



Food and Agriculture
Organization of the
United Nations



Developing e-agriculture strategy

FAO ITU Training

1-2 September 2016

Nonthaburi, Thailand

Why e-application strategy?..



Emergency



Education



Health



Agriculture



Investment



Applications



Policy & Regulation



Governance



Transport



Sensor Networks



Universal Broadband



Green ICT & E-Waste



Capacity Building



Measurements



Electricity



**SMART
SOCIETY**



Infrastructure Security



Privacy & Security



Water



Digital Inclusion



Spectrum Management



Standards, Conformity &
Interoperability



Teleworking



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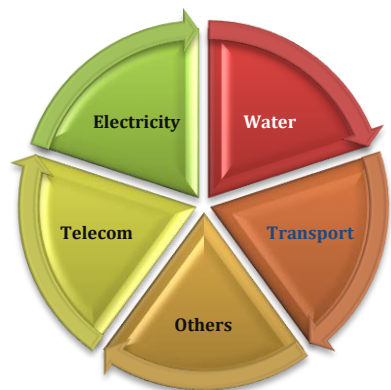
Developing Cross-Sectoral Strategy...

*An alignment, synergy
development and
prioritization exercise....*



SMART
SUSTAINABLE
CITIES

REGULATORY COLLABORATION



MULTI UTILITY
REGULATOR



COLLABORATION MECHANISMS



Emergency



Education



Health



Electricity



Governance



Transport, Trade, Logistics



Water



Teleworking



Infrastructure Security



Integrated Policy



Legislation



Co-Regulation



Standardization (International / National)



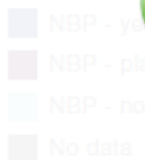
MoU or Cooperation Agreement



Coordination Committee



Projects, Coordination on Case to Case basis





Mobile Banking



Competition



Green ICT & E-Waste

Tanzania	MoU signed between Bank of Tanzania (BoT) and Tanzania Communication Regulatory Authority (TCRA).
India	Statutory guidelines for operationalizing M-Banking issued by the Reserve bank of India (RBI) for banks and Regulations by the Telecom Regulatory Authority of India (TRAI) on QoS, Tariffs for service providers.
Pakistan	MoU between Pakistan Telecommunication Authority (PTA) and State Bank of Pakistan (SBP)
Australia	Legislation separates powers between Australian Consumers and Competition Commission (ACCC) and Australian Communications and Media Authority (ACMA). Chairman of ACCC and ACMA are Associate Members in ACMA and ACCC respectively.
Mauritius	MoU Signed between Competition Commission (CCM) and ICT Authority (ICTA)
United Kingdom	<u>Agreement on procedures</u> between Office of Fair Trade (OFT) and Office of Communications (OFCOM).
Egypt	Green ICT Strategy implemented through a MoU between Ministry of Communications & IT (MCIT) and Ministry of Environmental Affairs (MEA)
Singapore	E2PO is a multi-agency committee led by the National Environment Agency (NEA) and the Energy Market Authority (EMA) and comprises the Economic Development Board (EDB), Land Transport Authority (LTA), Building and Construction Authority (BCA), Housing and Development Board (HDB), Infocomm Authority of Singapore (IDA) , Agency for Science, technology and Research (A*STAR), Urban Redevelopment Authority (URA), Jurong Town Corporation (JTC) and National Research Foundation (NRF). The Ministry of the Environment and Water Resources (MEWR) and Ministry of Trade and Industry (MTI) are also represented in the committee.



Health

Singapore	Joint project on Tele-health by Ministry of Health and Infocomm Development Authority (IDA)
United States	Joint Statement and MoU between Federal Communications Commission (FCC) and Food and Drug Administration (FDA) on broadband and wireless enabled medical devices



Electricity

Thailand	MoU between National Broadcasting and Telecommunications Commission (NBTC) and the Electricity Generating Authority of Thailand (EGAT)
UAE	Environment Agency - Abu Dhabi (EAD) and the Telecommunications Regulatory Authority (TRA) have signed a Memorandum of Understanding (MoU) to promote cooperation and partnership in the field of technology and information security,



