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# THE DIGITAL FUTURE OF SCIENTIFIC AND TECHNOLOGICAL INFORMATION (STI) IN THE SUDANESE RESEARCH COMMUNITY PPT

**Morgos, Dr Rafaa A. Ghobrial**

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# Digital future of Scientific and Technological Information in the Sudanese Research community

**Dr Rafaa A. Ghobrial Morgos**
**Director, Documentation and Information Centre,**
**Khartoum . Sudan**

# Outline

- Introduction
- Research questions
- Objectives
- Methodology

- Information and Communication Technologies (ICTs) in Sudan
- Scientific research community

- Scientific and Technological Information (STI)
- Results and discussion

- Recommendations and Conclusion

# Introduction

- Sudan is rich in heritage, in arts of ancient science, writings, inscriptions, creative industries, with tremendous traditional knowledge, research outputs and studies
- Some of these are the life experiences and traditional products of the Sudanese society.
- The real income of the rural nomadic segments and satisfies their basic needs.
- Various sectors provide unprecedented information to broad categories of the public in spite of the knowledge gap.

# Research questions ? raised

- What is the role of information systems and technology in discovering areas of research that lead to economic development?
- Which information is most important for researchers to know?
- What are the best ways to transmit that information from one person to another, i.e. information exchange, and to represent and display information for it to become understandable and researchable?
- How can the digital future be developed further?

# Objectives

- To optimize the use of information and knowledge systems in the research community
- To explore new areas of research and the adoption of new technologies.
- To study the anticipated values of the digital future

# Methodology

- Documentary analysis to analyze current ICT, Research Community and STI
- Survey via questionnaire targeting researcher to identify the place of digital technology requirements, and future digital plans and programmes in the research community: a random sample of 80 researchers (professor, associate professor, assistant professor, researcher )
- Interview of some Information Professionals

# ICTs in Sudan

- important pillar of economic and social development based on scientific and technological development
- Adoption of the National Strategy for the IT Industry in mid-2001 based on
  - the institutional frameworks and legislative and regulatory structure;
  - promotion of competition and innovation, capacity building and human resources;
  - infrastructure development via information networks;

- Partnership between public and the private sectors;
- Allocated support funding contributed to a number of projects such as
  - a computer/family including lecturers and researchers;
  - school computer;
  - e-government project;
  - Sudan Universities Information Network
  - Electronic banking services

- **NATIONAL INFORMATION NETWORK (NIN)**

- **Linkage of federal Government with states, and Ministry of Cabinet and other ministries and localities;**

- **increasing the capability for participation and communication in a timely manner via emails and video conference;**

- **the process of expanding connectivity of information networks allows connections; economic certified techniques for satellite and mass media network; internet service providers and wireless facilitate all communication services.**

# Scientific Research Communities

- 1902: to improve production

NCR

- 1970: national body responsible for formulating policies and plans and coordinating national efforts in this respect
- 1991: affiliated to Higher Education; realization of importance of economic development;
- 2002: Ministry of Science and Technology (MOST) established for science and technology strategy

- National Quarter Century Strategy (2007-2031) gives long term perspective of S&T development in Sudan

- The Five-Year work plan (2007-2012) is targeting information, communications and technology and the development of scientific research.

- Unfortunately, the implementation of these comprehensive strategies, was not however fully carried out mainly due to the inadequate financial and human resources needed for S&T development.

# 2011 MOST plans have formulated about 337 research projects of which 20 are centred on knowledge, as follows:

- ICTs services and sources.
- Sudan National Grid
- Innovation and Informatics' Compound
- Electronic union catalogue of Ministry of Science and Technology Libraries
- Computer industry and assembling.
- Atlas of local names of Sudanese medicinal and aromatic plants
- Medical traditions and practices
- Databank of Sudanese Scientific Research outputs

# Scientific and Technological Information (STI)

- vital for the management of science and technology
- effective for S&T needs and a sufficient resource base.
- achieve a balance between change and traditionalism;
- building the Sudanese national identity.
- significant amount of information accumulated annually covering wide range of scientific aspects such as research projects, reports and publications; constitutes "Collective Scientific Memory" of the shared knowledge;
- ICTs promote technology transfer and ensure high quality research services: takes place at both strategic and operational levels.

