industry". The infrastructure construction of Internet in rural areas should be advanced and the resources like the existing rural postal stations, village-level handy service network stations for the public be integrated, and the construction of rural informatization business platform be enhanced, thus accelerating the development and promotion of the low-cost, easy-operating intelligent terminals and application software suitable for farmers.

(4) Promotion and training should be strengthened and exemplary guidance be intensified, breaking the implementation barriers of "Internet Plus Tea Industry" and driving the healthy development of tea industry. A large number of well-educated, new professional farmers who are good at marketing and technologies should be cultivated to promote the real implementation of "Internet Plus Tea Industry".

(5) The concept of "Internet Plus Tea Industry" should be given shape, building a batch of demonstration projects from simple to complex. For example, against different main bodies of agricultural production and operation, such as leading companies of tea industry, specialized farmer cooperatives, family farms and big-specialized households, a batch of demonstration projects that apply the Internet of Things in the demonstration area of tea plantation should be implemented; besides, the cloud service projects like long-distance diagnosis on plant diseases and insect pests and expert online consultation should be established. To cope with the challenges of quality and safety supervision over tea, it is expected to build projects of agricultural products quality and safety "grid-ding intelligence supervision", in order to drive the advancement of the whole industrial chain through the demonstration of the above projects.

(6) International electronic business platform should be constructed. The construction of international tea industry e-business platform can be facilitated with "Internet Plus", which is expected to boost the export of tea industry, constantly improving the international influence of China's tea industry.

## 6. Conclusion

In conclusion, the development pattern of Internet and Tea Industry combined is a long transformation process, exerting deep and significant influences upon the development of the whole industry. "Internet Plus Tea Industry" strategy can provide unprecedented opportunity for the rapid development of the industry. This strategy integrates deeply with the modern tea industry through the information technologies, such as Internet, Internet of Things, big data and cloud computing, initiating an intelligent ecological pattern of tea industry. The intelligent tea ecological system constructed by "Internet Plus Tea Industry" is bound to reshape all links of the tea industry chain and finally realize the refinement, long-distance, virtualization and automation of tea industry.

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