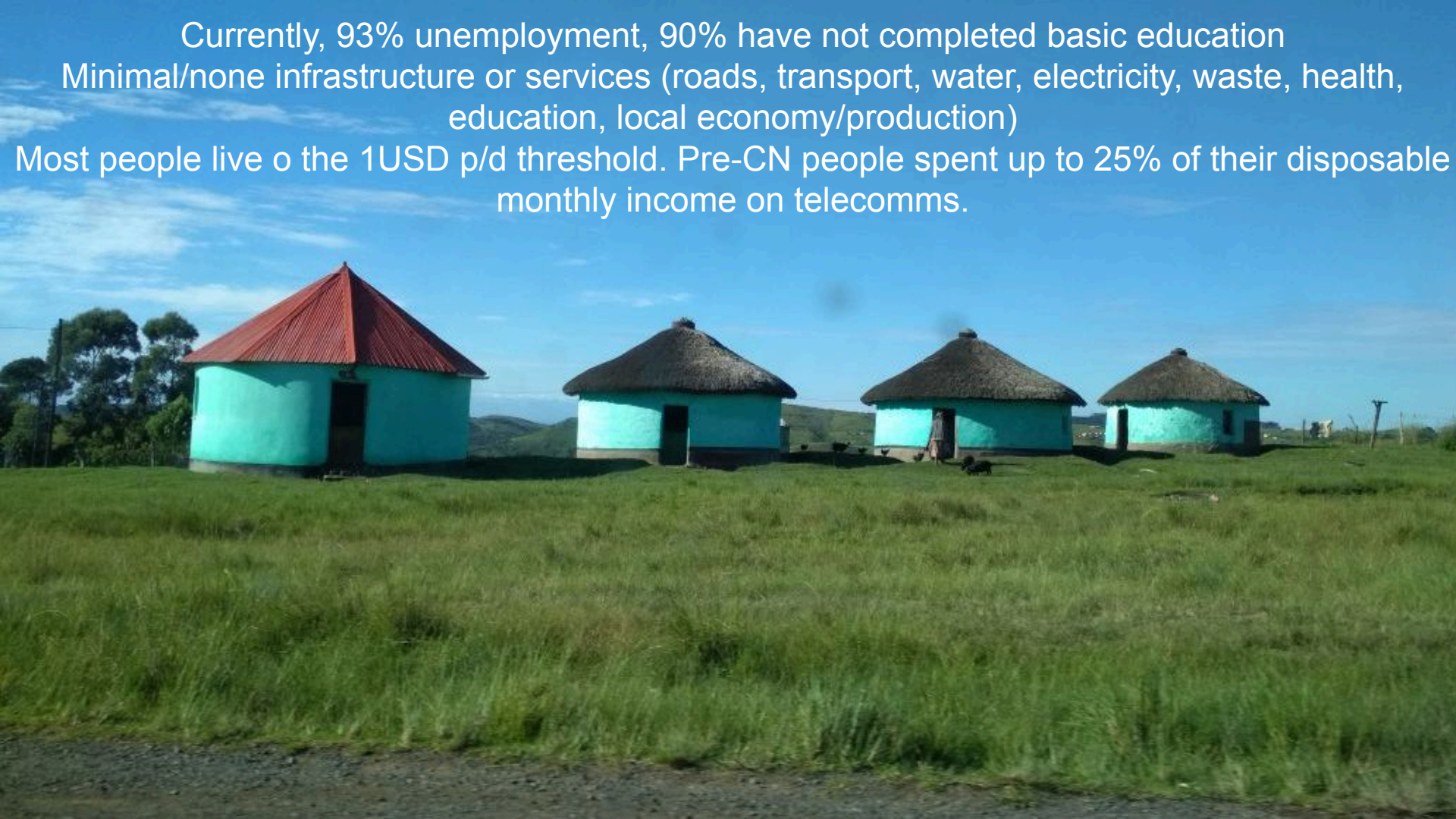
Case Studies
Part 1

Case Study
Zenzeleni Networks

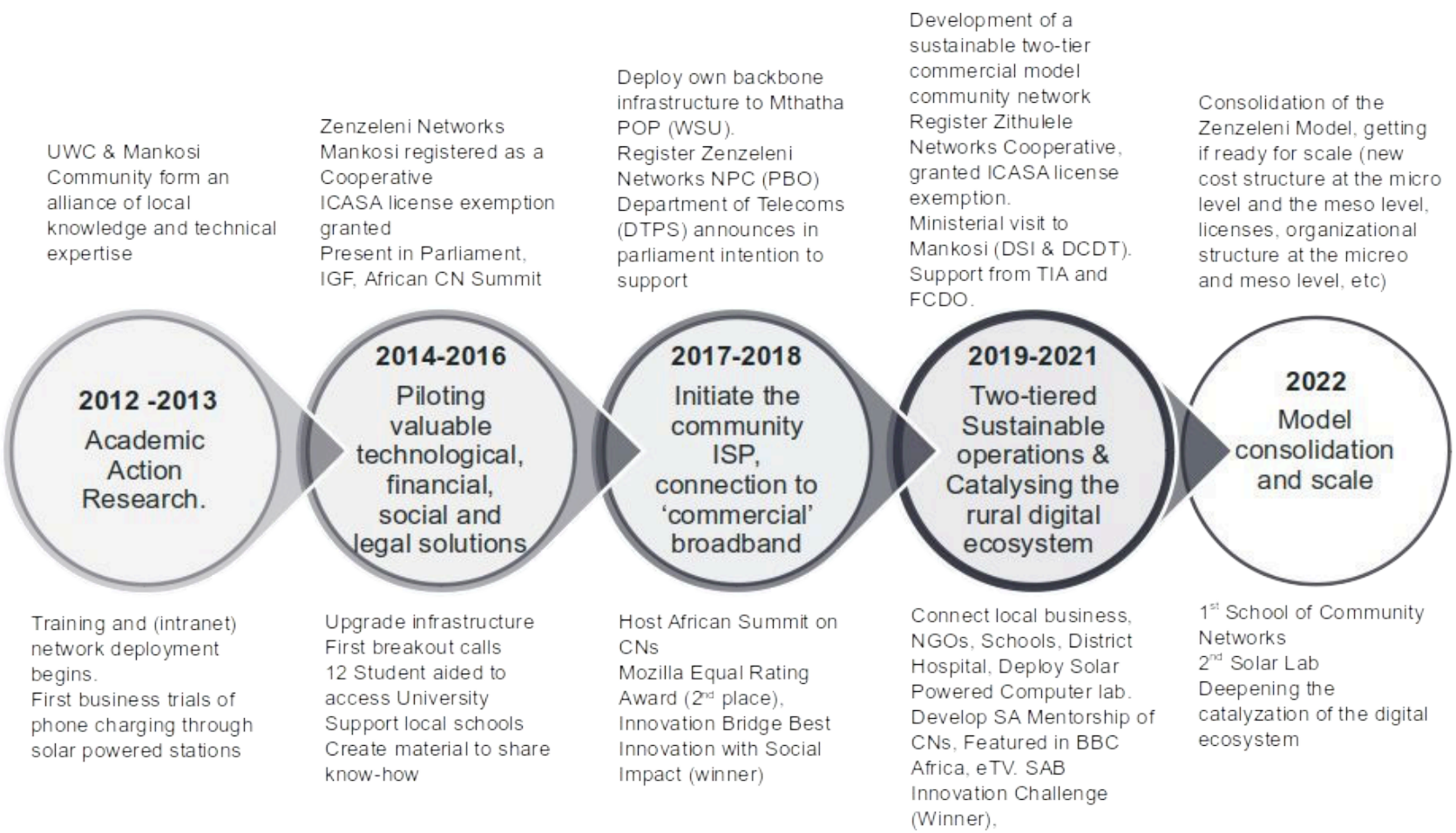
Currently, 93% unemployment, 90% have not completed basic education
Minimal/none infrastructure or services (roads, transport, water, electricity, waste, health, education, local economy/production)
Most people live o the 1USD p/d threshold. Pre-CN people spent up to 25% of their disposable monthly income on telecomms.



