

Gleaning from Pro-poor ICT experiences to address challenges faced by Uganda's nascent research and education network.

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Presentation Overview:

- Method
- Context
- Experiences
- Lessons
- Best practice [3]
- Conclusion
- Recommendations
- Tools [2]
- Destination

Method

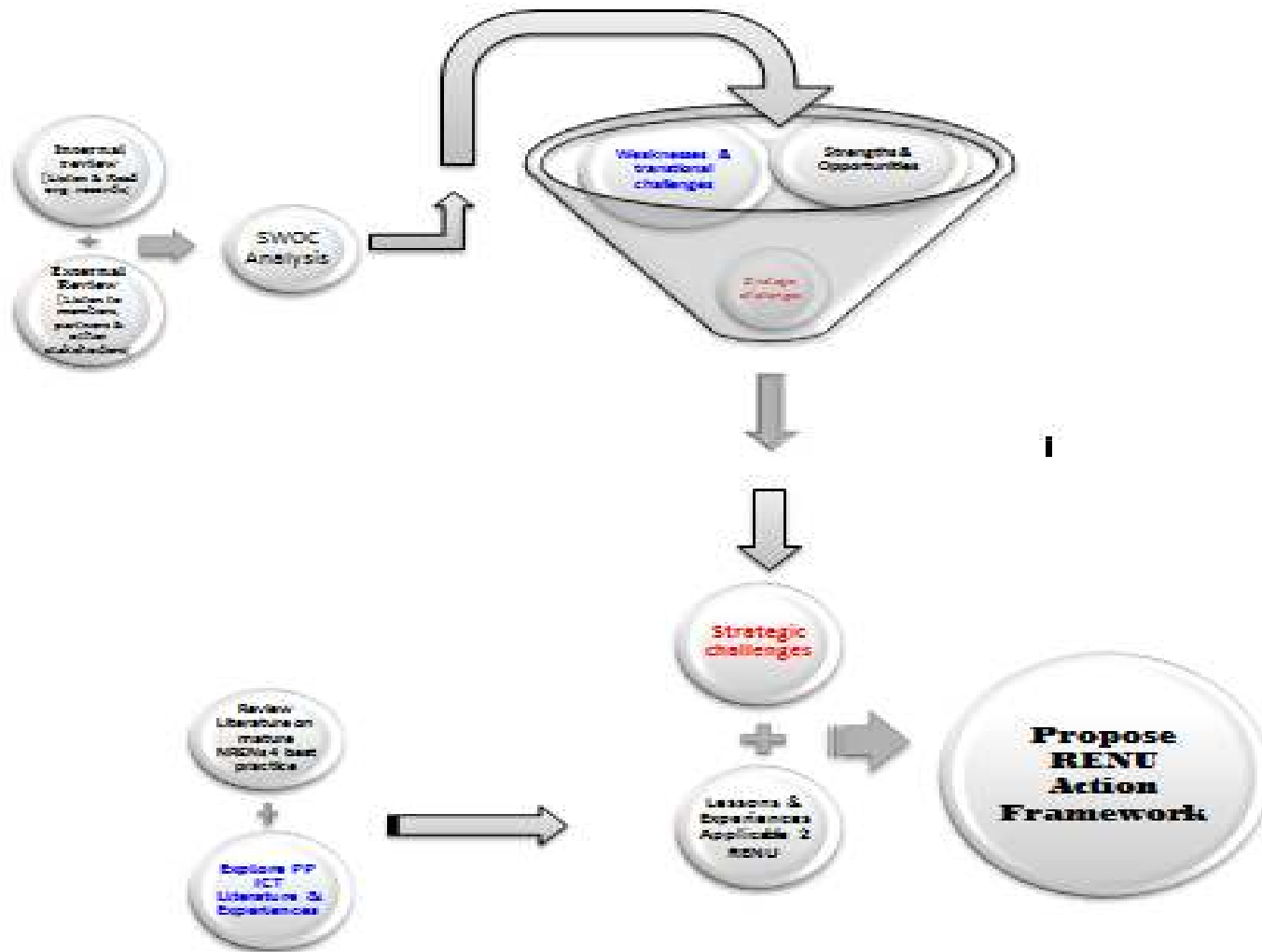


Figure - 1: Process diagram for gleaning from Pro-Poor-ICT experiences to address challenges faced by RENU

The Context:

- ❑ National research & education networks (NRENs) are globally acknowledged as a mechanism for ICT-enabled support for Research & Higher Education Collaboration. Establishment of an NREN in each country is part of **WSIS target No.3**, which is linked to millennium development goal No.8 [To Develop a global partnership for development] & can also be a subsequent action for goal No.2 [To achieve universal primary education].
- ❑ NRENs have been a major driver of research development and education transformation in many developed economies. Where they have been fully harnessed, NRENs have caused extensive growth of the information society, knowledge-based economies and also resulted in much greater utilisation of the Internet for economic purpose as well as more affordable access to the Internet for end users.
- ❑ Research and Education Network for Uganda (RENU) is Uganda's Nascent NREN that was established by the forum of Vice chancellors & CEOs of research organisation during a 2-day workshop in January 2006.
- ❑ The high level basis for NREN development in Uganda is three folds:
 - First of all, the primary basis is the millennium development goals through the targets and performance indicators specified by the World Summit on the Information Society (WSIS) Geneva plan of action.
 - Secondly, NREN development is linked to Uganda's national ICT policy and the Policy for ICT in the Education sector -2006.
 - Thirdly and specifically, Uganda's NREN (RENU) started as a result of a resolution made by the forum of vice chancellors and heads of research institutions during their meeting in January 2006, when they resolved to create the Research and Education Network for Uganda (**RENU**) as a vehicle to support collaboration among research and higher education institutions (nationally, regionally and globally) in pursuit of the common aim to enhance research output and higher education delivery for the faster development of Uganda.

Pro-poor ICT Experiences

- From the various Pro-poor ICT initiative case studies, it is evident that experiences varied from country to country and from project to project. It is thus clear that in determining factors like ownership model, business model and choice of partners, there is no one-fits –all solution. However some experiences were fairly consistent in a number of cases reviewed and these include:
 - Over-reliance on use of imported technology & foreign innovations often results in partial success to address challenges. For instance, the pro-poor project reported by DHAN foundation that worked with solutions developed by a local university was able to achieve much *improved infrastructure sharing* and substantial *per unit cost reduction* in a much shorter time.
 - For many Pro-poor ICT projects, financial sustainability is often a challenge and due to inappropriate project conception, usually the pilot phase is not long enough to provide adequate testing of concepts and may result in failure to observe important lessons & outcomes.
 - It was also noted that three variants of community-based cooperative (CBC) ownership models can be adopted depending on the local conditions and operating environment & these are community-based rural local authority-owned; community-driven cooperative enterprise (CDCE) model and community-driven hybrid model (with a combination of community and private investors' ownership).

Some of the Lessons:

- CBCE requires lower investment level by drawing on local resources, grants, in-kind help, public-good rationale. Its “ROI” can be low & yet thrive.
- Community needs/demands should drive direction of ICT initiatives.
- Important to ensure 1st things 1st: by putting early emphasis on awareness, ownership, effective M&E & a proper understanding of community needs.
- Technologies best suited to CBCE model will usually have these features: Low CAPEX, be highly scalable, easy D, O & M, shared access, open standards, Adaptable & support seamless convergence (V, D & MM).
- Importance of financial (sustainability + affordability) of services to target communities so effective sharing mechanism & innovation are vital .
- Proliferation & efficiency of PIP does make community networks & cooperatives obsolete but pursue practices that nurture them.
- Need to do PEST analysis since suitability of models varies with place.
- Noted that power & control issues can have negative effect on a project.
- Noted importance of clear agreements.
- Noted that Content development can drive usage growth.
- Noted importance of Govt. endorsement.

Best practice - 1

8 Steps for implementing community serving ICT initiatives (addressing an access gap):

- Emphasis on ownership & members' buy-in (what operating model?).
- Be clear about and respond to community needs & usage requirements.
- Design sustainability into the strategy.
- Integrate ICTs into members' core processes.
- Prioritise collaborations & partnerships.
- Emphasize innovation + use ICT to support innovations.
- Identify key ICT-enabled activities & build users' capacity to maximize usage.
- Engage & lobby to achieve policy adjustments.

Best Practice - 2: Fill the **access gap** (the Cooperative spirit).

The Power of Collective Action!

[NREN => Transformative Potential of Cooperation & Collaboration]



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Best practice-3: Balancing the functional layers of an NREN



- A Cooperative enterprise
- A Community-owned Network (R&E-Community Network)
- A Mechanism to Facilitate Research Collaboration
- A catalyst for Research output growth & use.
- A Mechanism to enable more affordable access to R&E resources
- A Catalyst for Transforming Teaching & Learning.

Conclusions

- ❑ Study verified that many parallel principles & concepts do exist between Pro-poor ICT initiatives and NREN development initiatives, especially in a resource-constrained environment, since both address ICT *access-gaps*.
- ❑ *It explored* how NREN development in Uganda can utilise lessons & experiences from Pro-poor ICT work to address its challenges.

- ❑ 3 Key Lessons stood out:
 - The importance of nurturing a cooperative culture¹.
 - Overcoming the high infrastructure-cost obstacle by deepening sharing.
 - The importance of meeting the community's unique needs adequately and in an affordable manner, in order to remain relevant.

- ❑ Identified analytical techniques to support the strategic plan for RENU II.
- ❑ Highlighted issues to address to overcome strategic challenges to RENU
- ❑ Noted need for effective strategic plan and action framework.