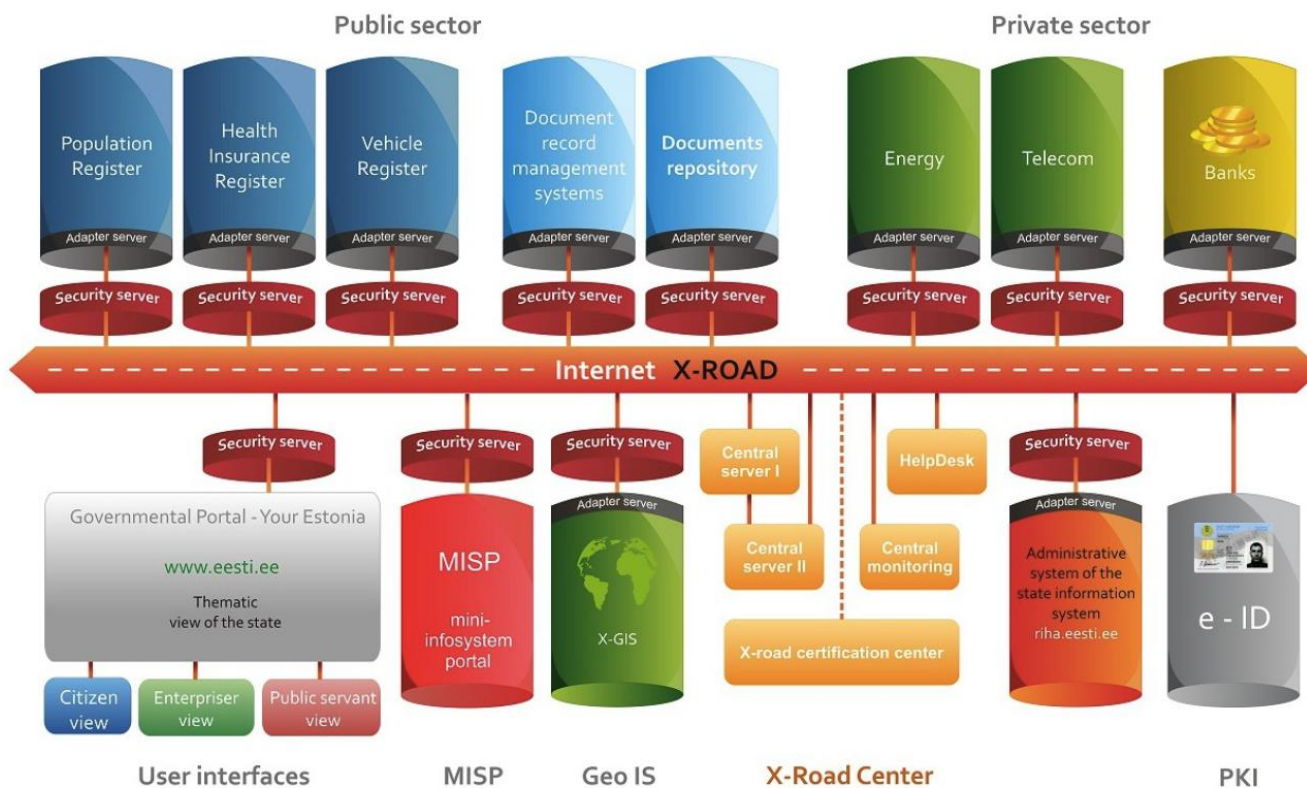
Transport, Trade, Logistics

Singapore	Infocomm@SeaPort programme is a collaboration between the Infocomm Development Authority of Singapore (IDA) and the Maritime and Port Authority of Singapore (MPA). e-freight is a joint programme between IDA and Civil Aviation Authority of Singapore seeking to enhance competitiveness and increase productivity in the air cargo logistics sector through infocomm.
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UK Regulators' Network (UKRN) is an initiative of the UK economic regulators: [CAA](#), [FCA](#), [Ofcom](#) [Ofgem](#), [ORR](#), [Ofwat](#), [UR](#). Monitor and the Water Industry Commission for Scotland (WICS) are also participating as observers

Example Estonia

Estonian information system



Source: https://www.ria.ee/public/x_tee/xRoadOverview.pdf/



Smart Sustainable City

A multi-tier SSC ICT architecture from communication view (physical perspective)

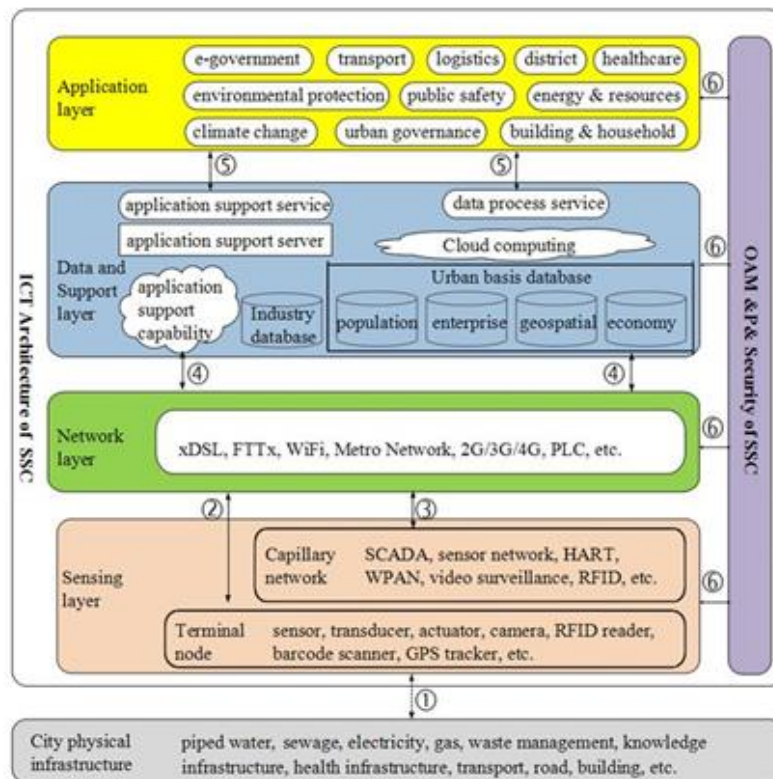


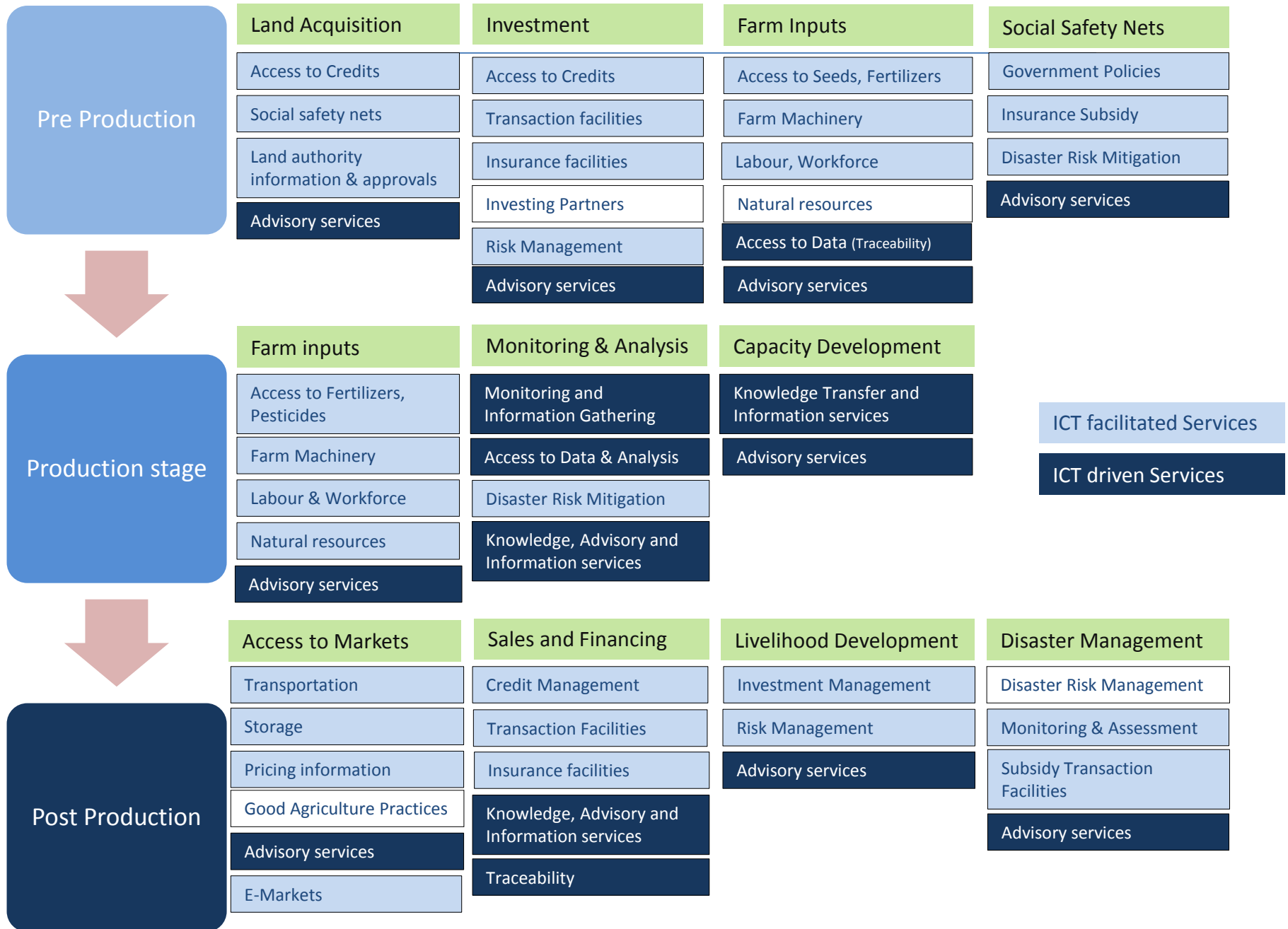
Figure source: ITU-T Focus Group on Smart Sustainable Cities: *Overview of smart sustainable cities infrastructure*