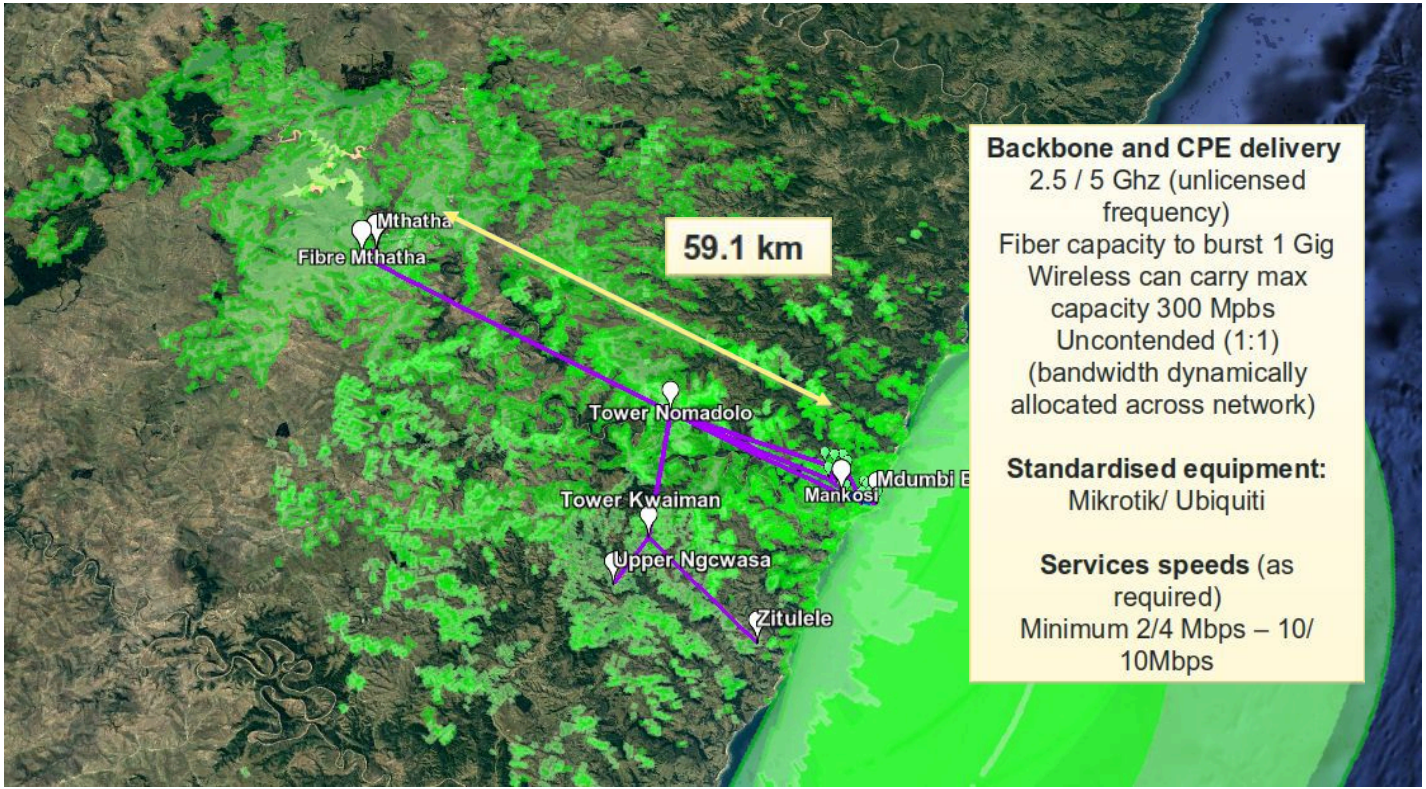

REDBAT







UWC & Mankosi Community form an alliance of local knowledge and technical expertise
2012 -2013
Academic Action Research.
Training and (intranet) network deployment begins.
First business trials of phone charging through solar powered stations
Zenzeleni Networks Mankosi registered as a Cooperative
ICASA license exemption granted
Present in Parliament, IGF, African CN Summit
2014-2016
Piloting valuable technological, financial, social and legal solutions
Upgrade infrastructure
First breakout calls
12 Student aided to access University
Support local schools
Create material to share know-how
Deploy own backbone infrastructure to Mthatha POP (WSU).
Register Zenzeleni Networks NPC (PBO)
Department of Telecoms (DTPS) announces in parliament intention to support
2017-2018
Initiate the community ISP, connection to 'commercial' broadband
Host African Summit on CNs
Mozilla Equal Rating Award (2nd place),
Innovation Bridge Best Innovation with Social Impact (winner)
Development of a sustainable two-tier commercial model community network
Register Zithulele Networks Cooperative, granted ICASA license exemption.
Ministerial visit to Mankosi (DSI & DCDT).
Support from TIA and FCDO.
2019-2021
Two-tiered Sustainable operations & Catalysing the rural digital ecosystem
Connect local business, NGOs, Schools, District Hospital, Deploy Solar Powered Computer lab.
Develop SA Mentorship of CNs, Featured in BBC Africa, eTV. SAB Innovation Challenge (Winner),
Consolidation of the Zenzeleni Model, getting if ready for scale (new cost structure at the micro level and the meso level, licenses, organizational structure at the micreo and meso level, etc)
2022
Model consolidation and scale
1st School of Community Networks
2nd Solar Lab
Deepening the catalyzation of the digital ecosystem

