Importance of Agricultural Information in the Global Context

Dr. Anton Mangstl

The Food and Agriculture Organization of the United Nations
Millennium Development Goals

• Goal 8: Develop a global partnership for development
• Target 18: In cooperation with the private sector, make available the benefits of new technologies - especially information and communication technologies (ICT)
“Information is vital in the fight against hunger.”

Jacques Diouf
Director-General
Food and Agriculture Organization of the United Nations
Bridging the Rural Digital Divide

What is the problem?

- Hunger & poverty concentrated in rural areas in LIFDCs
- Poor capacity to access information in rural areas
- Information/knowledge gap for rural stakeholders

How many people?

75% of 1.3 billion people living on less than $1/day live in rural areas
Bridging the Rural Digital Divide

What is the development context?

- Millennium Development Goals
- World Food Summit
  - FAO Strategic Framework
  - WAICENT – World Agricultural Information Centre
- World Summit on Information Society
Bridging the Rural Digital Divide

Defining the Digital Divide

Inequitable access to Information and Communication Technologies between wealthy and poor – countries and social groups

The divide has a Urban-Rural dimension
## Bridging the Rural Digital Divide

### Disaggregated data on ICT access

<table>
<thead>
<tr>
<th>GHANA</th>
<th>Major Towns</th>
<th>Other Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Phone</td>
<td>20.5</td>
<td>3.5</td>
<td>1.5</td>
</tr>
<tr>
<td>PC at Home</td>
<td>7.0</td>
<td>2.5</td>
<td>2.0</td>
</tr>
<tr>
<td>&lt;15 mins to Internet cafe</td>
<td>95.8</td>
<td>85.4</td>
<td>10.4</td>
</tr>
</tbody>
</table>

**Source:** [researchICTafrica.net](https://researchICTafrica.net)
Bridging the Rural Digital Divide

Information & Communication for Development (ICD): An integrated approach

The agents of change are the new ICT – But all components must be addressed:

- Connectivity
- Content
- Capacity - institutional and human
ICD – The Main Elements

- **Information Content** – in digital format
- Innovative **Mechanisms** and **Processes** – for information digitization and exchange, and for communication
- **Networks** - amongst key stakeholders
Three components:

- Evidence for validated models
- Institutional learning platform
- Advocacy
USAIN 2006 Conference

Bridging the Rural Digital Divide

Validated Models: Rural Information & Communication Systems

Networking Tools and Processes

VERCON (Virtual Extension, Research and Communication Network)

FarmNet - Farmers Information Network

Food and Agriculture Organization of the United Nations
USAIN 2006 Conference

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Learning Platform Component:

Information Management Resource Kit (IMARK)

Partnership-based e-learning initiative

- **Modules** – CD and Web-based curricula & resources
- **On-line Community** - a "virtual" community for experts and learners
World Summit on the Information Society
World Summit on the Information Society

C7. ICT applications: benefits in all aspects of life: e-agriculture

Activities Include:

• E-Agriculture Working Group and Global Knowledge Forum

• Email & web-based discussions, face-to-face consultative activities, and documentation of case studies/best practices

• Worldwide web-based survey which will help direct future steps in the development of E-Agriculture
From Information to Knowledge
From Information to Knowledge

Two types of knowledge:

- **Explicit knowledge** is “captured” in documents, databases, web sites.

- **Tacit knowledge** is not “captured” and exists in people’s heads and is reflected as insight, judgement, craftsmanship, and creativity.

Two main knowledge management arenas: internal and external
FAO: a Knowledge Organization in the Information Age

FAO’s Knowledge Forum

- Ask FAO
- Best Practices
- Thematic Knowledge Networks

http://www.fao.org/KnowledgeForum/
The Past, Present and Future

Some Tendencies in Information and Knowledge Management
The Web: From Mono-Directional Information Dissemination to Knowledge Sharing

Past

- Information providers
  - Database
  - Websites
  - Provide
  - Consumers

- Web as place to publish information

Now

- Information providers
  - Provide
  - Consume
  - Consumers

- Web as social network

Future

- Information providers
  - Interconnected, shared knowledge bases
  - Knowledge experts

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# Exchanging Information and Knowledge: Human Communication

<table>
<thead>
<tr>
<th></th>
<th>Past</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asynchronous</strong></td>
<td>Letters, fax, e-mail</td>
<td>Mailing lists (Dgroups), Wikis as Discussion Fora, blogs, flickr, Delicious</td>
<td>Personal Content Management Systems with communication extensions</td>
</tr>
<tr>
<td><strong>Synchronous</strong></td>
<td>Face to Face Meetings (Traveling) Telephone</td>
<td>Instant messaging, videophone, skype, videoconference</td>
<td>Web-based virtual face to face-meetings</td>
</tr>
</tbody>
</table>