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E-AGRICULTURE STRATEGY



Agriculture sector cluster

Supply Chain
Management
Services

Land Info & Acquisition

Labour, Workforce

E-Markets

Transportation

Natural Resources

Storage

Farm Machinery

Access to Seeds, Fertilizers, Pesticides

Financial
Services

Access to Credits & Credit Management

Insurance Facilities

Disaster Risk Mitigation

Transaction Facilities

Investment Management

Data Collection
&
Analysis
Services

Monitoring and
Information Gathering

Access to Data & Analysis

Traceability

Monitoring & Assessment

Agriculture
Knowledge
Management

Advisory services

Market information

Knowledge Transfer and Information services

Service Classification and Prioritization

Service Provider
Lead Facilitating Sector
... (Agriculture,
Telecom, Finance...)
Lead Agency(ies)
Facilitating Agency.....

Service Type A (Services requiring no support)

Beneficiary:
Service Provider
Lead Agency
Business Opportunity
(Unconditional) ... (Yes / No)
Action required (with timeline)
a)

Service Type B (Services requiring indirect support)

Beneficiary:
Service Provider
Lead Agency
Business Opportunity with
policy & regulatory facilitation.
Action required (with timeline)
a)

Service Type C (Services requiring government direct support / delivery)

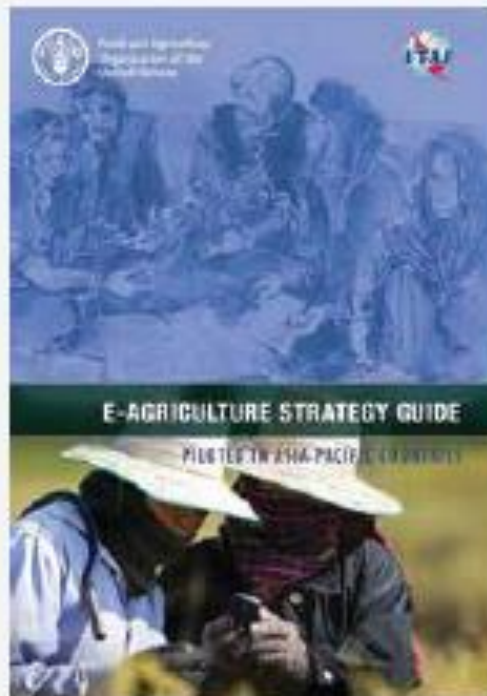
Beneficiary:
Service Provider
Lead Agency
Action Required (with
timeline)
a)

ICT facilitated Services

ICT driven Services



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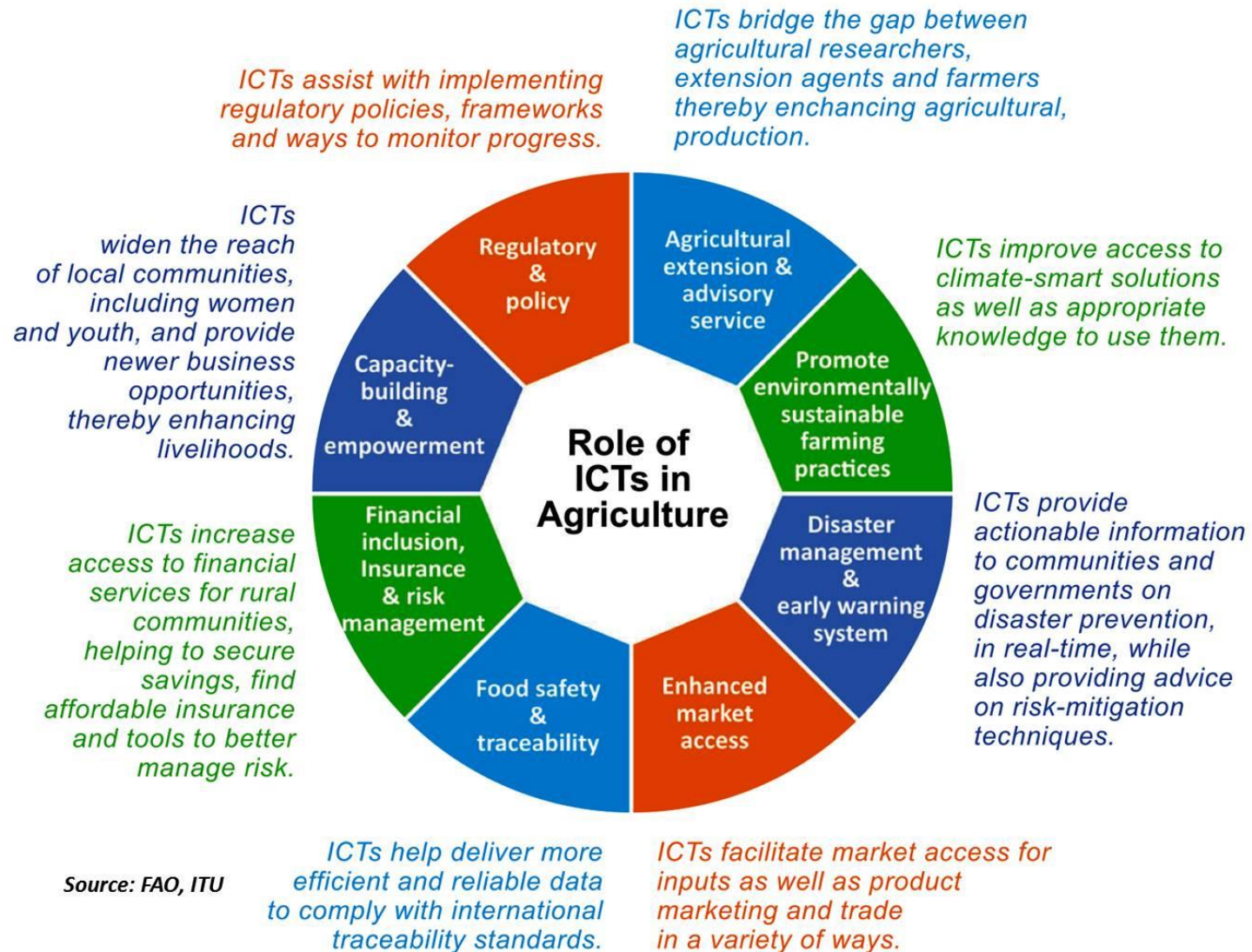
The Food and Agriculture Organization (FAO) and the International Telecommunication Union (ITU), together with support from partners including the Technical Centre for Agricultural and Rural Cooperation (CTA), have developed the E-agriculture Strategy Guide. The guide provides a framework for countries to develop their national e-agriculture strategy, or master plan.