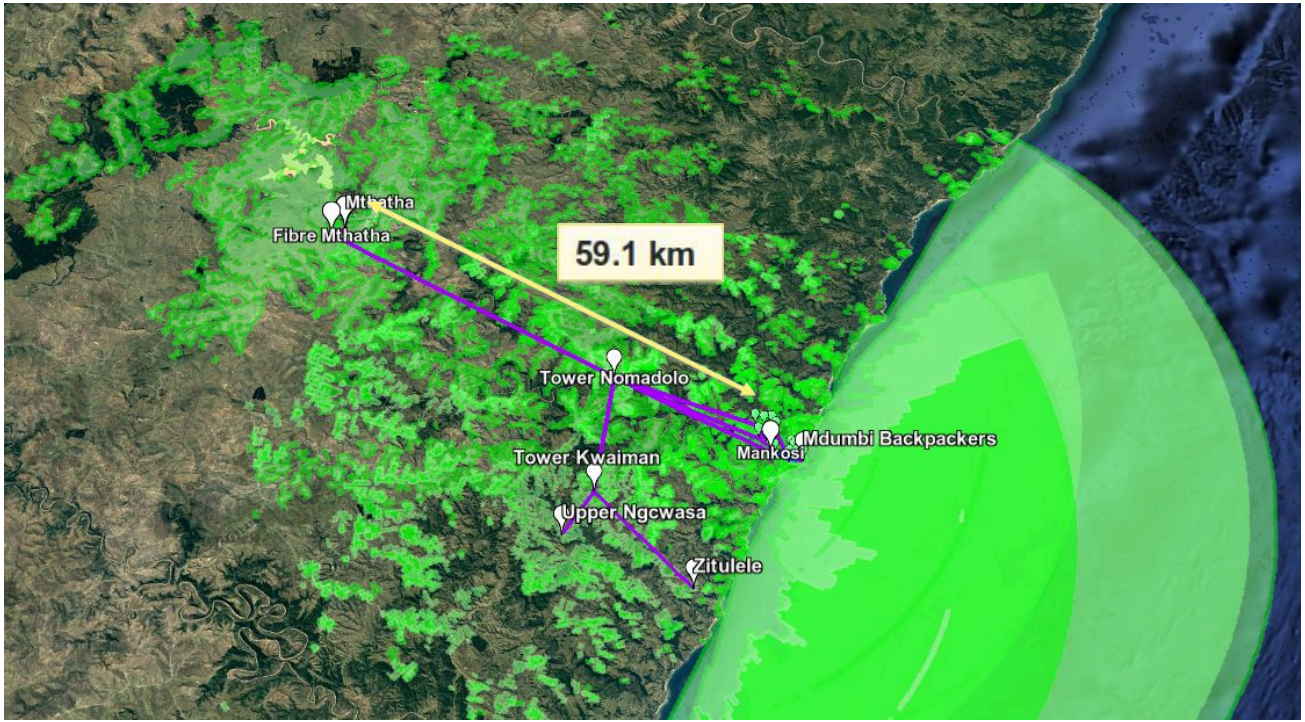
Telecommunication Infrastructure



Technical infrastructure

Main Elements

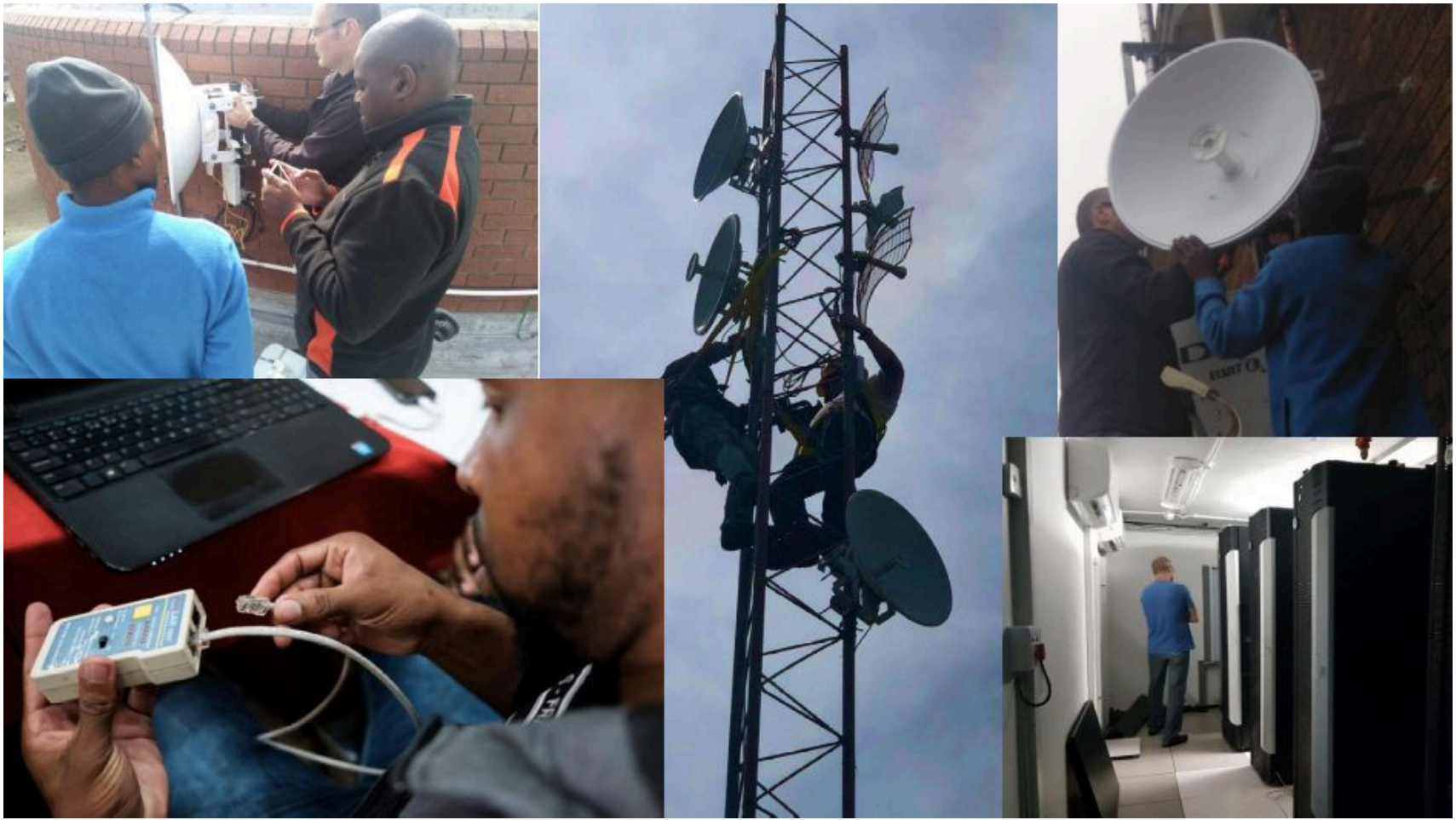
- Network Operations Centre
- Backhaul
