The State of Access in Africa and the Power of Community-centered Connectivity

Local Networks Initiative

Local Networks (LocNet) is an initiative led by APC in partnership with Rhizomatica to:

support the work of community networks

contribute to an **enabling ecosystem for the emergence and growth of community-based connectivity** activities in developing countries.

State of Connectivity

COVID-19 pandemic illuminated a long-standing issue: The many low-income communities around the world that lack reliable and / or affordable access to connectivity are being left further behind.

Why Growth is Slowing

We've Connected the Easy Half

Billions of People on Earth	Average Annual Income	Affordable Monthly Communication Spend
1st Billion	$29,206	$205
2nd Billion	$12,702	$53
3rd Billion	$5,540	$23
4th Billion	$2,987	$12
5th Billion	$1,771	$7
6th Billion	$1,065	$4.4
7th Billion	$540	$2.25

Source: Richard Thanki, University of Southhampton from UN & ITU data

Elements of a conducive environment

"Connecting the first 53% wasn't so hard. Connecting the remaining 47% is a different ball-game, and 'business as usual' will not work."

- Ms. Doreen Bogdan-Martin
  ITU Secretary General

ITU WTDC 2022 Report

RESOLUTION 37 (Rev. Kigali, 2022)

Bridging the digital divide

The World Telecommunication Development Conference (Kigali, 2022),

15 to encourage innovation and accelerate the use and adoption of emerging digital technologies and the development of business models or other innovative ways to help telecommunication operators, as well as telecommunications/ICTs complementary access networks and solutions in reducing costs, overcoming geographic obstacles that leads to acceleration of digital inclusion to bridge the digital divide;

17 to continue supporting Member States, in the case where it is requested, in developing policy and regulatory frameworks that could expand and support the engagement of telecommunications/ICTs complementary access networks and solutions in bridging the digital divide;

invites Member States

5 to consider inclusive and innovative policies to close the digital divide, taking into account national initiatives and telecommunications/ICTs complementary access networks and solutions,

What Makes a Community Network?

COMMUNITY

- **'Community'**
  - People-built around a common interest or goal
- **Participation**
  - Build, maintain, operate or simply benefit from the infrastructure
- **Local Ownership & Governance**
  - Locally owned as a common-pool resource