The FAO-ITU E-agriculture Strategy Guide is available at:
<http://www.fao.org/3/a-i5564e.pdf>

More information at:
<http://www.fao.org/asiapacific/resources/e-agriculture/en/>



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TELEPHONE> Interactive voice response



COMPUTERS
AND WEBSITES



Agriculture information
and markets



BROADCASTING

Expertise sharing,
advisory, community



SATELLITE

Weather, universal
accessibility,
remote sensing



MOBILE

Advisory, sales, banking,
networking



INTERNET
AND
BROADBAND

Knowledge sharing,
social media,
e-community, banking,
market platform,
trading, etc.



SENSOR
NETWORKS

Real time information,
better data quantity
and quality, decision
making



DATA STORAGE
AND ANALYTICS

Precision
agriculture,
actionable
knowledge



Source: FAO-ITU E-agriculture Strategy Guide

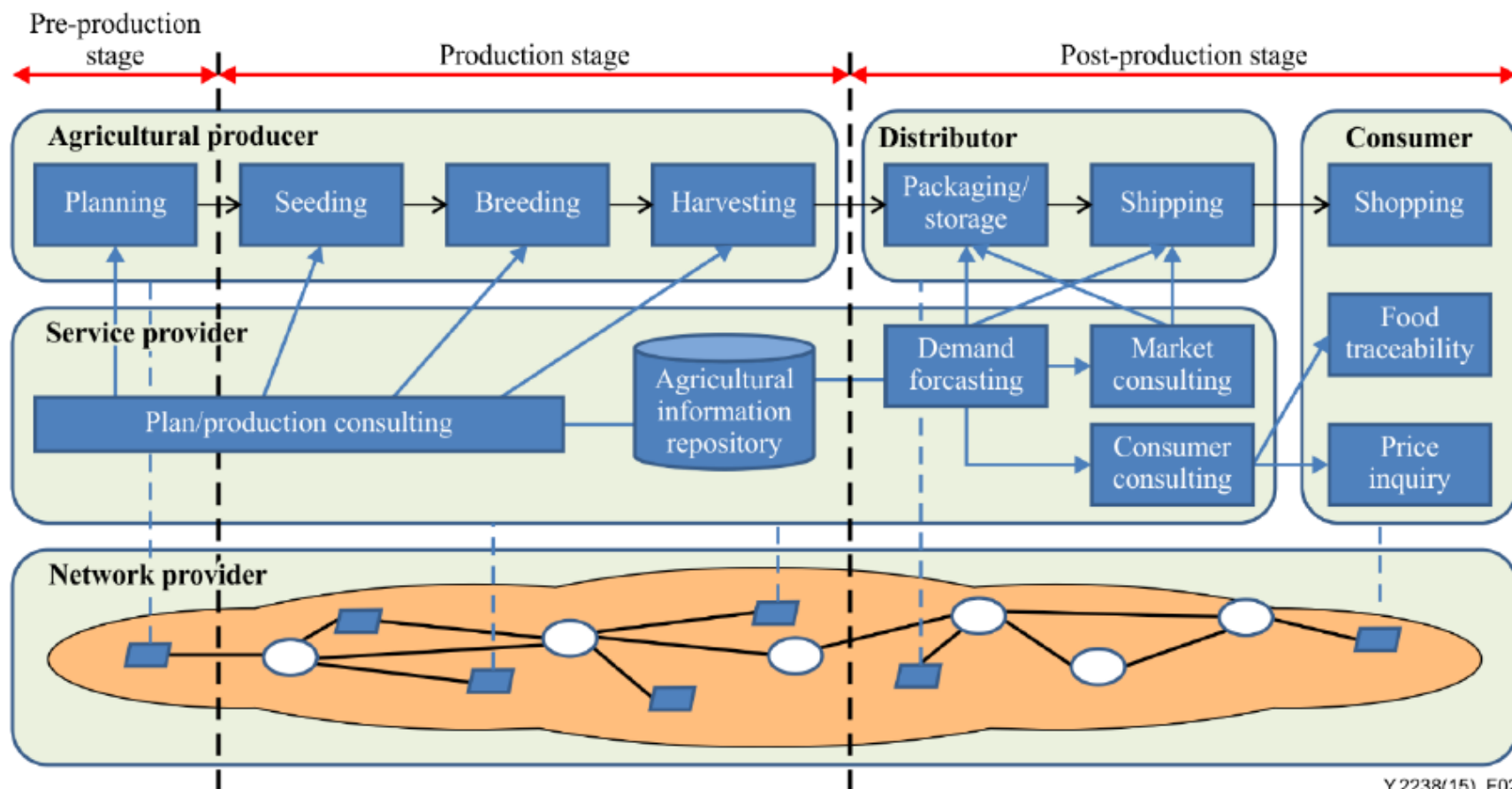
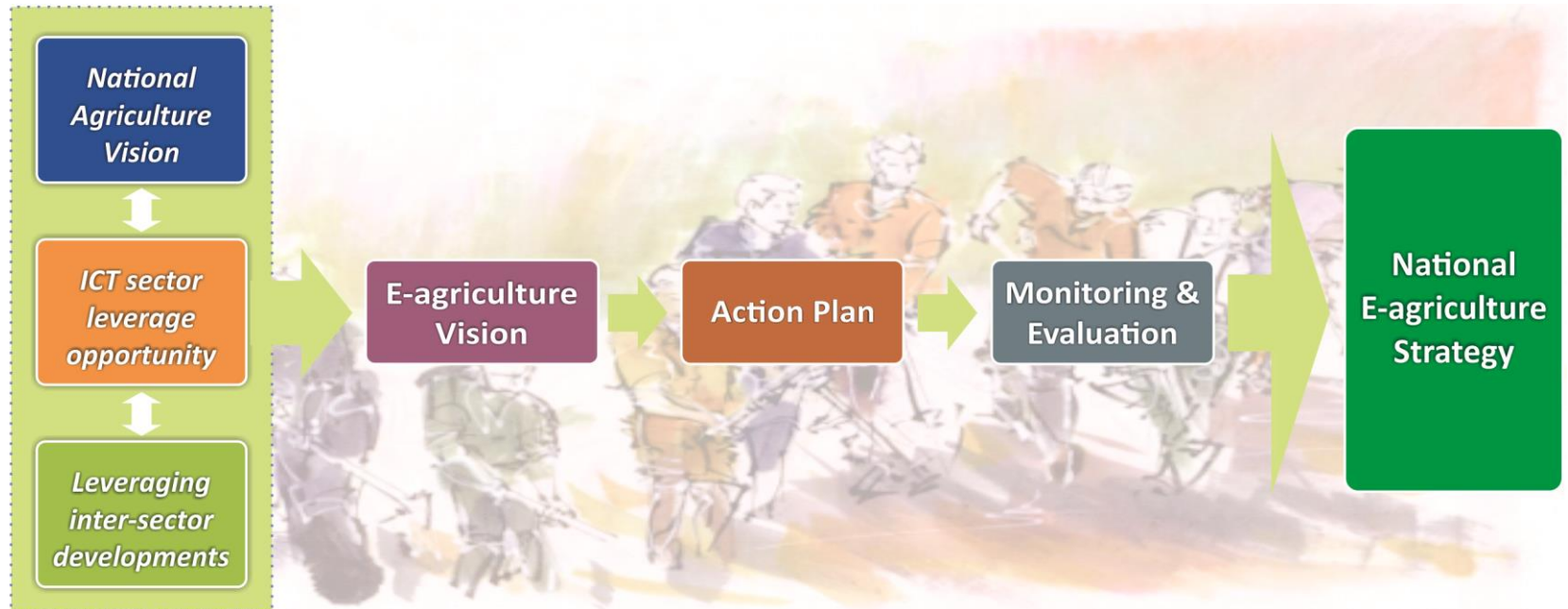