- Local Network



Network Operations Centre

Main Characteristics

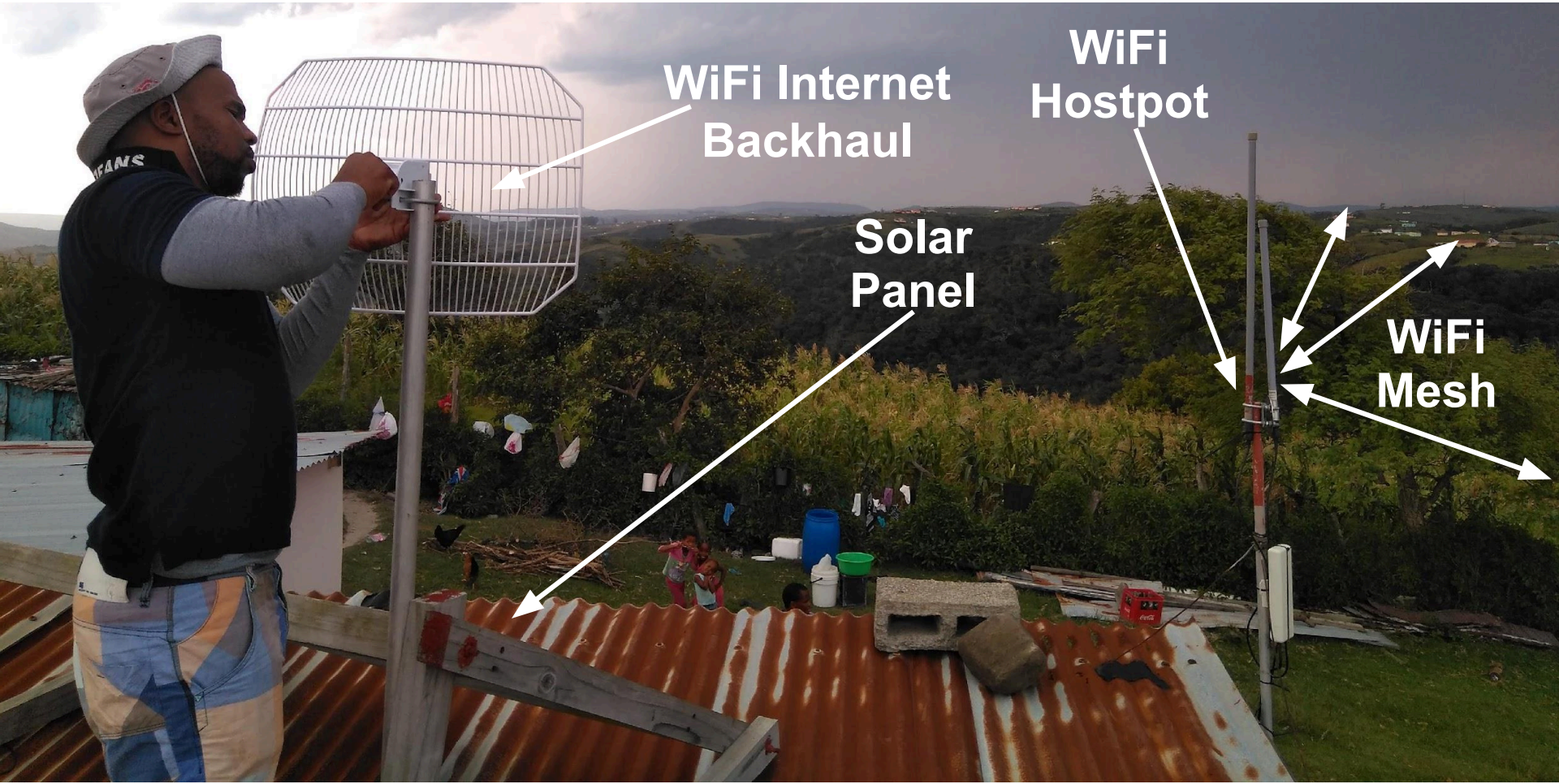
- 260 Mbps (upgradable)
- 1:1 uncontended
- Power back-up
- Security
- Remote Monitoring



