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# 9. e-Agriculture

- e-Agriculture is a global Community of Practice, where people from all over the world exchange information, ideas, and resources related to the use of information and communication technologies (ICT) for sustainable agriculture and rural development.
- e-Agriculture Community is made up of over 12,000 members from 170 countries and territories, members are information and communication specialists, researchers, farmers, students, policy makers, business people, development practitioners, and others.
- Members have a common interest that brings them together, that of improving policies and processes around the use of ICTs in support of agriculture and rural development, in order to have a positive impact on rural livelihoods.



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## 9.2 Design and development

- For improving agricultural productivity an expert agricultural advice is given to the farmers both in a timely and personalized situations. Here, in this system agricultural experts generate the advice by using the modern agriculture which is highly knowledge intensive which also requires timely, reliable and accurate information on natural.

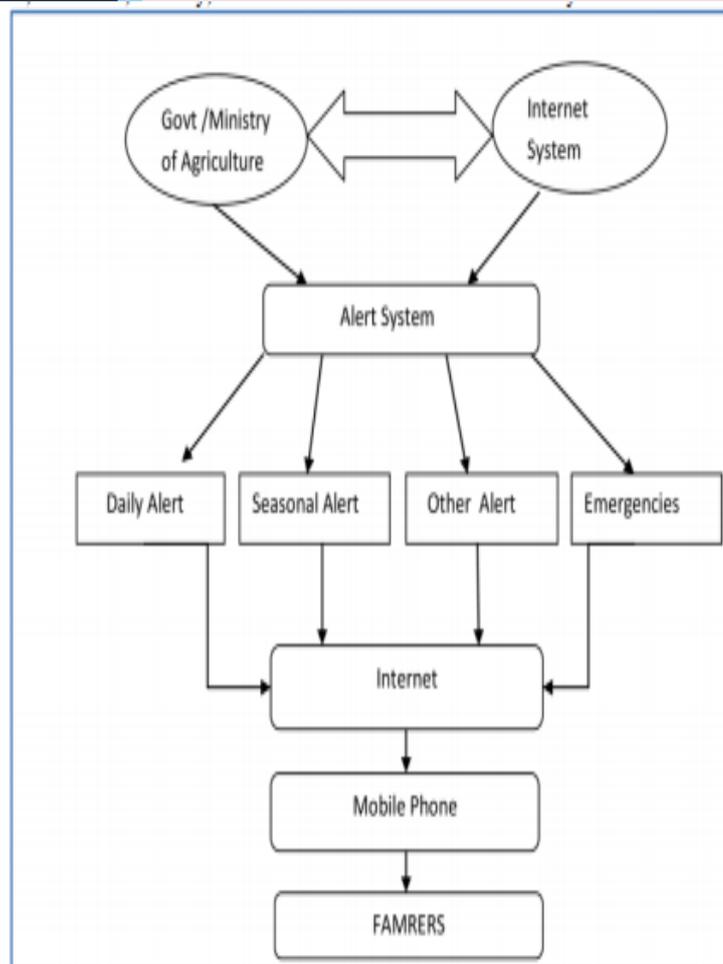


Fig. 1 Architecture of Modern system



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## 9.3 ROLE OF ICT IN E –AGRICULTURE

