

e-Agriculture: a definition

e-Agriculture is an emerging field for enhancing sustainable agriculture and food security through improved processes for knowledge access and exchange using information and communication technologies (ICT).

Technology for changing times

For millennia, people have used knowledge from family and friends to grow crops or raise livestock. Globally, new digital systems now exist for sharing information on agricultural innovations and markets, but most of these systems are inaccessible to poor farmers in developing countries. Today, technology can and should be a key agent for changing people's lives by improving access to information and sharing of knowledge. Rural livelihoods would be greatly enhanced by improvements in areas such as:

- access to agricultural markets
- improved agricultural practices
- information on weather, including extreme events

Digital dilemma

The divide between those who can and cannot access ICT will widen unless efforts are made to ensure that digital technology and information is accessible as well as affordable at a local level.

- As computer technology becomes more sophisticated and often more expensive, developers should ensure compatibility with older hardware still in use.
- Information on the Internet is often not available in local languages, which seriously constrains rural people's access to otherwise relevant information. Approaches need to be developed to overcome these constraints, and the value of local knowledge emphasised in systems focused on farmers and rural communities.

Appropriate technology

The needs and the services required will determine how ICT are used, adapted and thus evolve. To enable and empower rural communities to improve their livelihoods is likely to involve a mix of traditional communication channels (neighbours/family, local news, announcement boards etc), as well as newer ones (internet, mobile phones etc).

Reaching rural areas with digital radio

Due to the region's dialect preference radio is the most important information source for farmers in the Cajamarca region in Peru. The NGO 'Soluciones Prácticas' is using old and new technologies to reach these farmers, by disseminating important agricultural information through 'podcast' radio programmes, which are saved in digital format, recorded in discs and distributed to the local radio stations.

- The INTERNET has many advantages as a medium of information and knowledge exchange. But limited access and poor connectivity constrain many individuals, particularly in rural areas in developing countries.
- MOBILE TELEPHONY has been a major breakthrough in communications, as a means of providing market prices, weather and other advice. It is currently the most accessible ICT available, allowing access to a broad spectrum of people, including marginalized people in remote rural areas. The technology is adaptable, handling voice and data, and the cost of advanced features continues to drop. The mobile telephone and the hand-held computer are becoming almost indistinguishable.

Mobile phones connect African fisherman

Tanzanian fishermen are using mobile phones to communicate amongst themselves regarding weather forecasts, where to get the best catch, local market information, and coordinate pickup.

Priorities in e-Agriculture



The e-Agriculture community spans a diverse range of actors: researchers, extensionists, farmers, international development practitioners, as well as information/knowledge intermediaries. As a global initiative, the **e-agriculture.org** platform enables members to exchange opinions, experiences, good practices and resources related to e-Agriculture, and to ensure that the knowledge created is effectively shared and used. It is through the input and guidance of these Community members, through various online forums and face-to-face events held in 2007, that the priority requirements for strengthening information and knowledge systems for e-Agriculture emerged. These include:

Market Chains

- The growth of communication networks needs to be supported amongst actors in the market chain (farmers, transporters, buyers, traders, etc), in order to ensure more equitable, timely, and collaborative access to markets for smallholders.

Farming/Production

- Investment is needed to repackage technical information for farmers and make it available in local language.
- Existing channels for technical information (e.g. extension services, radio stations) should be integrated with new communication technologies which are accessible to farmers.
- Financial sustainability must be built into all systems.



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Research & Innovation

- Technical information systems in agriculture need to incorporate local knowledge, be integrated into regional and international systems, and maintain links to policy-makers.
- More investment in infrastructure and skilled human resources is needed for such systems.
- Researchers and extensionists require continued training in how to interact and share knowledge more effectively using the new digital technologies.

What next for policy-makers?



- **Investment** in communication infrastructure has to focus on financially viable and socially acceptable approaches that are accessible to the rural poor.
- One-way information flows from “producer” to “user” need to be transformed so that a wide range of actors, in communities and institutions, can develop **networks** for sharing information and knowledge.
- Appropriate **incentives** for information sharing have to be developed at all levels.

Agricultural Community connects in India

An innovative agri-information portal provided by the Department of Agriculture of Kerala, India offers numerous services for the benefit of the farming community, including toll-free call centres and multimedia resources. The ‘Karshaka Information Systems, Services and Networking’ (KISSAN) project also gives farmers the opportunity to ask specific questions to agricultural scientists and technical experts.

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