Backhaul

Main Characteristics

- 300 Mbps
- Power back-up
- Locally build and hosted
- Remote Monitoring
- 35 devices (locally available)


WiFi Internet Backhaul
WiFi Hostpot
Solar Panel
WiFi Mesh

Anchor clients & super nodes

Local Network

Main Characteristics

- 74 public hotspots
- 30 Anchor tenants
  - 2/4 Mbps
  - 10/10 Mbps

Assets (CAPEX)

	Expenditure on Assets
Zithulele	~ R144,000
Mankosi	~R125,000
Backhaul	~R246,000
Stock	~R120,000
Total	~R710,000 / ~40,000 USD

Analysis - historical finances

About R3M for operations in 4 years: R62.5K/month including CAPEX USD3,500/month

Type of income	Amounts	Percentage
Income from service provision	1,037,768	9.07%
VAT returns	42,326	0.37%
Donations	91,199	0.80%
Consultancies	121,842	1.06%
Grants	10,149,625	88.70%
Total	11,442,759	

USAASA granted R70M (USD4M in KSD and Nyandeni)

Money spent and nothing connected /company in liquidation

Public hotspots and fixed wireless

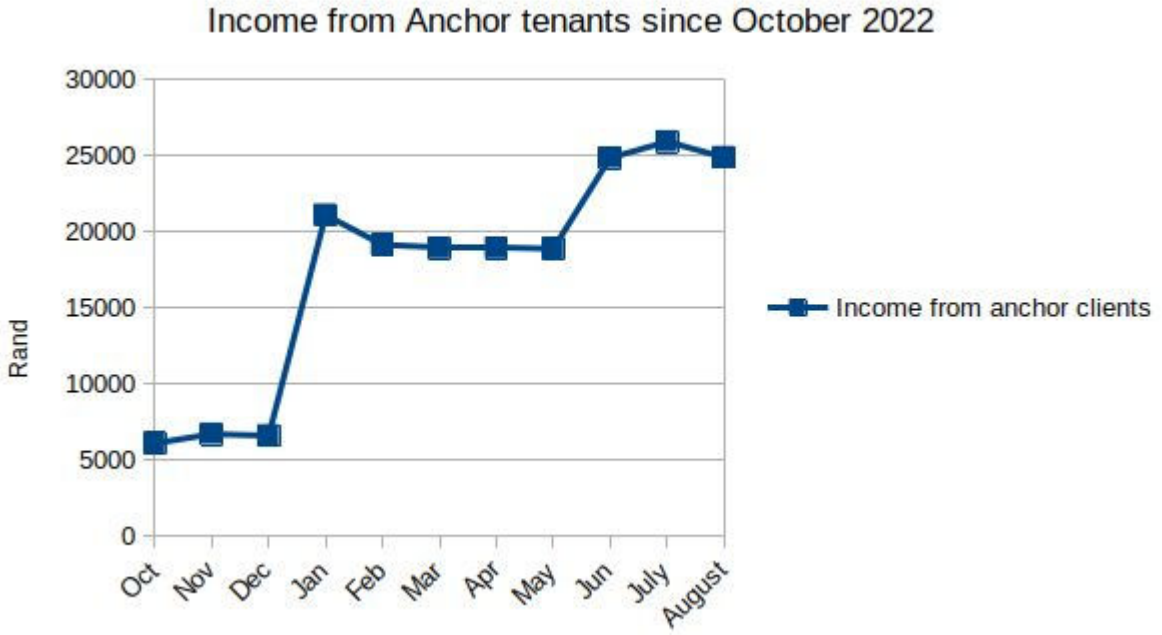
Voucher Assumptions	
Vouchers	**Rates**
32 Days	25.00
10 Days	12.00
5 Days	7.00
3 Days	5.00
** Note: All services are un-capped/un-shaped data access*	

Rate Card	Data Cap (Gigs)	Rates	Frequency	Price per Gig	Out of Bundle P/Gig
Rental fee (includes intallation)		R 221.38	*Monthly*		
Starter – 4Mbps/2Mbps	100	R 212.75	*Monthly*	R2.13	R1.00
Basic – 4Mbps/2Mbps	350	R 339.25	*Monthly*	R0.97	R0.68
Silver – 8Mbps/3Mbps	500	R 442.75	*Monthly*	R0.89	R0.65
Gold – 10Mbps/5Mbps	750	R 573.85	*Monthly*	R0.77	R0.55
Premium – 10Mbps/10Mbps	1,024	R 803.85	*Monthly*	R0.79	R0.50