- widespread access to personal computers and Windows-based relational database management software in the nineties;
- isolated efforts towards building useful databases;
- stand-alone databases were mostly confined to a single personal computer;
- islands of data suffered from inconsistency and lack of cross linking, and were subject to partial or permanent loss due to lack of proper back-up procedures;
- repetitive data manipulation tasks across databases were also common practice and their reporting tools were not adaptable to rising needs and certainly lacked uniformity.

- Access to this vast quantity of e-data is essential for innovation, because most new ideas are built on previous research, and to safeguard our scientific heritage.

- This wealth of information must be adequately preserved for future generations and for online access to the world's scientific literature.

- Direction of scientific research publishing; announcement of scientific research outputs.

# Results and Discussions

## Situational analysis

- ICTs in all dimensions will play a key role in the transmission of information in the research institutions;
- Positive response to ICTs; fits with the needs of users.
- The contents, structures and accessibility of larger systems secure quick and easy access to information and knowledge accumulated in documents.

- Adoption of new standards of content quality which facilitate accessibility, affordability and availability.

- ICTs enable organizations and individuals to build and generate knowledge.

- ICT infrastructure has increased integration of telecommunications, software and information networks, radio and television systems and databases and other forms of information technology institutions to form the Global Information Infrastructure.

- Digital publishing is considered as the lifeblood of information flow in the veins of the networks.

- the Digital Strategy has become a core element of the growth and innovation framework within Government initiatives to create a Knowledge Society and national identity. This strategy requires new expenditures, programmes and financial support.

- A digital future for all Sudanese using the power of ICTs to enhance all aspects of our lives. In the digital future digital technologies will create values for the researcher and connect to new markets and services. and will be delivered through many channels in urban and rural areas.

# Descriptive analysis of questionnaires and interviews

- **The questionnaire was constructed to generate data for information users (research) to gather their opinions about existing STI systems, usage of internet resources, evaluation of internet resources and the reasons for not using the internet.**
- **Questionnaire was analyzed after appropriate follow up with researcher responses (78.66%).**
- **How many research units are connected to the Internet system electronic/digital collections and available computers?**

  **82.3% of respondents indicated that their computers connected to internet. Most use their laptops.**

- Where they do find the source/information materials to produce their publications?

11% indicated they found the information from library and research institution collections and 69.0% indicated they found the information from the Internet; 20% from other sources.

- atmosphere and appreciation of ICT, the levels of connectivity and infrastructure are limited.

# Reasons for using Internet rather than library

- It is a very useful communication technique for contact; and current information is easily found;
- It is good for scientific information references and documents;
- Because it gives us new information – updating knowledge.
- It is international and universal;
- Very recent contact and up to date innovation;
- In a very short time very easy to get more information i.e. save time, easy to access;
- Update information - keep connection with all the people in area of interaction;
- Availability of Internet greater than that of the library which has specific times; poorness of library and some reserve the old collection specially in updating of knowledge;
- Accessible scholarly electronic materials.

- Much literature both published and unpublished is being produced externally.
- Many research materials are used by various research institutions.
- Main outputs were research results in the form of papers in scientific journals and workshop proceedings, technical reports, newsletters, pamphlets, training materials, maps, etc.
- But none of these publications were published on research unit websites and there is not any mechanism for delivery of these publications to the end users.

- Sudanese research community increasingly responds to their new environmental conditions in which competition rather than cooperation.
- There is no cooperation between research institutions in terms of information and knowledge sharing.
- There is no mechanism to link such research outputs and disseminate them to society.
- Sudanese Universities Information Network SUIN is in progress, but it seems that research centres and academic institutions are not moving fast towards this network for knowledge sharing and exchange because of high costs and inactive links, as indicated by some administrators.

# Recommendations and Conclusion

- Build structures and bases of the information society and knowledge, to take advantage of technological development of the modern present;
- The study proposed a digital institutional system;
- Digital system for S&T knowledge sharing and exchange;
- Intranet approach should be considered at ministerial level as a tool for knowledge sharing and exchange in the digital future.

It is concluded that the digital future of scientific knowledge is the mirror that reflects and keeps pace with the investment capacity of Sudanese compliance technologies and the adoption of modern research and excellence projects, and opens the way to share knowledge and benefit from access to the technology boom and sustainable development.

# Thank for Your Listening

rafaasham@yahoo.com