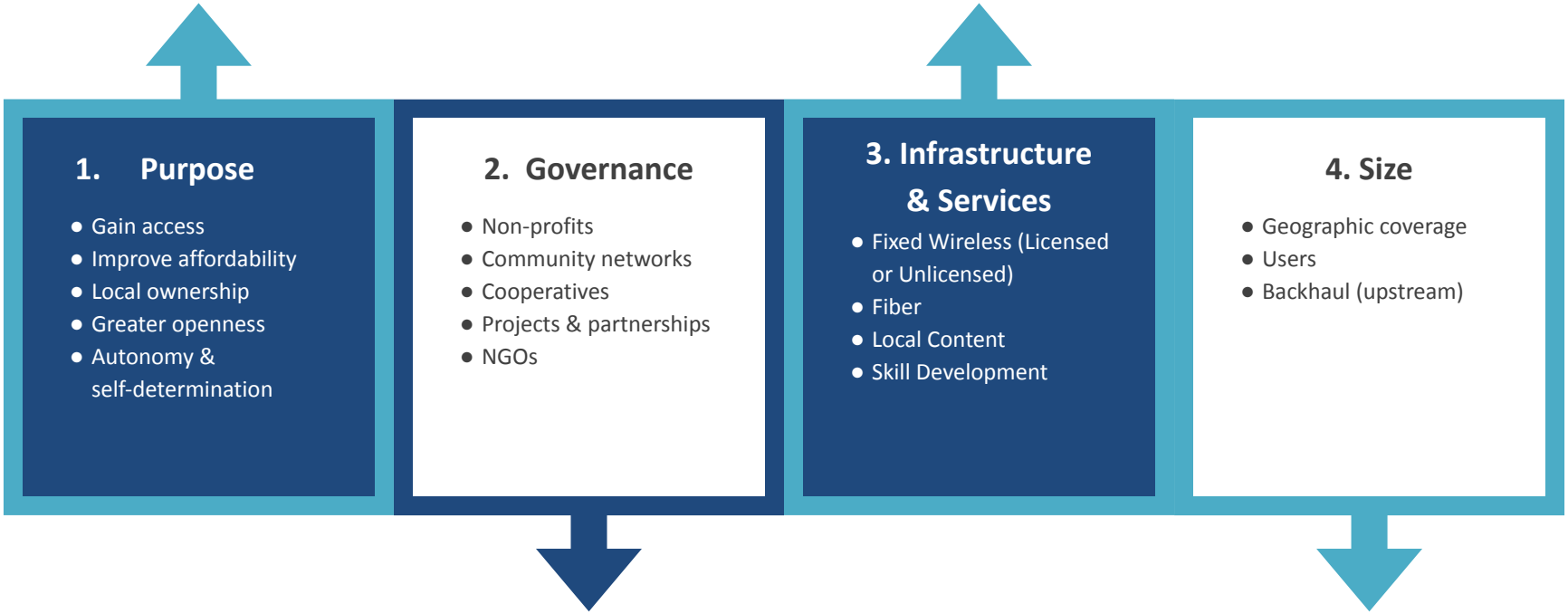
+

CONNECTIVITY

- **Nodes**
  (points of redistribution or delivery)
  - Routers
  - Clients & Servers
- **Backhaul**
  (interconnection within & between network)
  - Links (Wireless or Fiber) & Backbone
  - Gateway to the Internet

Community networks refer to a wide variety of efforts by local communities to build and manage all or parts of the infrastructure required to enjoy and co-create the internet.

Community Networks come in a variety of different sizes, setups, purposes, governance models and levels of professionalism



Source: Adapted from ISOC, APC published material

Community Networks vs Traditional Operators

COMMUNITY NETWORKS

VS.

TRADITIONAL OPERATOR

- Socially focused & purpose-driven
- Community-led
- Open and carrier-neutral networks
- Decentralised nature
- Localised - locally owned or operated
- Not for profit / cost-recovery model
- Grassroots / bottom-up
- Collective ownership
- Self-deterministic

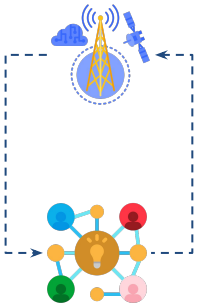
Illustrative

- Profit-driven
- Commercially-minded
- Centralized infrastructure
- Privately or state-owned
- Profit-extraction
- Professional and top-down
- Knowledge concentration / specialization
- Investment from traditional sources
- No / minimal user participation in network governance (design, deployment, operation)

Community Networks are often complementary - filling gaps and providing access where traditional commercial networks do not

The large-scale, commercial, telco network model has done wonders for coverage but, on its own, is insufficient to connect everyone affordably.

- **Traditional solutions are showing signs of having reached their limits**: Mobile network operators, who have been efficient in high-income & urban areas, are struggling to find viability in markets with subsistence-level incomes and/or in sparsely populated regions, where ROI is scarce.
- **Varied attempts to address this problem**, through universal service strategies/ funds, private sector initiatives or philanthropy, **have met with limited success**.



CNs are feasible alternative solutions in environments where traditional networks fail or are reluctant to operate.

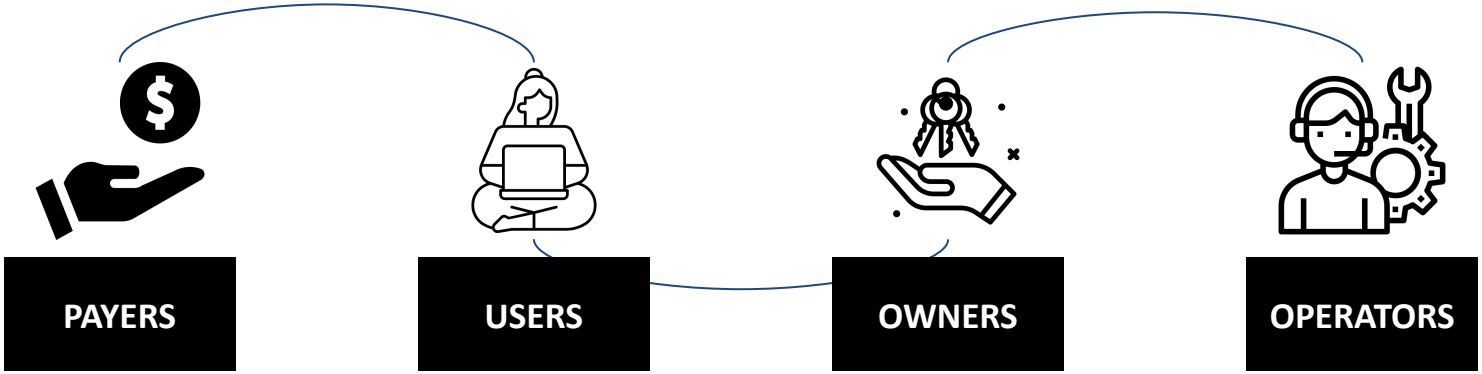
- **CNs can move towards closing connectivity gaps:** They often service unconnected areas that are not profitable for commercial operators or precede other forms of internet development.
- **CNs also bring connectivity to those otherwise excluded:** Either because of geography, topography, size, or income level, and enable local development, lead to local business development, and encourage civic participation.
- **CNs help keep profits local**: Generally reinvest any proceeds in the local community and its network.

