



Agriculture Sector Innovation

ICTs and agriculture transformation: Insights
and lessons from China

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Information and communication technologies (ICTs) have offered diverse technological resources and tools to create, communicate, disseminate, and use information in agriculture. Such gadgets have fostered access to markets, agriculture advisory services, climate-smart solutions, financial services, data generation and traceability, and framework(s) to implement and monitor the policies and progress. Through improved communication, it has enabled the business nurturing environment and unlocked the influx of new opportunities and widens smallholder farmers' reach to far-off markets. With growing uptake, ICTs are believed to shed the ripples effect on smallholder farmers in developing countries regarding improved productivity, economic sustainability, and social development.

In recent years, the development of ICTs in the People Republic of China [PRC] has set a hallmark of poverty alleviation and inclusive growth for developing countries. Amongst other ICTs, the adoption of mobile phone technologies and e-commerce has largely transformed the landscape of smallholder agriculture in PRC.

To facilitate the broader application of ICTs in general and e-commercial agriculture in particular, the government has vigorously improved the infrastructure and financial capacity of resource-poor farmers. Begin in 2007, with internet adoption of 16% (210 million) to 70% (989 million) in 2020; the online sales have surpassed CNY 11600 billion (approximately USD 1700 billion), where the establishment of "taobao villages" paved a broader trajectory for e-commercial agriculture. During a similar period, the number of taobao villages has grown from 3 to 5445, and taobao – an online selling platform – presents a worth mentioning and an interesting case. According to Alibaba Research Institute (ARI), there are some requirements to establish a taobao village: I) a village must have at least 100 active online stores, or at least 10% of the village households (farmer and/or non-farmer) operate online shops, II) collective annual sale volume of a village on

taobao must be over CNY 10 million, and III) village must be located in the declared rural area. The role of taobao villages in agriculture divided into two groups: 1) farmers selling primary or processed agricultural commodities, and 2) non-agricultural villages that sell industrial products, such as shoes, clothes, ornaments, electric appliances, etc.

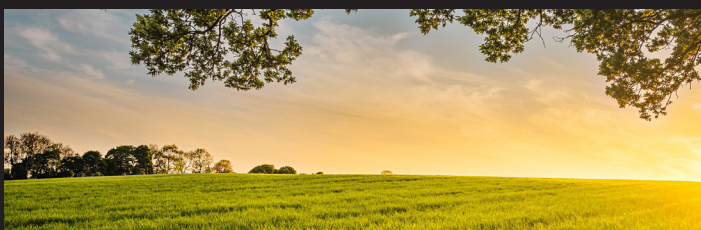


Using online platforms – like Taobao, Jindong, Tmall, and Pinduoduo – entails easily operated digital transactions linked with fast and low-cost courier services. Currently, over 13 million farmers sold their agricultural commodities during the Covid-19 shaded year. Interestingly, small-scale farmers are selling online both own agricultural produce and collected from other farmers in their premises. The uniformity in farm-gate prices and wholesale market prices fosters a greater demand for online sellers. Likewise, well established regional storage and delivery platforms help farmers avoid perishability, post-harvest and long-distance delivery losses. A recent report published in 2020 note that farmers in PRC are positively oriented toward online purchase of crop inputs like fertilizer, pesticides, agricultural machinery, and seeds. And, most of the farmers are now buying online agricultural custom services – such as ploughing, seeding, fertilizing, weeding, harvesting, etc. – due to lower prices and convenience. Moreover, most of the e-commerce platforms push the use of ICT-based smart-agriculture by supporting entrepreneurs and farmers with blockchain, artificial intelligence and the internet of things to promote data-driven approaches to improve yield efficiency.

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While 2020 hailed as the deadline for absolute poverty in China, the country provides interesting insights on the role of ICTs in agriculture for poverty alleviation and inclusive growth. As e-commerce grows in depth and scope, it creates employment opportunities and narrows the income gaps.

E-commerce provides a new frontier and helped regions with distinctive skills to explore and exploit their potential(s), resulting in new prospects for growth and rejuvenation. It boosted the sale of agricultural commodities and this development proves the effectiveness of e-commerce in driving change and inclusive growth.



Notably, e-commercial agricultural do not include salary for self-employment, fixed cost and market intermediaries, and therefore, it offered higher output prices to farmers and slightly lower prices to household consumers than that of off-line buying. Using online platforms, farmers are now directly connected with household consumers, local industries and merchants. This development might be a nightmare without consciously planned manoeuvres, collaborative and integrated actions ensuring the longer-term sustainability of e-commerce in agriculture. We compiled and elaborated the key contents of national policies executed during 2006-2020 to develop e-commercial agriculture in China (see Figure 1).



