



Electronic agriculture and the development of agricultural reality

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Abstract

Agriculture is considered one of the important sectors that exist in itself, and the sector provides many services to the society, being also one of the professions known and widespread since ancient times. And its scientific name is e-agriculture. Where this term first appeared was through the survey provide to the Food and Agriculture Organization of the United Nations (FAO), after it was commissioned by representatives of the main development organizations working in agriculture in the workshop he organized, which took place in

Key words / Electronic agriculture, agricultural information systems, agricultural sector strategy, agricultural extension

2006. The questionnaire consists of eight main questions with one question. My optional one was in three languages (English, French and Spanish). More than 4,000 people from 135 countries visited the survey site. 3,400 people responded to the survey, although not many filled in all the boxes. Participants were also invited to express their interest by participating in a forum. Knowledge of Canronal Agriculture attracted over 2,100 media responses (8)

I. Introduction

Agriculture continues to evolve in scope as new ICT applications continue to be harnessed in the agricultural sector. More specifically, agriculture involves conceiving, designing, developing, evaluating, and applying innovative ways of using ICT in the rural field, with a primary focus on agriculture. Provisions of standards, rules, methodologies, and cycles, as well as individual capacity development and institutional support, are all key components of agriculture. technology, agricultural extension the comprehensive nature of information and communication technology can

drive growth in other sectors that we can enhance. Agricultural societies, for example, the use of data collection and analysis by weather departments can make insurance more efficient, and the deployment of electronic services via mobile phone can greatly mitigate the challenges Finance, transactions, social safety and investment. The agricultural sector faces many challenges represented by climate change, biodiversity loss, drought, desertification, increasing food prices, etc. As the sector has become increasingly demanding knowledge, and the availability of the right information, at the right time the correct format

❖ The concept of electronic Agriculture

➤ E-Agriculture: It is a field that emerged as a result of the agricultural information and agricultural development sector, increasing business in agricultural services, disseminating technology, and information that is delivered or

improved via the Internet and related technologies.(17)

➤ E-Agriculture: It is an activity that seeks to use modern information and communication means and technologies to increase agricultural productivity and disseminate information related to research, planning, agricultural extension, trade and marketing. (8) .



➤ E- Agriculture means the spread of mobile technologies, remote sensing services and distributed computing that improve smallholders' access to information, inputs, markets, finance and training. and generate new opportunities for integrating smallholders into a digitally oriented agri-food .

❖ **Conditions for electronic transformation in agriculture**

The success of digital transformation in agriculture requires several points, the most important of which are: (10)

1. Policy making and regulation, where governments and policy makers play a major role in creating the environment mission to digitize agriculture and food, ensure transparency, security, balance and efficiency of financing systems, and protect data ownership, privacy and the responsibility.

• **The importance of agricultural information technology**

1 . Information in general and agriculture in particular is of great importance in this era, which was called the era of the information revolution, has become one of the It is normal to think of developing a general strategy to contain it, and then after that making the most of that huge amount of increasing intellectual production, (6).

2 . The process of developing any society depends on information and data expressing its various components, aspects and sectors, then documenting and putting it in a usable form, and then benefiting from this information in identifying and analyzing the problems facing society and drawing ways to solve them .(11)

3 . The information industry is considered one of the most important vital indicators of information development in any society, as it helps in identifying problems, including society and its organizations, and finding appropriate solutions to them. (1) .

4 . It is considered useful in serving the national economy as well as in the social, political and research fields, as it is estimated that the researcher spends searching for information about 20% of his time, which is evidence of the importance of information and its role in serving the individual and society, (2).

2 . Reducing the economic gap Despite the low cost of applying digital technology to agriculture, it is still not widespread due to the limited availability of capital, which limits the affordability of new technologies.

3 . Involve everyone in the digital revolution, especially rural communities. where literacy is one the main barriers faced by the agricultural sector, so even when calling, farmers may not be educated people mean a lack of new wealth of information .

4 . Ensuring equitable access to digital infrastructure is essential, and so must adoption of the technologies given the growing gap between modern and traditional farming, smallholder farmers in developing countries have limited access to skills, information and open data, which is slowing the development of agripreneurship and a sustainable digital ecosystem.

5 . Agricultural extension seeks to convey this information, knowledge, results of scientific research, recommendations, experiences, and new and useful agricultural and home economic ideas in a clear and understandable manner. for the rural population of all their characteristics so that it is possible to benefit from it while removing the obstacles to its application (12.).

6 . The transfer of new information and knowledge related to a new agricultural idea is the first stage of cognitive behavioral change (15).

7 . Providing information on practices new agricultural and appropriate to a particular environment is important for farmers and the rural community, (7.)

8 . Agricultural information is an important necessity for the farmer, especially the innovator, to update his knowledge and skills this requires that it be provided with agricultural technical information on an ongoing basis. (3) .

