

Internet key to rural vitalization

Developing platform-based traceability systems and remote-area logistics will create value for farmers and consumers

The Chinese government recently released a rural vitalization strategy for 2018-22 to promote poverty reduction, rural development and green and inclusive growth. Despite spectacular economic growth over the past three decades, economic, social, environmental and institutional challenges remain.



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These challenges are more profound in rural areas, home to more than 570 million people. In 2017, about 30 million rural people lived below the poverty line.

Only 60 percent of the 600,000 villages had solid-waste collection facilities and 20 percent of villages had sewage treatment facilities. Chemical fertilizer application reaches 61 million metric tons per year, of which two-thirds has no impact on crops, resulting in water and air pollution.

To tackle these remaining issues, the rural vitalization strategy makes the management of solid waste and wastewater a priority and enhances rural development by

modernizing agriculture. The application of information and communication technology, widely known as "agriculture Internet Plus", is intended to increase agricultural productivity, reduce food safety risks and cut pollution from fertilizers and pesticides. Internet Plus agriculture encompasses the use of mobile internet, the application of network-connected sensors, cloud computing, and big data along the food and agriculture value chain.

The internet is exerting a profound influence on the global economy and plays an important role in economic restructuring and urban-rural integration. Internet-based technologies, notably e-commerce, have vitalized rural markets in China by improving the quality of agricultural produce and connecting small farmers with big markets.

With the rapid development of internet technology in China over the past two decades, a set of Internet Plus technologies has had impacts on the national economy. A publication by the National Development and Reform Commission (NDRC) and the Asian Development Bank (ADB) shows that intelligent agriculture practices such as precision agriculture provide substantial benefits in pollution control that also help mitigate the

contribution of agriculture to global climate change.

Satellite-based, high-precision positioning technology combined with network-connected sensor technology can accurately monitor soil moisture, fertilizer content, weeds and pest locations to enable auto-piloted farm machinery to precisely apply fertilizer and pesticides. Efficient use of fertilizer and pesticide reduces soil, water and air pollution, and also curbs greenhouse gas emissions.

The NDRC-ADB publication illustrates how data-tracking systems can improve the quality and safety of agriculture products. Using a mobile app to scan a QR code, customers can access information such as cultivation base, sampling time and results of pesticide concentration tests, as well as planting, harvest and sales transaction data.

Access to such information helps boost customer confidence in the product's quality and safety. However, there is not enough incentive to apply these systems commercially, partly because national laws and regulations do not require traceability labels.

E-commerce has provided ways to sell agriculture products while reducing transaction costs and simplifying trading procedures. It has

also built a two-way platform for the flow of consumer goods to villages and farm produce to cities.

The number of rural internet users in China reached 209 million in 2017, of which 47 percent make online payments via mobile phones. E-commerce platforms in rural areas have given farmers with an average farm size of less than 1 hectare an affordable way of obtaining high-quality inputs and new opportunities to market and sell their produce.

Giving farmers access to e-commerce requires support for agriculture extension services to standardize production, organize the farmers and build logistics capacity in remote and poverty-stricken areas. The private sector, mainly Alibaba and JD.com, have pioneered e-commerce platforms for agriculture and foodstuff trade.

But there is rising demand in less-developed western regions of China for public-private partnerships to develop platform-based traceability systems and rural logistics infrastructure for public goods. Connecting rural areas with e-commerce demands the adoption of a farm-to-market value-chain approach to create value for poor farmers, local agri-enterprises and consumers. The ADB has already gained considerable experience working with

leading agri-enterprises in China to implement value-chain investments financed by the public sector.

The Supply and Marketing Cooperative of Northwest China's Gansu province is working with the ADB to develop an Internet Plus agriculture project to build the processing, cold-chain and logistics capacity of leading enterprises linked to provincial and county internet-based knowledge exchange and data analysis platforms.

These platforms will provide production and management advice through farmers' mobile phones and can be directly linked through network-connected sensors to farm machinery, warehouses and delivery vehicles. Traceability systems for produced food products will be integrated into the platforms.

Such initiatives are key to the prosperity of farmers in China. Combining value-chain investment with access to e-commerce will accelerate rural transformation and integrate the agriculture sector into the wider economy.

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Consumers demand faster delivery

Smart technology emerging from China e-commerce will potentially transform logistics sector development globally

By JOHN SONG

China's cross-border e-commerce sector has developed rapidly. In 2017, the transaction scale exceeded 8 trillion yuan (\$1.15 trillion), of which the cross-border retail market accounted for about 15 percent.

Although the cross-border e-commerce import sector market only accounted for 111.3 billion yuan in 2017, it registered year-on-year growth of 49.6 percent. With China's import e-commerce sector becoming increasingly important, the market's expectation for increasing delivery speed through bonded warehouses is rather alarming.

Customers are demanding increasing authentication and traceability, due to a need to secure the timing and trustworthiness of products delivered to them. That is producing more pressure for logistics companies to improve their efficiency and traceability, and also

introduce more intelligence into their system.

Consumption upgrade has also brought increased requirements for product and shopping experiences, such as the freshness of food and the safety of high-value products, which raised the standards for logistics to ensure the quality of goods.

Major players plan to build overseas warehouses to achieve logistics intensification with a shortened delivery cycle, reduced logistics costs, and overseas omnichannel delivery.

Also, with the development of overseas warehouses, major platforms' demand for business analysis has increased greatly in order to achieve a more economical and efficient overseas stocking. What's more, since the trend of brand internationalization is more significant, and the proportion and unit value of cross-border e-commerce are both growing, the demand for high-quality logistics increases.

Interestingly, as cross-border logistics becomes an increasingly fierce competitive battlefield, a market has emerged for smart logistics technology providers.

As the name suggests, smart logistics technology is a sector that provides e-commerce and logistics clients with data as well as intelligence derived from this data. It can help e-commerce and logistics clients to derive solutions on where to build their warehouses, how to focus investment on last-mile delivery, and how to build systems on internet-of-things technology, big data technology and artificial intelligence technology.

The development of smart logistics technology will help cross-border e-commerce logistics to meet customer needs and sustain high-speed growth: Many e-commerce and logistics companies are already deploying smart logistics technology. For example, NetEase Kaola has deployed guided-vehicle robots

in its bonded warehouses to realize the "goods-to-worker" intelligent storage mode, which has increased the number of hourly processed orders to more than three times that of manual methods.

Meanwhile, JD has realized full-link tracking of imported goods, which uses an internet-of-things platform and blockchain technology to gather information on production, shipping and selling, and ensures the authentication of goods.

JD also uses big data technology to realize data analysis and mining, accurately predict demand, and intelligently plan optimal routes. Till now, JD, relying on its global distribution network and powerful information system, has achieved an average delivery time of 3.9 days by direct mail.

JD is also using its self-developed Smart Brain WMS5.0 system in its overseas warehouses to manage storage, inventory, delivery and material information. The unified

language, operation and algorithm will connect the information chain of global overseas warehouses and conveniently manage the storage, sorting and distribution of global goods, which greatly improves the efficiency of the international supply chain and reduces costs.

As competition in the e-commerce logistics sector becomes increasingly fierce, it seems that logistics and e-commerce players are increasingly using technology to come up with smart solutions for delivery. More smart technology will emerge from the e-commerce logistics sector in China, to potentially transform the trajectory of logistics sector development globally and provide increasing convenience to consumers at lower costs.

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