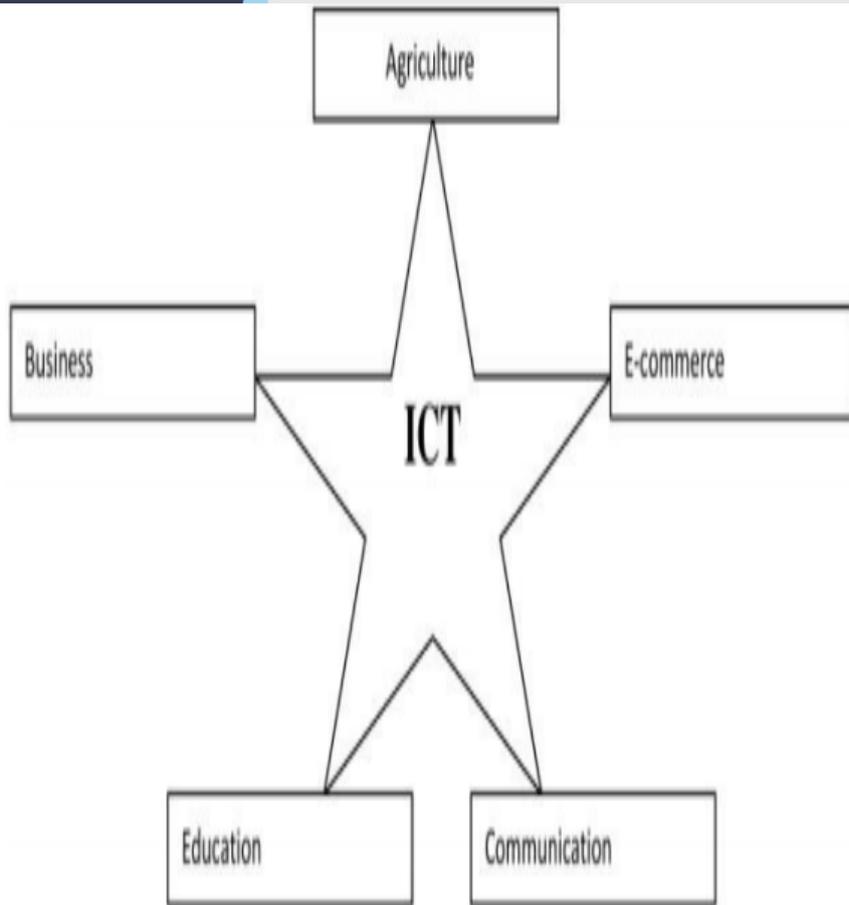


Fig.2 Application of ICT

- ICT is an umbrella term that includes any communication device or application, encompassing: radio, television, mobile and fixed phones, computer and network hardware and software, satellite systems and so on, (as well as the various services and applications associated with them, such as videoconferencing, distance learning, etc)



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## 9.3.1 Advantages of ICT in E-agriculture

- It can initiate new agricultural and rural business such as e-commerce, real estate business for satellite offices, rural tourism, and virtual corporation of small-scale farms.
- It can support policy-making and evaluation on optimal farm production, disaster management, agro-environmental resource management etc., using tools such as geographic information systems (GIS).
- It can improve farm management and farming technologies by efficient farm management, risk management, effective information or knowledge transfer etc., realizing competitive and sustainable farming with safe products.



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## 9.4 Computer Models in Agriculture

The use of computer models became widespread mainly throughout the 1960s, as the first weather satellites were launched. The types of computer models that are used in forecasts depend mostly on the type of climate and weather conditions.



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## 9.4.1 Types Of Models

- **Climate Models**

Climate models are primarily used to forecast substantial changes in the earth's climate. Climate is the average weather conditions in an area for a prolonged period of time. The CFS is one of the primary climate models used for forecasting planetary scale weather conditions.

- **Mesoscale Models**

Mesoscale models are mainly used to forecast the weather locally. Mesoscale in meteorological terms means the atmospheric conditions ranging usually from two to 20 km. Synoptic and climate models usually do not have enough resolution to forecast localized weather conditions such as: single cellular thunderstorms and tornadoes..



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## 9.4.1 Cont..

- **Dynamic Models**

Dynamic models are the most sophisticated and costly tools used to forecast the weather. Dynamic models use advanced fundamental equations of the atmosphere to predict changes in the weather based on current conditions. Despite their efficiency, dynamic models can make errors during the initial runs.

- **Statistical Models**

Statistical models are primarily used to help meteorologist provide accurate analog forecasts. Statistical models use data from previous storms and weather conditions to help meteorologists get a better idea of how to track current weather systems. Statistical models are commonly used to track tropical and mid latitude cyclones.



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# 9.5 Computer-controlled devices for Agri-input management

- **Wireless technologies.**

Wireless technologies have numerous applications in agriculture. One major usage is the simplification of closed-circuit television camera systems; the use of wireless communications eliminates the need for the installation of coaxial cables

- Geographic information systems

GIS, are extensively used in agriculture, especially in precision farming. Land is mapped digitally, and pertinent geodetic data such as topography and contours are combined with other statistical data for easier analysis of the soil. GIS is used in decision making such as what to plant and where to plant using historical data and sampling.



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## 9.5 Cont...

- **Remote Sensing:** imagery and data collected from space- or airborne camera and sensor platforms. Some commercial satellite image providers now offer images showing details of one-meter or smaller, making these images appropriate for monitoring humanitarian needs and human rights abuses.

- **Internet Technologies:** Mapping software programs like Google Earth and web features like Microsoft Virtual Earth are changing the way geospatial data is viewed and shared. The developments in user interface are also making such technologies available to a wider audience whereas traditional GIS has been reserved for specialists and those who invest time in learning complex software



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