9 . Agricultural extension is the link between the scientific research centers and the farmers, as it transfers the new agricultural recommendations to the farmers, after making sure that they are suitable for them and urging them to accept them. in order to solve their problems, and then transfer the implications of introducing these new recommendations to those in charge of scientific research (4)



Figure (1) TOP 5 TECHNOLOGIES THAT helps AGRICULTURE

Source : 18

❖ Examples of using technologies in food and agricultural systems

Digital transformation can provide economic, social and environmental benefits. The following examples show how digital technologies can be applied to improve the efficiency of food and agricultural systems, for example :

The use of mobile applications that provide price information to farmers can fluctuate market distortions and help farmers plan production. For

example, the implementation of Farm-M in Kenya led farmers to change their farming patterns and some reported receiving higher market prices as a result ;

- Application (EMA -I) FAO support for the animal health system

The application (EMA -I) is an early warning application developed by the organization to facilitate the process of reporting livestock diseases with high quality and continuously based on the reports of health workers in the field of animals in



the field. The application has been included within the (EMPRES-I) system for animal disease information, where Data storage and use by countries. The(EMA -I)application is easy to adapt to existing livestock disease reporting systems in countries. He contributes, by supportin countries' capacities at the level of monitoring, reporting and improving communication between employers, in enhancing early warning and response to cases of animal diseases that significantly affect food security and livelihoods. The i-(EMA-I) application is currently in use in six African countries (Côte d'Ivoire,ghana, Guinea, Lesotho, Tanzania and Zimbabwe).

- **MYCROP SYSTEM** An integrated farm and farm management system

MyCrop is a technology-based initiative aimed at farmers as it enables them, by providing information, expertise and resources, to increase productivity and profitability and thus their standard of living. It is a participatory platform that seeks to combine the latest types of technology (big data machine learning, smart phones, tablets, etc., an innovative business model (agricultural platform as a service being provided) and focused human efforts (lights, agricultural products and services) at the service of smallholder farmers MyCrop is a data-driven, scalable, intelligent and self-learning sustainable collaborative agro-food system that serves as both a farmer and on-farm management solution, a proactive analysis and monitoring tool, a decision support system and an e-commerce platform for agricultural products. (at the level of buying and selling)

Regulatory and political laws	ICTS helps implement organizational policies and methods for monitoring progress
Risk management, insurance and financial services	ICTS increases rural communities' access to financial services, helps secure savings, creates affordable effective insurance, and better risk management tools.
Food safety and traceability	ICTS helps provide more efficient and reliable data to follow international standards
Market access	ICTS facilitates access to market inputs as well as product marketing and trade in various ways
Disaster management and early warning	ICTS provides actionable information and advice to communities and governments on disaster prevention, in real time.
Agricultural extension and advisory services	ICTS bridges the gap between agricultural research, extension workers and farmers thus enhancing agricultural production

Table. (1) The importance ofelectronic agriculture

Source :(9)

II. Conclusions

From what the study presented, we conclude that enhancing and accelerating the efforts of electronic agriculture with government plans through the strategic planning process . The summary of the study shows the following points :

1 . Digital transformation helps the agricultural sector collect and perform advanced analytics on crops to provide farmers with insight to improve productivity in addition to stimulating collaboration

and communication across value chains, which improves food security.

2 . Digitization helps develop the agricultural sector, which leads to higher and job creation and improvement livelihoods, especially in rural areas, and thus contribute to agricultural development .

3 . The digital transformation of agriculture and food required addressing four major policy-making gaps government and define an appropriate



regulatory framework for that, reduce the economic gap, and the skills gap the digital divide .

4 . Information and communication technology has helped greatly in the development of agriculture, as a result of the spread of the Internet and affordable devices, especially smart phones and various applications..

5 . E-Agriculture requires conceptualizing, designing, developing, evaluating, and applying innovative methods of utilization information and communication technology, in addition to developing the individual capabilities of farmers and government support.

III. Recommendations

1 . Involve all ICT stakeholders in defining research priorities and development in the field of information and communication technology and necessary measures to achieve the successful transfer of these techniques

2 . Linking knowledge centers and rural agricultural clinics to the needs of farmers, whenever possible, involving graduates unemployed universities are involved in this activity .

3 . Developing communities (virtual networks) to exchange information and knowledge among rural stakeholders, as well as empowering them through participation.

4 . Building the capacity of rural stakeholders to use and apply information and communication technology. and enhancing farmers' and producers'

6 . The adoption of e-Agriculture within communities takes a long time in many cases due to a shortage understanding and awareness of small farmers on how to use and benefit from digital technologies.

7. E- Agriculture can be a strategic direction for the agricultural sector by promoting cooperation and exchange of knowledge in agriculture via various electronic practices

8 . The adoption of electronic agriculture in any country requires the development of a national strategy in line with agricultural goals .

access to market information and information on farming techniques and practices.

5 . Promote access to statistics and other types of information policy and decision-making .

6 . Focusing training on information and communication technology for researchers, extension seminars, agricultural and farmers on practical applications.

7 . Understanding the extent to which ICT initiatives can meet the needs of farmers so that better solutions can be developed through the adoption of a comprehensive national strategy.

8 . Take advantage of advances in information and communication technology to provide accurate and timely information and services to farmers and to facilitate an environment for more successful farming. .

Reviewer

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