The idea behind taobao village development has attracted significant attention from entrepreneurs who want to replicate China's home model. To implement this model, Pakistan needs to establish the e-commerce platform(s). However, existing e-commerce platforms – like Daraz – might be

encouraged to expand their commodity range and include farmers as online sellers. Apart from adequate infrastructures and local conditions in Pakistan, like the rural internet and roads, the other vital steps that might help drive e-commercial agriculture in the country includes:

1. Facilitating the electronic transactions and connecting e-commerce based applications with mobile money transfer having zero transfer charges – using “Wechat” mobile application model – might boost the uptake of e-commerce among farmers and household consumers.

2. Established agricultural industry: Well-founded agricultural industry can put more responsibilities on e-commerce. For example, South Punjab is famous for producing mangoes where most farmers sell their produce to local markets and intermediaries. E-commerce can help farmers to reach far-off markets and household consumers.

3. Establishing commercial retailers: Empower farmers and local entrepreneurs to start their own e-commerce business, particularly large-scale e-commercial retailers engaging in selling locally produced agricultural commodities.

4. Empowering resource-poor farmers to engage in e-commercial agriculture through interest-free credit – like credit provision using Akhuwat Foundation – and leveraging support from their social capital.

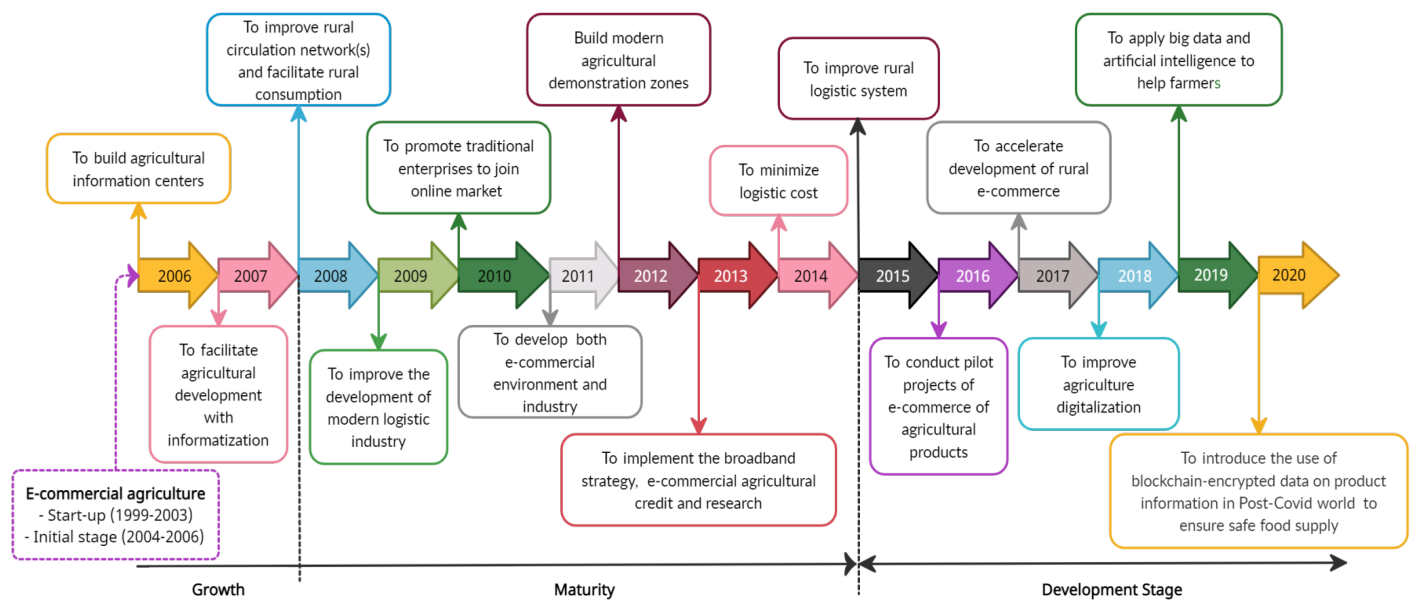
5. Role of government: The local government can play a profound role through integrating farmers with already established networks of the Pakistan Postal Service and encouraging private players – like Tranzum Courier Service (TCS), Leopards, DHL, etc. – to be the part of e-commercial agriculture drive. Likewise, creating awareness and capacity building on e-commercial agriculture, providing training through the agriculture extension department, and improving the connectivity and infrastructure in rural areas, such as roads, postal service and the internet, would provide supplementary support and help engage smallholder farmers in e-commerce.

Lastly, a coordinated response mechanism to leap youths' participation in e-commercial agriculture

might be an instrumental gauge. This can be accomplished through encouraging agricultural, business management, and e-commerce students to kick-off agri-food based start-ups. This would increase the volume of processed foods, transform

value-chains, establish diversified industrial networks, and realize a more resilient and digital economy.

Figure 1
Contents of national policies & documents on E-commercial development in China- 2006-2020



Source: Authors' compilation based on websites of the State Council of China, Ministry of Agriculture and Rural, Ministry of Commerce, and Ministry of Industry and Information Technology.