Source: Adapted from ISOC, APC published material

Stages of network development: Community networks must consider five fundamental questions relating to their purpose and operations

		KEY QUESTION	SCOPE
01	WHY	Why is this network needed?	• Market context that necessitated the network • Impact of not intervening - digital divide and communities left behind
02	WHO	Who is going to build and operate the network?	• The initiating energy for the project • The community champions
03	HOW	How is this going to get done?	• Area of coverage identified • Technical skills and expertise required • Equipment and infrastructure needs
04	ACCOUNTABILITY	What are mechanisms to ensure it gets done?	• Roles and responsibilities • Governance mechanism • Navigating the principal - agent relationship
05	SUSTAINABILITY	How long can we keep the network active?	• Financial (costs, revenue, and funding) • Non-financial sustainability (community participation, organizational, legal)

Stages of network development: The owners of the network often overlap with the beneficiaries in the case of community networks



- *Who finances the network build out?*
- *Who is the ultimate counterparty?*
- *Who pays for internet use?*

- *Who uses or benefits from the service?*

- *Who owns the network resources?*
- *Who governs the network assets?*

- *Who manages the customer relationships?*
- *Who monitors and maintains the network operations?*

Goal: Alignment of incentives between different actors to push through difficult periods

Benefits of Community Networks

"In Africa, a community network is not simply telecommunications infrastructure deployed and operated by citizens to meet their own communication needs; it is a tool to improve what a community is already doing in terms of their growth and development, by contributing to a local ecosystem that enhances the daily lives of those staying in the community."

- More local control over how the network is used and the content that is provided over the network.
- Greater potential for attention to the needs of marginalised people and the specific populations of rural communities, including women and older people.
- Lower costs and retention of more funds within the community.
- Increased potential to foster a sense of agency and empowerment among users and those involved in the network

13

Source: Understanding Community Networks in Africa
https://www.internetsociety.org/resources/doc/2017/supporting-the-creation-and-scalability-of-affordable-access-solutions-understanding-community-networks-in-africa/

Diversity in the service provided

- Support local businesses to reach a wider customer base by providing platforms for marketing, e-commerce that products or services contributing to economic growth and entrepreneurship in the community.
- Empower community members to effectively and take advantage of the opportunities offered by the internet through offering digital skills training programs
- Encourage digital adoption by tailoring content and applications to cater to the unique needs and interests of the community. This involves developing local news platforms, educational resources, health information, agricultural tips, and cultural content that resonate with the community members.


Photo Credit: Mamaila CN

Diversity in the service provided

- Offer financial literacy programs and resources to educate community members about digital financial services
- Facilitating access to government services and information through digital platforms
- Promoting environmental awareness and sustainability through eco-friendly practices, conservation initiatives, renewable energy solutions, and recycling programs
- Using digital platforms to preserve and promote local culture, traditions, and heritage such as showcasing local arts, music, traditional knowledge, storytelling, and cultural events hence fostering a sense of identity within the community