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# Availability of Information and Knowledge: Information Repositories

<table>
<thead>
<tr>
<th>Past</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paper World:</strong></td>
<td><strong>Still huge amount of paper repositories</strong></td>
<td></td>
</tr>
<tr>
<td>copying of texts,</td>
<td>Distributed, but fragmented linkages</td>
<td><strong>All Information will be digital?</strong></td>
</tr>
<tr>
<td>localized physical</td>
<td>to digital libraries</td>
<td>Information will be available in</td>
</tr>
<tr>
<td>libraries</td>
<td></td>
<td>reusable components</td>
</tr>
<tr>
<td><strong>Digital World:</strong></td>
<td><strong>Metadata harvesting to create new sets of information</strong></td>
<td>standard metadata to access</td>
</tr>
<tr>
<td>copying of files,</td>
<td><strong>Complicated access protocols for</strong></td>
<td>information within communities</td>
</tr>
<tr>
<td>localized digital</td>
<td><strong>distributed searching</strong></td>
<td>reassembling of knowledge objects</td>
</tr>
<tr>
<td>libraries</td>
<td></td>
<td>by users</td>
</tr>
</tbody>
</table>

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# Availability of Information and Knowledge: Scholarly Publishing

<table>
<thead>
<tr>
<th>Access</th>
<th>Past</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost associated to publication (Publisher’s charge)</td>
<td>Growing use of Open Access Model of Publishing</td>
<td>Free access to all the scientific information?</td>
<td></td>
</tr>
<tr>
<td>Format</td>
<td>hardcopy format</td>
<td>electronic full text document</td>
<td>electronic full text and value added service</td>
</tr>
<tr>
<td>Dissemination</td>
<td>based on reference desk services</td>
<td>the Web: - OA Journals - OA Archives - online Commercial Journals</td>
<td>Research Knowledge Networks for Scholarly Collaboration</td>
</tr>
</tbody>
</table>
Classifying Information and Knowledge: From Cataloguing to Semantic Markup

Past

Authors

articles, books, journals...
cataloguers

plants
products
*cereals
*rice
*...
RT grain
classical thesauri

edit

theses editors

Now

many actors contribute and edit

ontologies + other
knowledge org. systems

digital libraries

hybrid approach

Future

automatic classification of content

networked ontologies

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### Accessing Information and Knowledge:
#### Search Engines and Semantic Feeds

<table>
<thead>
<tr>
<th></th>
<th>Past</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Search Engines</strong></td>
<td>Library catalogues -&gt; search and meta-</td>
<td>RSS feeds as “push technology” with repurposed</td>
<td>Personalized search results using relevancy ranking</td>
</tr>
<tr>
<td></td>
<td>search engines</td>
<td>information; Semantically (RDF-based) enriched feeds</td>
<td>methods</td>
</tr>
<tr>
<td><strong>Semantic Feeds</strong></td>
<td>newsletters -&gt; manual feed creations (list</td>
<td>every web portal will be a personal web portal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of links)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### The Role of Librarians and their clients

<table>
<thead>
<tr>
<th>Librarians</th>
<th>Users</th>
<th>Past</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answering user requests for information based on local and distributed library collections</td>
<td>strongly dependent on librarians to access information collections</td>
<td>Information brokers have to use the entire web now as their collection but still mostly based in physical libraries/ with collections</td>
<td>try to search online through search engines and catalogues, less frequency in library</td>
<td>Virtual librarians will have the ability to work from any location in the world much stronger link to business processes and needs</td>
</tr>
</tbody>
</table>

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### Web Statistics: learning from your users

<table>
<thead>
<tr>
<th>Past</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hits counting on web site (from circa 1994)</td>
<td><strong>Statistical Web Traffic Analysis</strong></td>
<td><strong>Advanced Web Traffic Analysis</strong></td>
</tr>
<tr>
<td></td>
<td>• how many hits</td>
<td>• detailed identification of user</td>
</tr>
<tr>
<td></td>
<td>• which pages used</td>
<td>• what they are looking for</td>
</tr>
<tr>
<td></td>
<td>• computing environment</td>
<td>• how do they use your site</td>
</tr>
<tr>
<td></td>
<td>• how they found you (search engines)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• how long they are with you</td>
<td></td>
</tr>
</tbody>
</table>

**Big problems with ethical privacy issues**

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Dr. Anton Mangstl

For more information
http://www.fao.org/gil

Other resources:
Bridging the Rural Digital Divide: http://www.fao.org/rdd
IMARK: http://www.imarkgroup.org
Agricultural Information Management Standards: http://www.fao.org/aims

World Summit on the Information Society:
http://www.itu.int/wsis/c7/e-agriculture/index.html

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