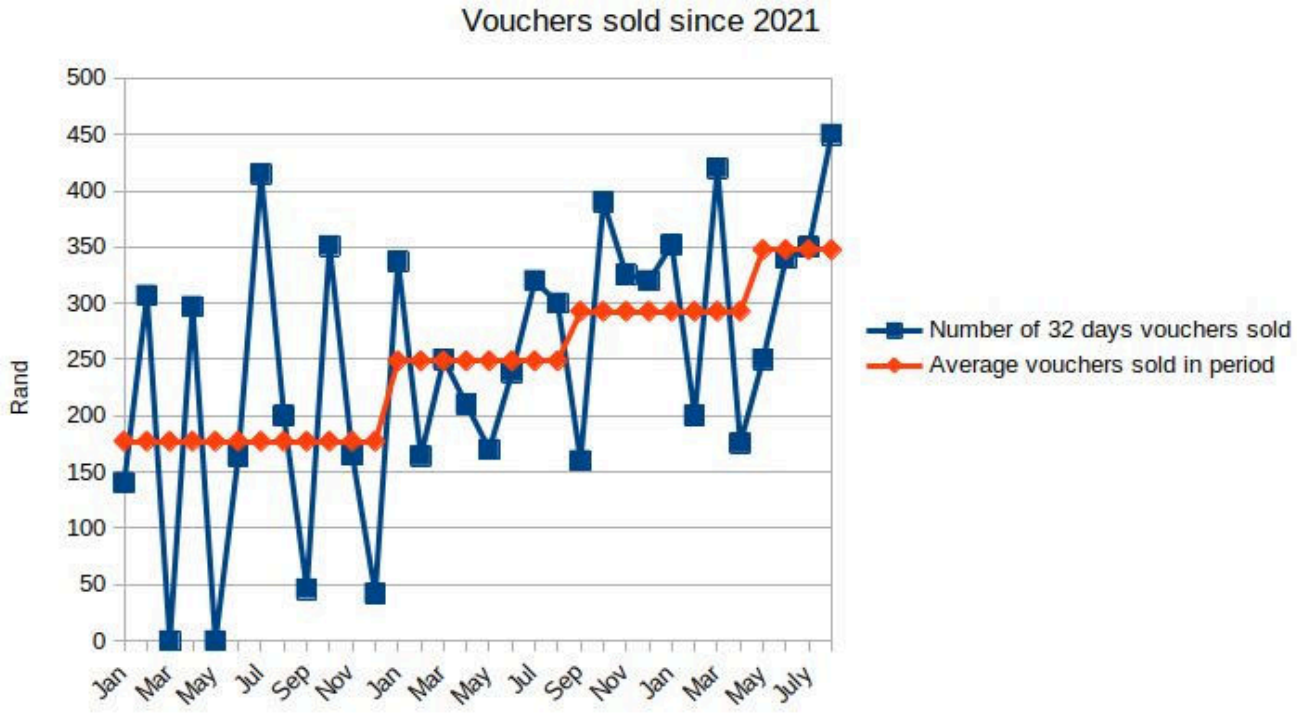
New analysis anchor tenants

Change of pricing in October 2022 to remain competitive

Less growth than expected given cash flow issues, but still consistent growth when investment in CAPEX possible