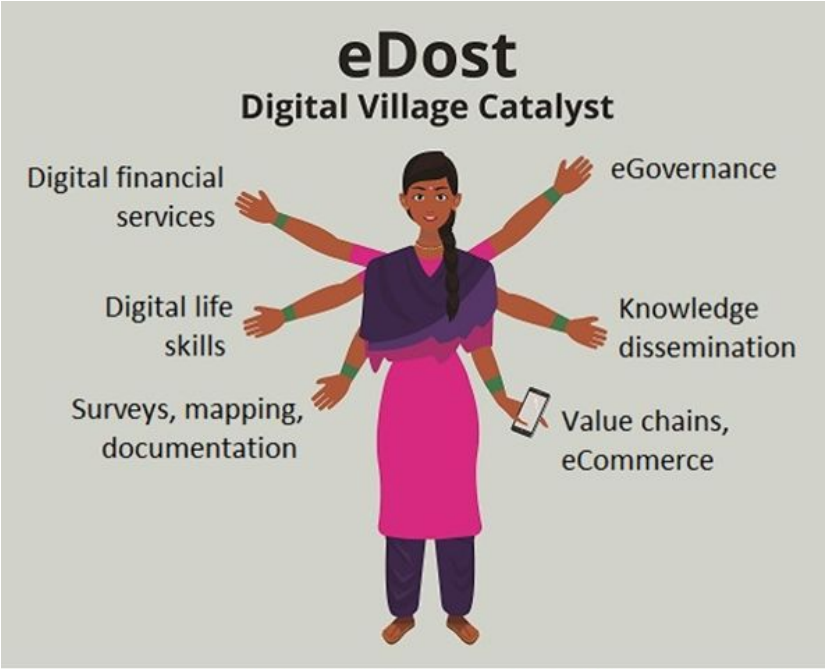


Figure 1: A schematic depicting the roles of an eDost

Barriers for growth of community networks

- Licensing frameworks - Non existent frameworks for non profit operators in the current frameworks. Beyond this the financial, technical, and reporting requirements are also often beyond the reach and capacity of community network operators.
- Access to backhaul capacity remains the largest expense for community networks. The cost of minimum volume purchases for wholesale fiber backbones is costly and limits the communities' ability to obtain affordable backbone capacity.
- The available radio frequency spectrum for Wi-Fi is limited and shared with other wireless technologies. As the demand for wireless connectivity grows, there is a challenge in managing spectrum allocation and minimizing interference with other wireless services.
- High cost of licensed spectrum
- Unreliable electricity especially in rural areas results in service disruptions forcing the community networks to invest in solar panels and batteries to power equipment
- Limited access to financing

Kenya: Licensing & Shared Spectrum Framework

Community Networks Service Provider License

- Exclusively for not-for-profit Cooperative Societies, Community-Based Organizations and Non-Governmental Organisations.
- Limited in geographic scope to a sub-county.
- License to comprise both network facilities and application service provider license aspects resulting in a single license for operation.
- Initial and annual fees would be lower than Tier-3 NFP license fees.
- Exempt from USF contributions.
- Application fee of $10 and annual and operating fee of $50 with a 10 year license period.

