Innovation in the knowledge society within the African context

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ICT and Digital Libraries for Development

- Digital Libraries
  ICT applied to digital information: storage, discovery, distribution, preservation, enrichment, ...

- ICT for Development
  ICT applied to development challenges: education, healthcare, freedom and democracy, equality, poverty, ...
Defining Development

“Development requires the removal of major sources of unfreeds: poverty as well as tyranny, poor economic opportunities as well as intolerance or overactivity of repressive states.”

The African Context/Question

- Do we as Africa need to innovate:
  - more?
  - differently?
  - faster?
  - more urgently?

- Do we build digital libraries differently in Africa?
- How do we build DLs for Development?
Examples: What We Do Not Need

- applications that waste bandwidth
  - e.g., video where text will work fine
- solutions that require lots of money+staff
  - e.g., outsourced digital archives
- expensive technology
  - e.g., replicated NAS/SAN storage
- solutions that lock us in
  - e.g., iPad-specific solutions
Principles of DL4D

- Efficient bandwidth use
- Advanced technology
- Appropriate technology
- Local relevance
- Modernization instead of Africanization
- Global applicability of solutions
- Minimalism of staff/money
- Multicultural/multilingual inclusivity
Implementing DLs for Development

or … ways in which we are innovating

- alternative archive infrastructures
- cloud computing
- mobile technology and learning
- bandwidth-sensitive information applications
- multilingual IR
- heritage preservation
Simple Archives

- simple storage structure
- files, no databases
- lower resource requirements
- cheap preservation!
- good performance for small to medium collections
- easy to use and expand

Phiri Lighton, Zambia
Cloud-based Archives

- individual services and whole archives in private clouds
- install locally
- reduces need for skilled staff
- instant archives
- shared resources
- automatic scalability
- acceptable performance, after cache priming
- user studies in progress

Lebeko Poulo, Lesotho
Mushashu Lumpa, Zambia
Learning on the Go

- access learning resources on mobile devices
- >50% of CS students at UCT and Makerere have smartphones!
- services+information reorganised for device
- cross-platform+integration
- usage increases with reconstituted interfaces

Grace Ssekakubo, Uganda
Low-bandwidth Collaboration

- collaboration software for low bandwidth use
- dynamic bandwidth use
- priorities for services for best user experience
- measured bandwidth was often suitable for 56k modem!
- user experience carefully managed

Tresor Mvumbi, DRC
Flora Kundaeli, Swaziland
Zafika Manzi, South Africa
Multilingual Information Retrieval

- search queries with multiple languages
- current systems biased to one language
- rerank documents by understanding query and reweighting languages/results
- better quality results found, higher up in results

Mohammed Mustafa Ali, Sudan
Heritage Preservation: Bleek and Lloyd Collection

- offline+online digital archive
- multiple modes of use to deal with network availability
- cacheable
- no server required
- no database
- preservation by copying

(me)
Language Preservation: Online |Xam dictionary

- visual dictionary of |Xam language
- simple archive foundation
- client-side processing as far as possible
- linked into Bleek and Lloyd

Kyle Williams, South Africa
Document Transcription: Bleek and Lloyd Stories

- crowdsourced transcription application
- volunteers to convert images to text
- automated algorithms to check and assess quality
- interactive Web interface for users to enter text
- 10% better than AI approaches!

Ngoni Munyaradzi, Zimbabwe
Concluding Thoughts

- Some people DO innovate in Africa.
- We are not special. We produce local solutions with global applicability.
- Innovation in the African knowledge society must be driven by principles.
- Innovate to empower and make progress.
- Do not waste time!
  - Who is a librarian? Nobody cares!
  - Innovate now or someone else will!
that's all folks!

questions?

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