Analysis voucher sales

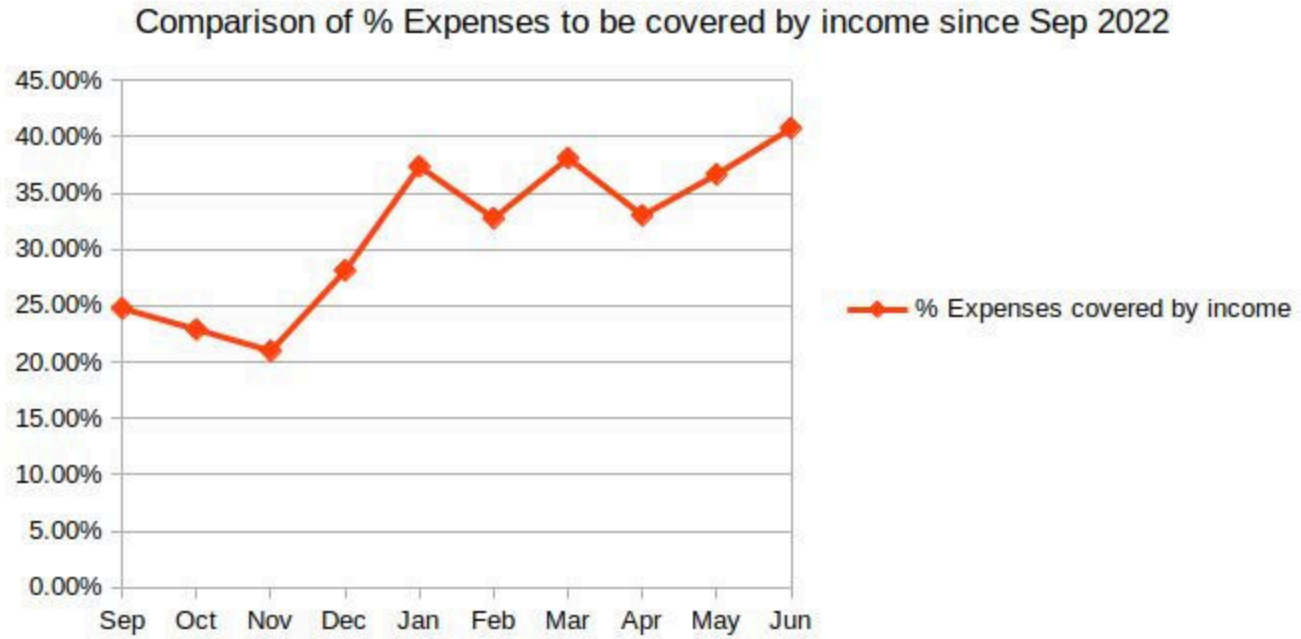


Income vs Expenses

Expenses have gone up, but income has increased more

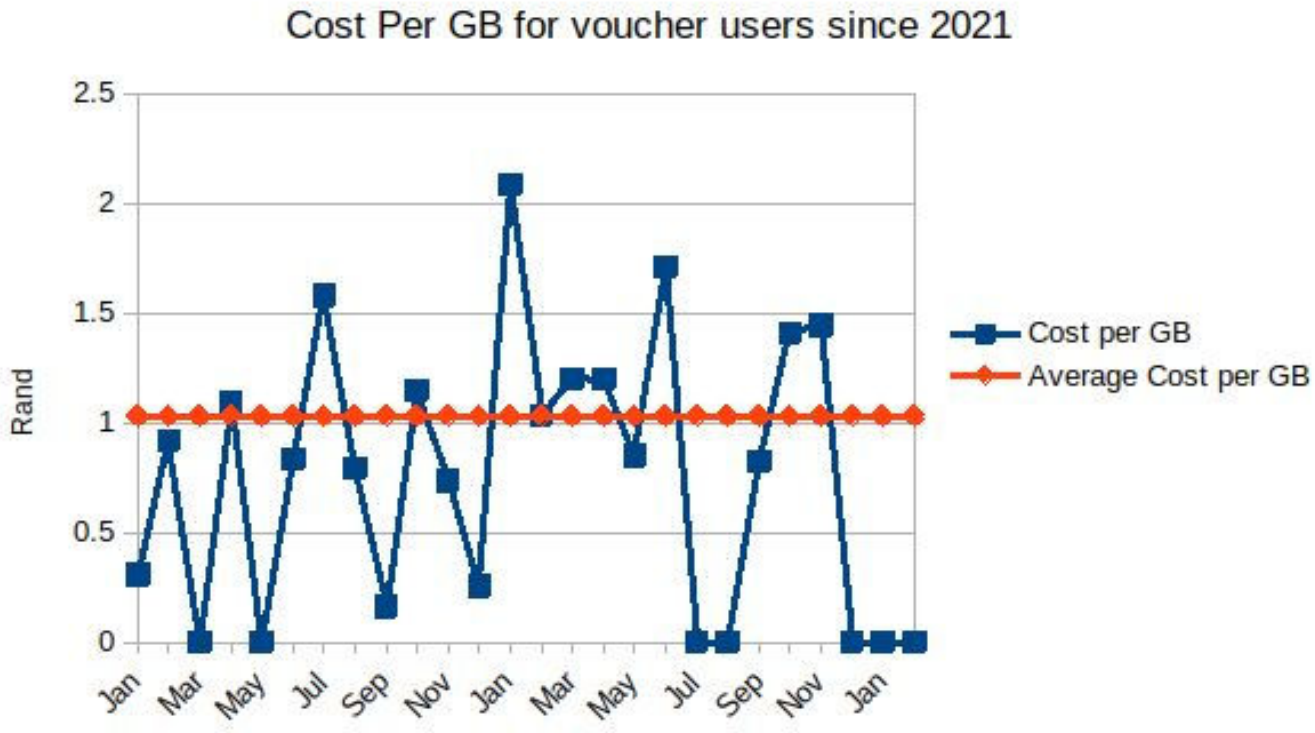
Percentage of Self-Generated Income covering expenses

Co-funding from projects continues being required but the plan seems to be working



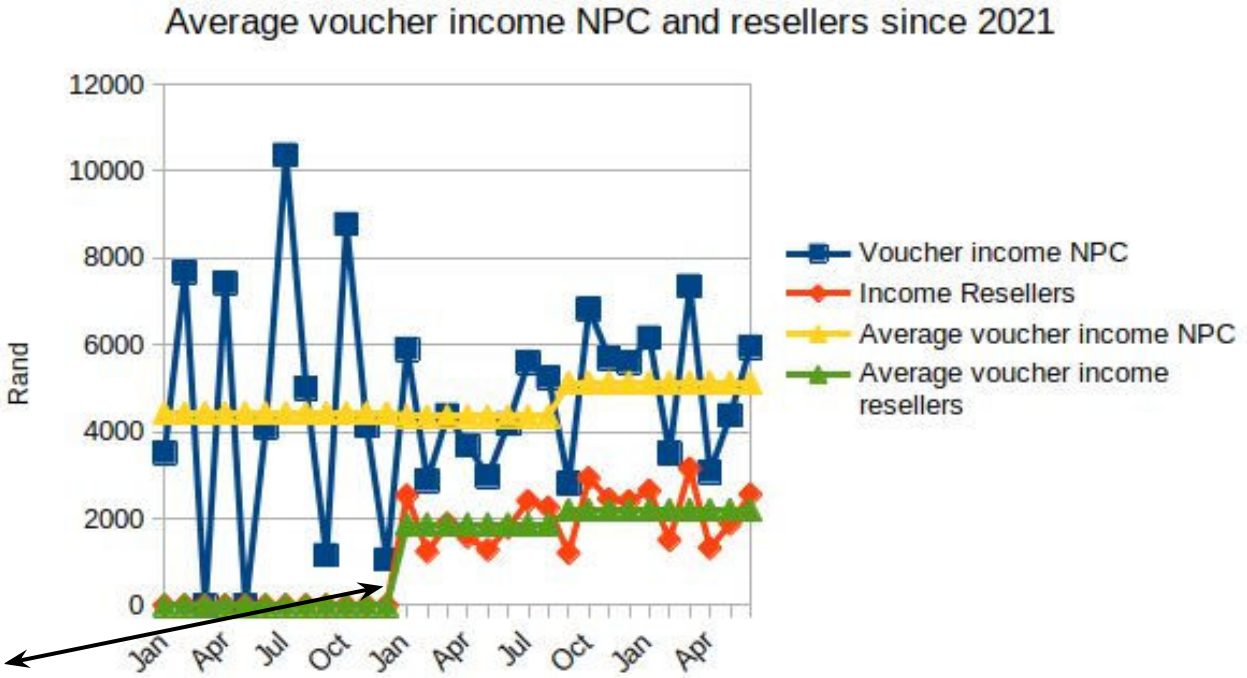
Socio-economic impact

63 times cheaper than MNO



Analysis voucher sales

R25/ month <3% poverty line



30% margin for resellers
R24K in income since 2022

Other Services

Keep Informed, Keep Safe, Beat Coronavirus

Hlala unolwazi, Hlala Ukhuselekile, Yoyisa Ikhonoravayirasi

COVID-19

Free Community Noticeboard on updated information, free resources and websites

Accessible for free from any Zenzeleni Community Networks connection point

zaziso yasekuhlaleni esimahla ngenkcukacha ezihlaziyiweyo, izixhobo ezisimahla ku

yindwendwela simahla kuyo xa ukuyo nayiphi na indawo apho kufumaneka khona i-Networks.