Kenya: Universal Service Fund

COMMUNICATIONS AUTHORITY OF KENYA

Opening Your World

Draft 3

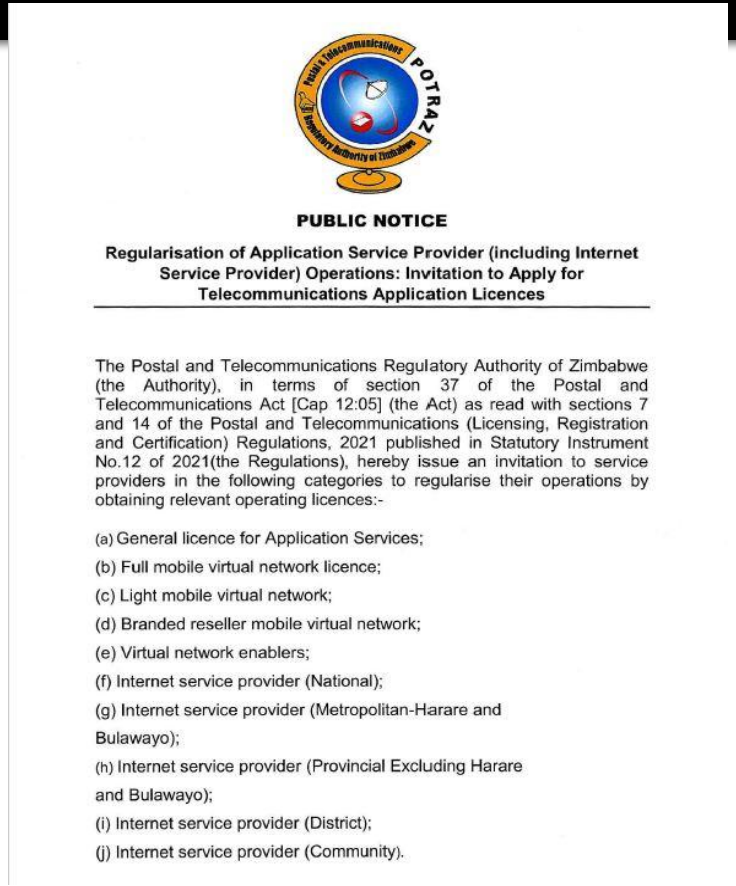
USF STRATEGIC PLAN 2022 – 2026

April 2022

Key Result Area (KRA)	Strategic Objectives	Key Performance Indicator (KPI)	Baseline	Target
ICT Infrastructure and Services rolled out in telecommunications infrastructure voice and connectivity services, Broadcasting, and Postal services in unserved and underserved communities.				
1. **Telecommunication (Voice & Data**	1.1. To ensure quality voice and data coverage, in the remaining 4 % of the unserved and underserved communities in Kenya	% coverage	96 %	100%
	1.2. To enhance the quality of service within the already served areas by the Phase 1 project	% Quality of Service for Phase 1	TBD	TBD
	1.3. To facilitate the provision of sufficient support such as devices and complementary services to promote the use of Voice and data services	% increase on baseline support for devices and airtime	TBD	TBD
	1.4. To ensure that unserved and underserved attain coverage from all operators	% increase on baseline coverage by service providers	TBD	TBD
	1.5. To facilitate the establishment of a 100 community Network in the unserved and the underserved communities	No. of Community Networks established	TBD	TBD
	1.6. To facilitate the adoption of new technologies and innovative solutions in helping address affordability, availability and accessibility of ICT services among the unserved and underserved	No of new technologies and solutions adopted by USF to enhance coverage of the unserved and the underserved	TBD	TBD

Page 44 (Section 4.2.1.1) on Infrastructure and Services projects regarding funding the establishment of 100 Community Networks

Zimbabwe



PUBLIC NOTICE

Regularisation of Application Service Provider (including Internet Service Provider) Operations: Invitation to Apply for Telecommunications Application Licences

The Postal and Telecommunications Regulatory Authority of Zimbabwe (the Authority), in terms of section 37 of the Postal and Telecommunications Act [Cap 12:05] (the Act) as read with sections 7 and 14 of the Postal and Telecommunications (Licensing, Registration and Certification) Regulations, 2021 published in Statutory Instrument No.12 of 2021(the Regulations), hereby issue an invitation to service providers in the following categories to regularise their operations by obtaining relevant operating licences:-

(a) General licence for Application Services;
(b) Full mobile virtual network licence;
(c) Light mobile virtual network;
(d) Branded reseller mobile virtual network;
(e) Virtual network enablers;
(f) Internet service provider (National);
(g) Internet service provider (Metropolitan-Harare and Bulawayo);
(h) Internet service provider (Provincial Excluding Harare and Bulawayo);
(i) Internet service provider (District);
(j) Internet service provider (Community).

- The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) Published a new Statutory Instrument (SI) on Telecommunications licensing and regulations.
- The SI introduced a unified telecommunications license which authorizes licensees to provide telecommunication network facilities, network services and application services under one license.
- District and Community Internet Service Provider licenses have also been introduced.
- The application fee for a community license is set at US$50 and renewal of $50.
- District and community operators are exempted from paying annual license fee contributions and USF contributions.
- In May 2021 Murambinda CN was officially launched by the Minister of ICT, Postal and Courier Services Hon Janfan Muswere.

Uganda: Communal Access License

- In 2020, the Uganda Communications Commission introduced
- A holder of communal access license will be authorised to establish, operate and provide communal access to telecommunications services to a particular community.
- This license is typically suitable for community-based, not-for-profit entities that may wish to provide subsidised telecommunications services to the unserved or underserved communities.
- The license shall be for five (5) years renewable under the Uganda Communications Act 2013.

Lessons from CNs in Africa

Ecosystem Partnerships

Joining forces with like-minded individuals and organisations and aligning capabilities and sharing resources in order to accelerate advocacy efforts.

Building Local Capacities

Important to creating employment and entrepreneurial opportunities and ensure network sustainability

Dialogue and Collaborations with policymakers & regulators

Reaching out to policymakers and regulators for dialogue. Usually starts with awareness raising on CNs and their role in the ecosystem.

Unlocking USF

Support can go towards infrastructure deployment, backhaul, capacity development and support local content development

Stay tuned

Podcast: Routing for Communities

- https://www.apc.org/en/podcasts/routingforcommunities

CN Newsletter - APC - 59th Edition

- https://www.apc.org/en/news/community-networks-newsletter-women-connecting-village

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