Figure 2 – Reference model of Smart Farming based on networks



Developing e-strategies example: E-Agriculture



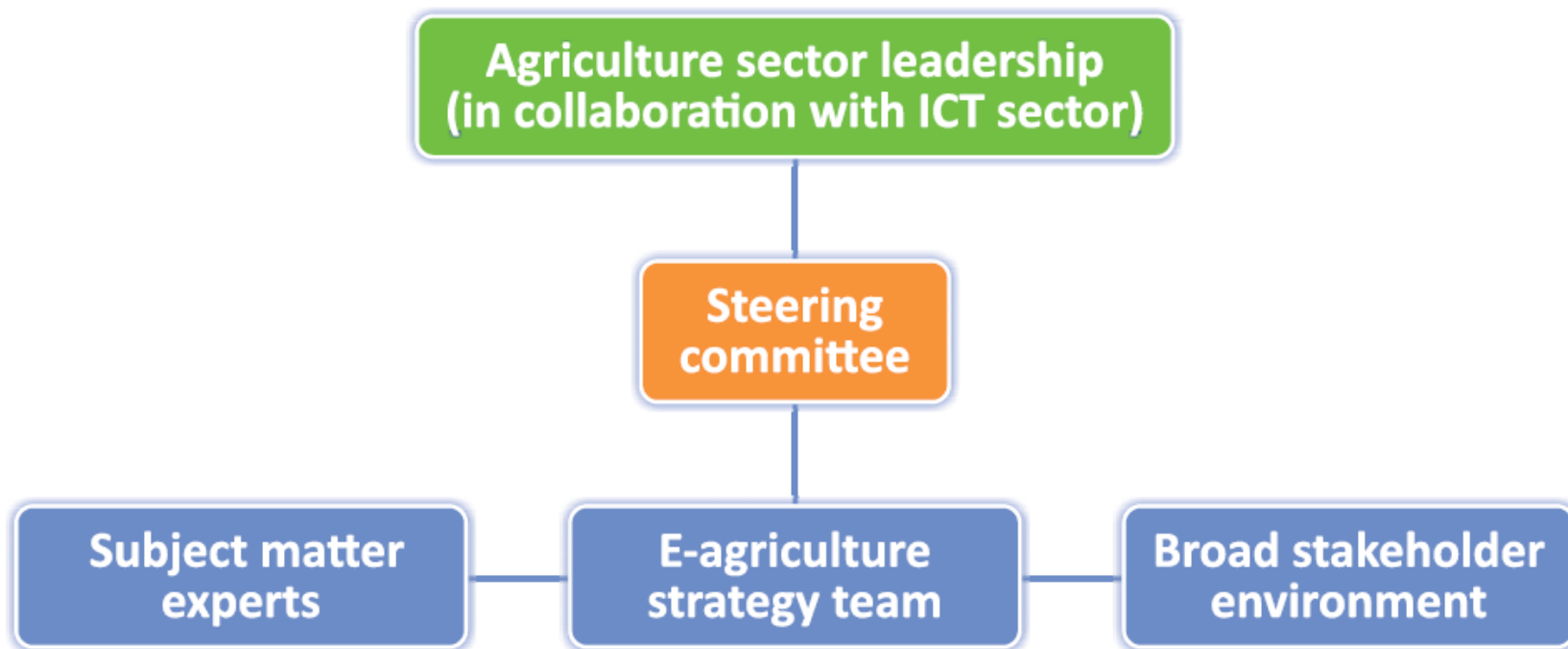
The final outcome is a National Strategy on e-Agriculture comprising of three parts.

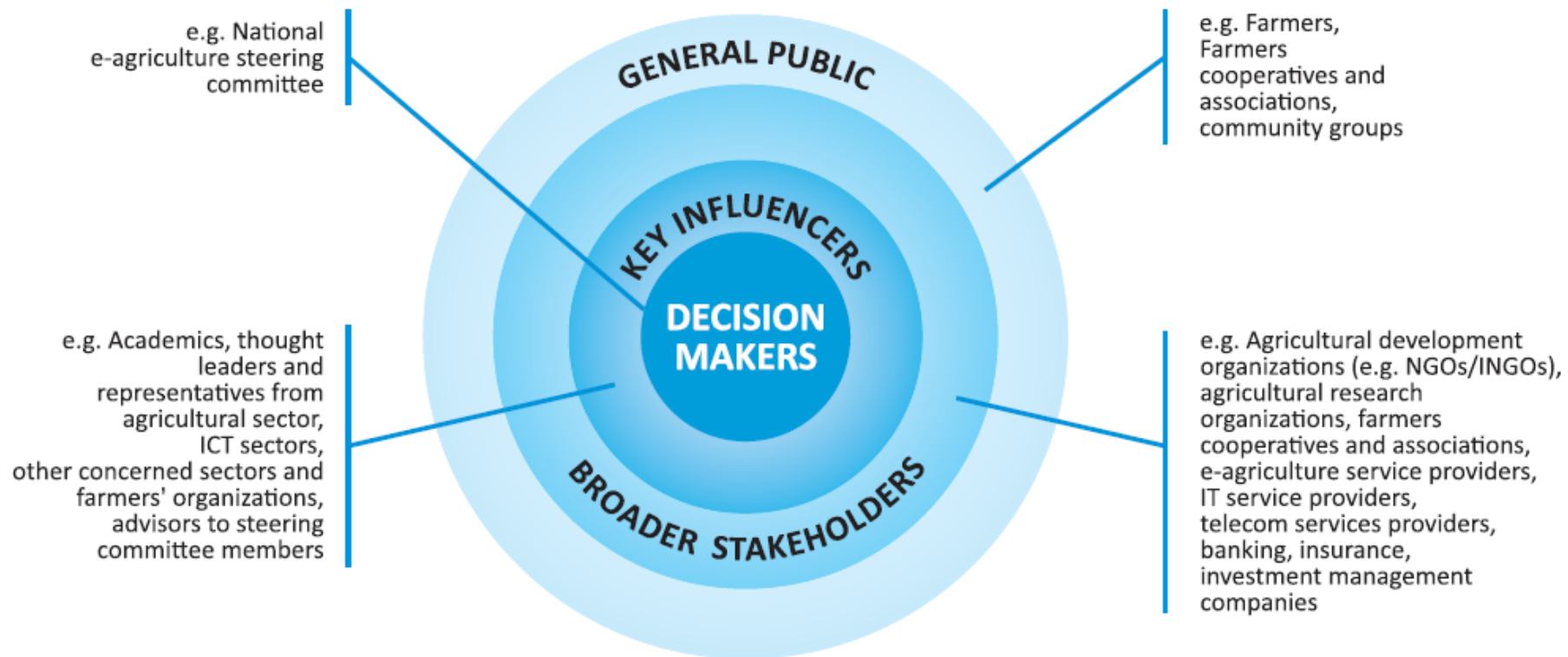
2015-2016: Ongoing assistances to Bhutan and Sri Lanka on development of e-Agriculture Strategy / Masterplan
-2016: Papua New Guinea, Philippines, Fiji, Vanuatu