Recommendations

- ❑ To come up with a strategic plan to enable RENU operate efficiently & effectively serve the Uganda R&E community.
- ❑ A 3-stage planning process to do short term, medium term and long-term (strategic) planning.
- ❑ This should be preceded by a careful analysis process covering:
 - Adequate and holistic assessment of the operating environment.
 - A review of and update of needs assessment previously done.
 - Determining an appropriate operating model that specifies a suitable business model, an ownership model and a financing model.
 - An accurate assessment of factors that will ensure competitiveness and sustainability.
 - Making proper use of the specified best-practice.
- ❑ Table-1 is recommended for basic value chain analysis with 3 factors for enhancing competitiveness & table-2 is recommended for addressing the 3 identified strategic challenges.

Tools:

Table-2: Proposed Strategic Challenges Action Framework.

PROPOSED ENHANCED-VALUE CHAIN TABLE FOR RENU						
VCA Name:	Inbound Logistics		Operations	Outbound Logistics	Marketing	Service
VC Elements:	RREN Services	National Links	Equipment, Opex. [VA: < \$20/Mbps]	RENU Net Backbone	Awareness: Communication & Information (ACI).	Member Support.
Key Actors:	UbuntuNet Alliance	NITA-U Other PIP	UCC, BoD, RENU Staff	RENU-Tech Staff	Internal OR External HR	NMC Te
Competitiveness Enhancing mechanisms:	UA PoPs + Intl Links + E-Infra.	Local fibre + Colocation	RENU NOC, Content-Cache Capacity building	RENU PoPs	Web + Social media + Email	NM Too
1. Buy-in & cooperative spirit						
2. Extended Sharing	ESA NRENs, Afr. RRENs	RENU members, Gov. MDAs	UG R&E Inst. TD Access	R&E Inst. UA traffic.	Work with some partners to extend info dissemination.	Outsource some to able members
3. Technology & Innovation	Global KS		BW Exchange			

Table-1: Proposed Value chain table for RENU

Strategic Challenge	Intervention(s)	Specific Actions	How?	Time frame	Performance Indicators.
Absence of an optimum Operating Model	Adopt the Community-Based Cooperative Enterprise (CBCE) model	Adopt a community-driven approach to providing NREN services.	1. Assess needs & readiness level. 2. Involve members in deciding services.	Over 2 Years	1. Number of new institutions covered 2. New services proposed.
		Establish a community owned network, belonging to R&E institutions	1. Representative BoD 2. Establish 4 fora for communities of practice: <i>ICT DIRs, Librarians, Researchers & Executives</i>	On going	1. No of institutions represented on BoD. 2. No of community of practice meetings per year.
		Balance between meeting unique community needs, sustainability, enterprise & innovation	1. Representation of all stakeholders in strategic planning. 2. Appropriately recognize performance & innovation	Every 4 years	1. No of people attending SPM 2. Outcome of staff performance evaluation.
Lack of ownership & members buy-in	Deepen Cooperative spirit & culture	Help top leaders of member institutions to appreciate the rationale for NRENs	Sponsor VCs/DVCs, US & CEOs of RIs to UA & AC annual events.	2 institutions per year for next 5 years	1. No of VCs/DVCs/CEOs/ CFOs 2. No of institutions covered. 3. Level of NREN appreciation among R&E Executives.
		Nurture trust	1. Among BoD 2. Concise periodic reports to partners, members & on website	On going	1. BoD involvement (support & participation). 2. No of reports & No. of recipients.
		Understand community's unique needs.	Involve/engage ICT DIRs, Researchers, Librarians, Lecturers & CFOs	Review every 2 years.	1. No. of communities of practice. 2. Total annual attendance in fora. 3. No. of emerging needs identified
		Nurture human networking & collaboration	Local research collaboration, joint conferences, partnering with industry to address local challenges.	Annual or biannual.	1. No. of q publications. 2. No of R&E institutions involved. 3. No. of industry participants.
		V. high cost of access to infrastructure	Deepen Sharing Model.	1. More members sharing. 2. Grow valuable usage. 3. Consider TDMA (e.g. e-books & content cache @ off-peak times)	1. Engage HEIs & RIs to connect to RENU/Net & nurture new institutions. 2. Grow RENU/Net coverage. 3. Forge new ground-breaking infrastructure & content partnerships including private sector.
	Add new services	Say VoIP, live streaming between campuses, local-content repository	Precision planning & coordination of spike demand.	Over 2 years.	1. No. of new services 2. No. of local content services hosted by RENU & all members.
	Maximize usage efficiency			Over 2 years.	1. No of spike events VS RENU Avg. monthly traffic. 2. No of services VS members' BW usage

Destination..?

- Globally distributed research teams.
- Wide spread access to advanced computing.
- RT Distance Education (Share E-Learning Content).
- Massive e-Resource Sharing.
- Well illustrated Teaching of STEM.
- Share Science Labs & Simulation Resources.
- Access to modelling & VR content.
- Learning Anywhere Anytime.
- Fully Integrated Decision Support MIS in all R&E-Is

..... I thank You for your attention!