E-agriculture vision development



- 1 Research agriculture sector growth and demographics;
- 2 Describe the existing agricultural extension systems;
- 3 Describe the existing agricultural services, information flow and transaction streams in agricultural value chains;
- 4 Review the national agricultural strategy, goals and priorities;
- 5 Identify socio-economic development goals relevant to e-agriculture;
- 6 Identify work already done on strategies for e-agriculture;
- 7 Identify goals and challenges where e-agriculture will have the most impact;
- 8 Describe how e-agriculture will support selected goals.







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Approach



Agriculture
Goals 2020

Priorities

Challenges

ICT
solutions

Agriculture Goals
2020

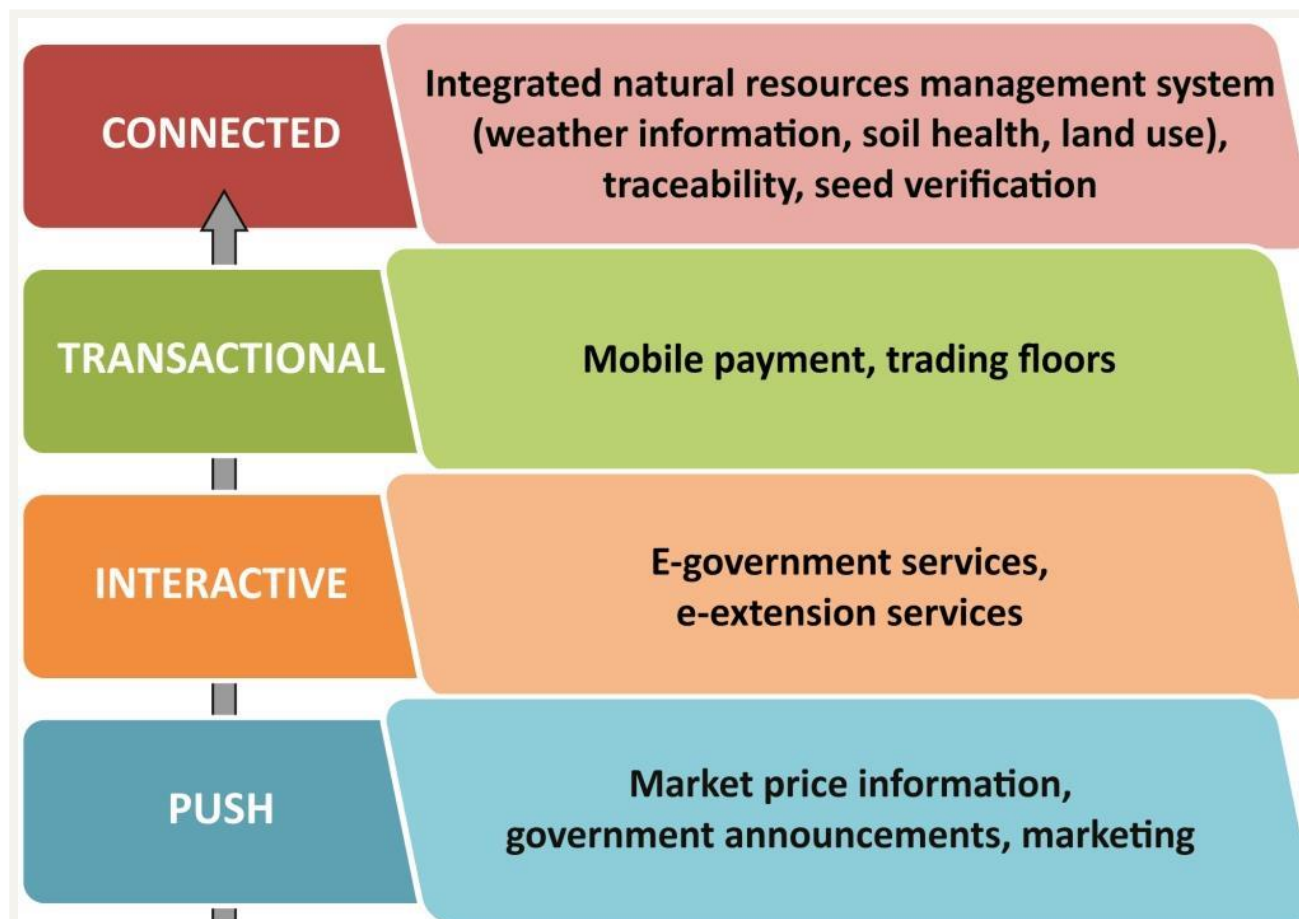
E-agriculture
vision

Expected
Outcomes

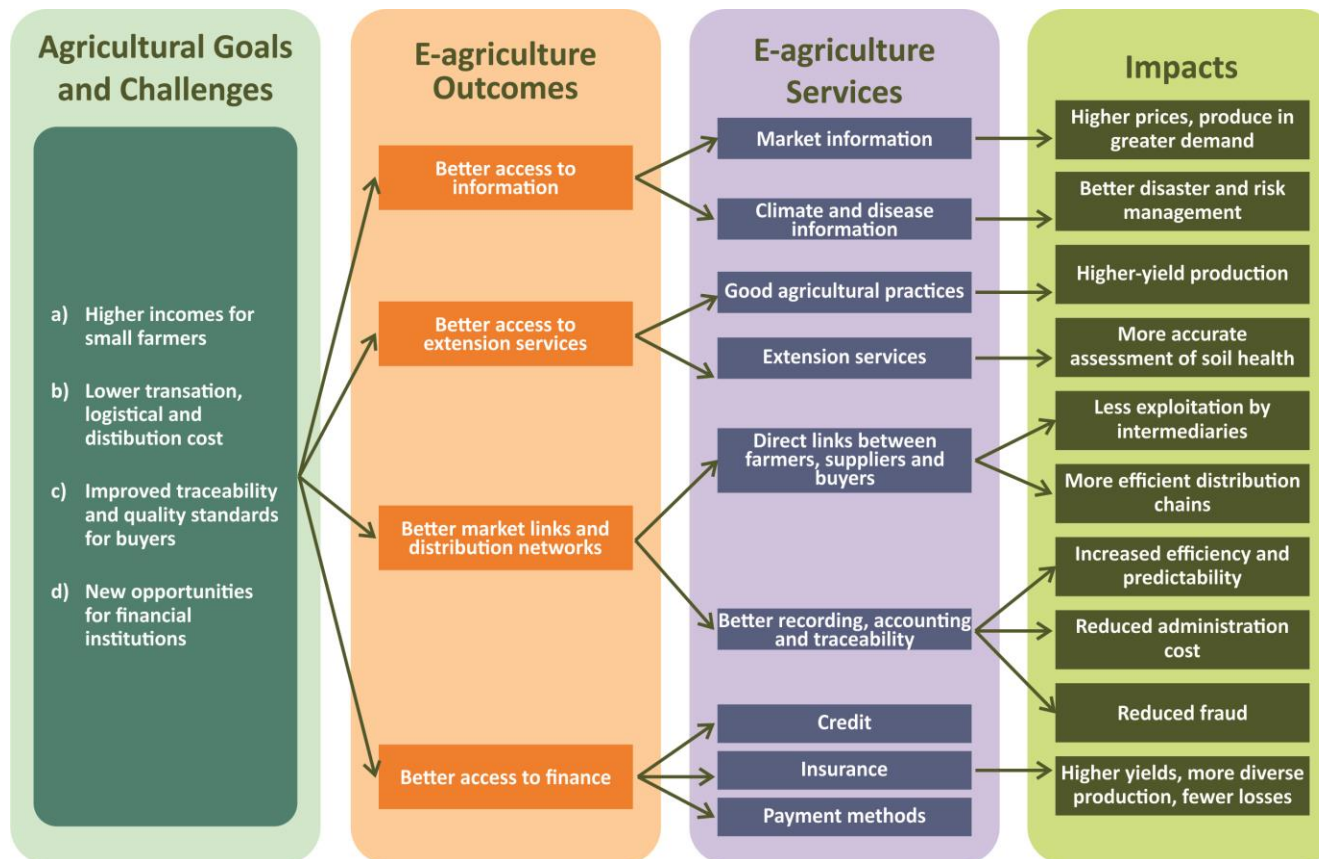
ICT solutions



E-service categories



Outcomes and Services Linkages with agricultural goals



Source: World Bank [adapted] (2011).



E-agriculture components

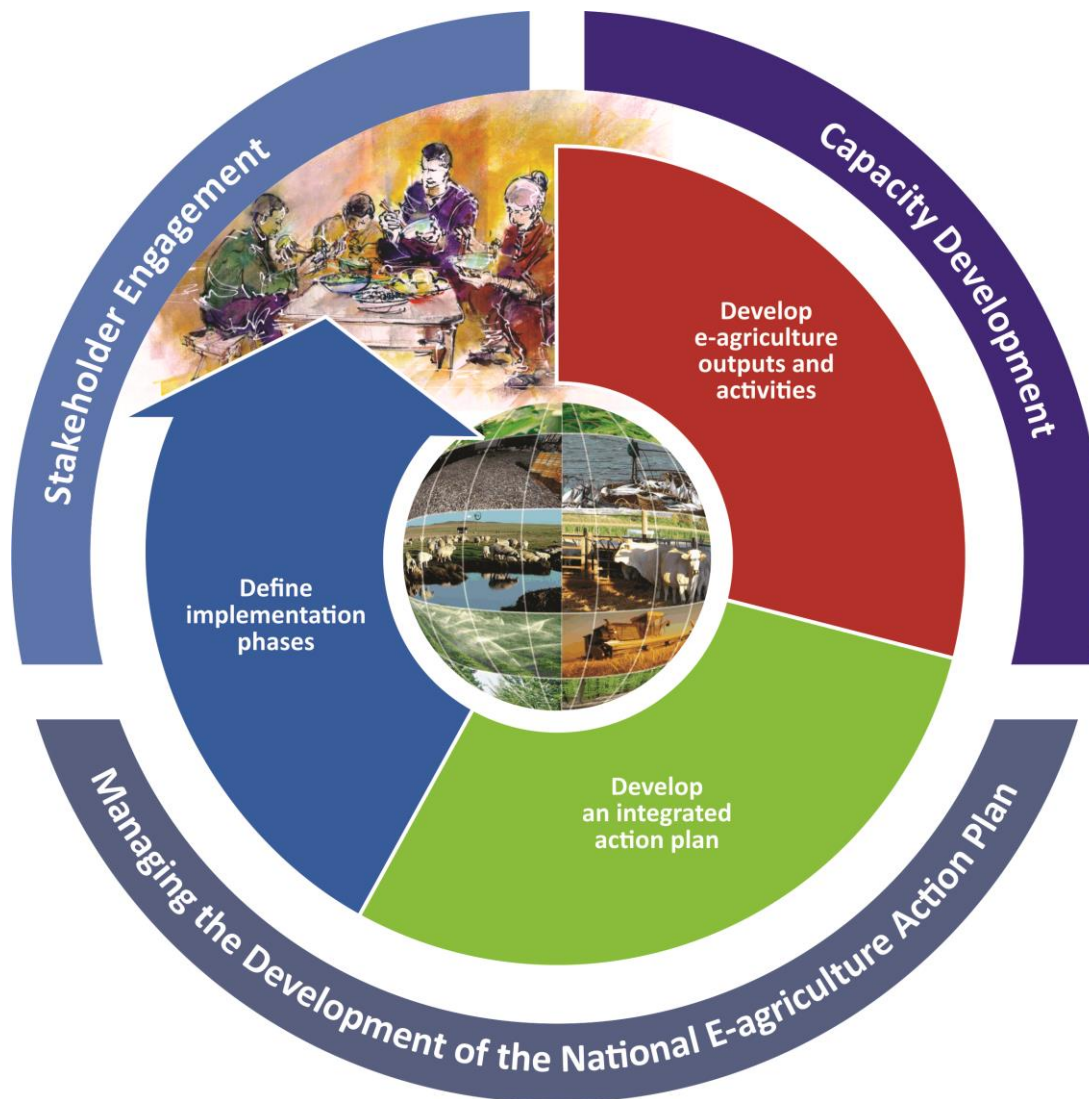




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E-agriculture Action Plan

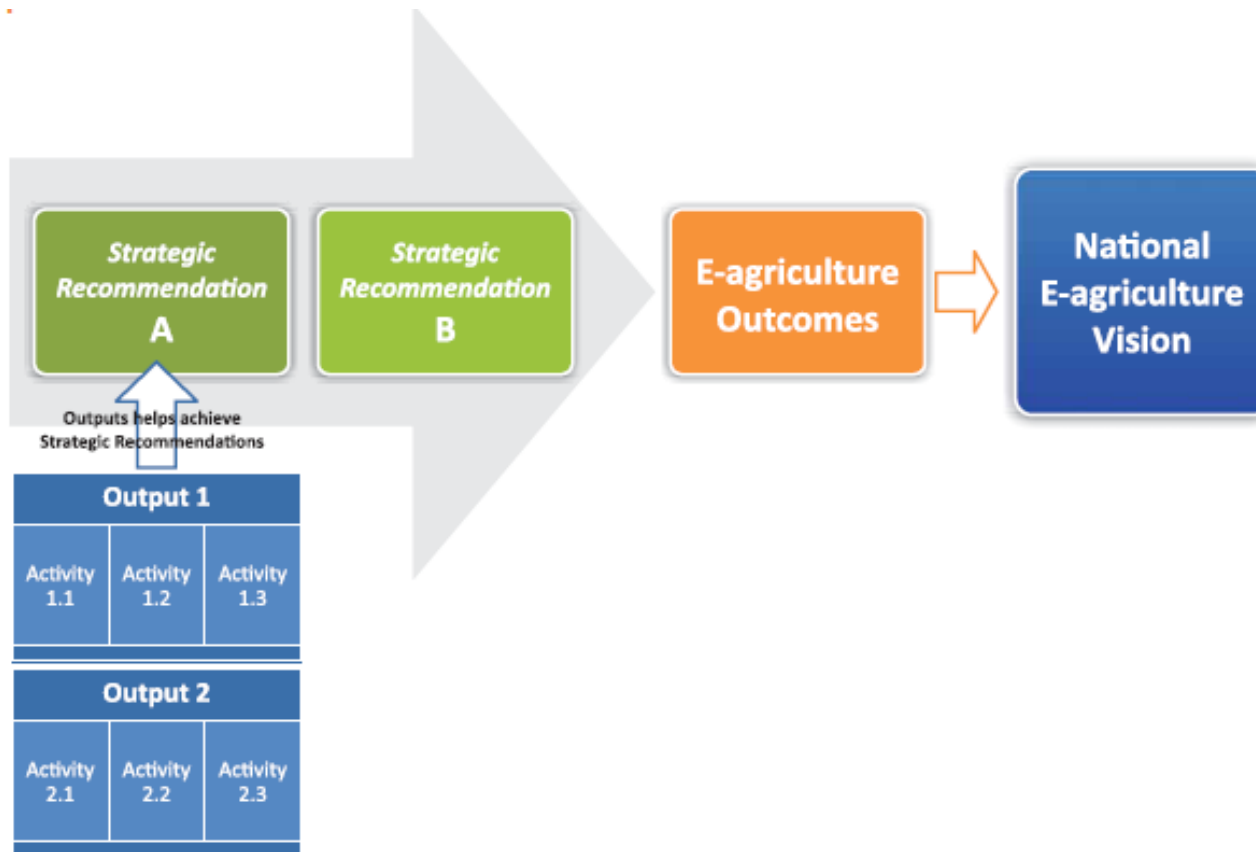




EXAMPLE

Table 2.4.2. Sample e-agriculture action plan

Action Plan in Phases (Outputs and Activities)					
	Year 0	Year 1	Year 2	Year 3	Year 4
Examples (Non-exhaustive) of Outputs					
Interconnection of databases critical for agriculture (e.g. GIS data, Land use, Soil map /land fertility, Forest resources, Irrigation and water management, Bio-diversity, Weather forecasting, Fire history etc.)		Activities	Activities	Activities	Activities
E-market place and information system for agriculture (Creation of e/m-market place, market information and scalable payment systems for national and international, promotion and awareness raising on use of e/m-services;)	Activities	Activities	Activities		
Agriculture e-advisory services (Advisory services offered by extension workers, consultants, researchers in country or abroad through electronic media (phone, Internet, email, video chat), face to face meetings or paper reports)	Activities	Activities	Activities	Activities	
Farm mechanization information and service (Creation of online machine and equipment information system linked with machine availability and rentals)			Activities	Activities	
Universal mobile broadband connectivity	Activities	Activities	Activities		
Logistics management concerning storage and transport (Information management linking agriculture service providers and markets)			Activities		
Electronic pest surveillance system		Activities			
Traceability of agro-chemical movement through value chain			Activities	Activities	
Weather Information Services and alerts		Activities			
Guideline on data sharing, data classification, data formats, secure e-documents	Activities				
Credible GAP content aggregation and packaging (Creation of Agriculture content and packaging for information delivery on ICT channels (video, audio, website, text), streamlining interoperability of future content creation, capacity building, awareness raising)	Activities	Activities	Activities		
Certified higher yielding seeds, planting, breeding materials verification and traceability			Activities	Activities	
	PHASE 1 FOCUS (example) Strengthening existing services, Launch of high impact feasible services, Creating enabling environment for advanced services, Content creation and alignment, Capacity building, Partnerships development, Digital Literacy.		PHASE 2 FOCUS (example) Launch advanced services, Interoperability of databases and application platform, Promote take up of existing services, Enhance integration with existing e-services, Increase private sector engagement, Digital literacy		PHASE 3 FOCUS (example)





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M&E Framework





M&E Framework

Annex 3.2.1. E-agriculture indicator worksheet

Stakeholders	E-agriculture outcomes	Outcome indicators	Output indicators



M&E Framework

Criteria	Meaning
Linked to objectives	Indicators should provide information that can be linked to and support the M&E of e-agriculture outcomes and outputs.
Quantifiable	Indicators should be concrete, as opposed to conceptual, and should be measurable and easily expressed in relevant units of measurement.
Observable	Measurement data exist (or will exist) that will allow an indicator to be derived.
Reliable	The data used for the indicators should not be arbitrarily derived and should reflect accurate, verifiable information as much as is possible.
Controllable	Indicators should measure the results of delivering the e-agriculture action plan, and should be selected to control the potential impact of activities that fall outside the scope of the plan.
Ongoing and comparable	Indicators should provide information that is comparable and relevant across periods, rather than being 'one time' indicators of progress.