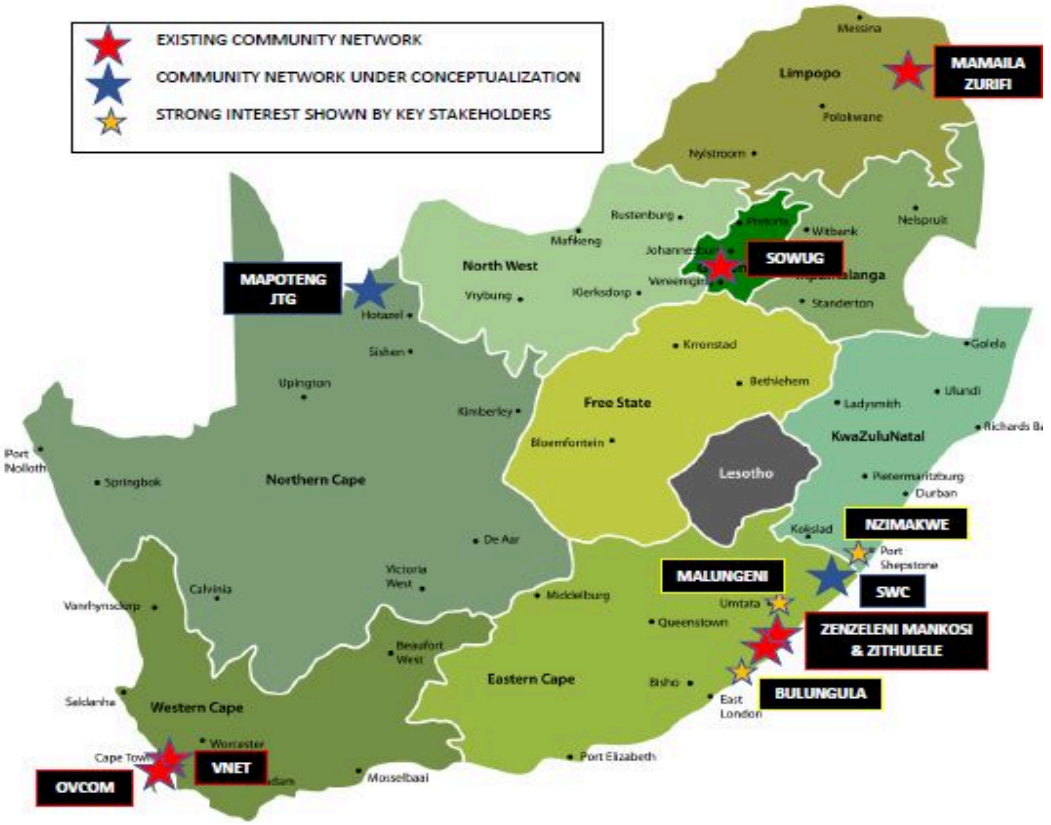
Click below to view the official South African COVD-19 website:

www.sacoronavirus.co.za

Other Services

Mentoring and supporting Community Networks in South Africa

- 2018, Hosting of the African Summit on Community Networks in Eastern Cape & support local & SA participation.
- 2019, Supporting 10 SA representatives to attend the African Summit on CNs in Tanzania.
- 2019 - 2020, Pilot Mentorship of Community Networks, supporting 5 communities to strengthen their community network, or develop a sound technical and economic model for a new community network.
- 2021, Training and mentorship of 7 SA communities to strengthen and seed community networks.
- Ongoing support to multiple communities.

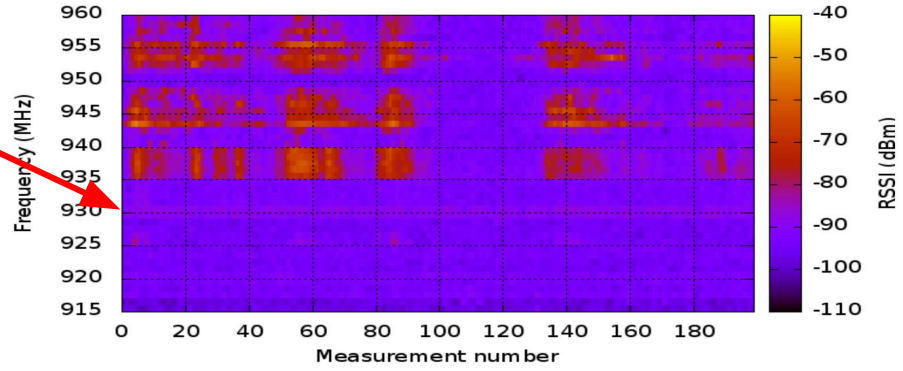


Activities in partnership with APC and UK Digital Access Programme

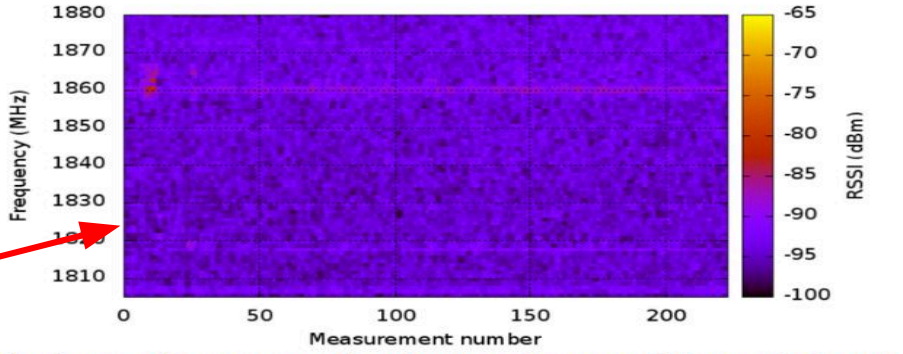
IMT unused in rural areas

Spectrum monitoring In Mankosi

10 MHz Unused In 900 MHz



65 MHz Unused In 1800 MHz



Source: http://wireless.ictp.it/gsm/

News 24 Article "*R25 for uncapped wifi: Zenzeleni Networks bridging digital divide in rural SA*"
https://www.news24.com/news24/tech-and-trends/news/r25-for-uncapped-wifi-zenzeleni-networks-bridging-digital-divide-in-rural-sa-20230706

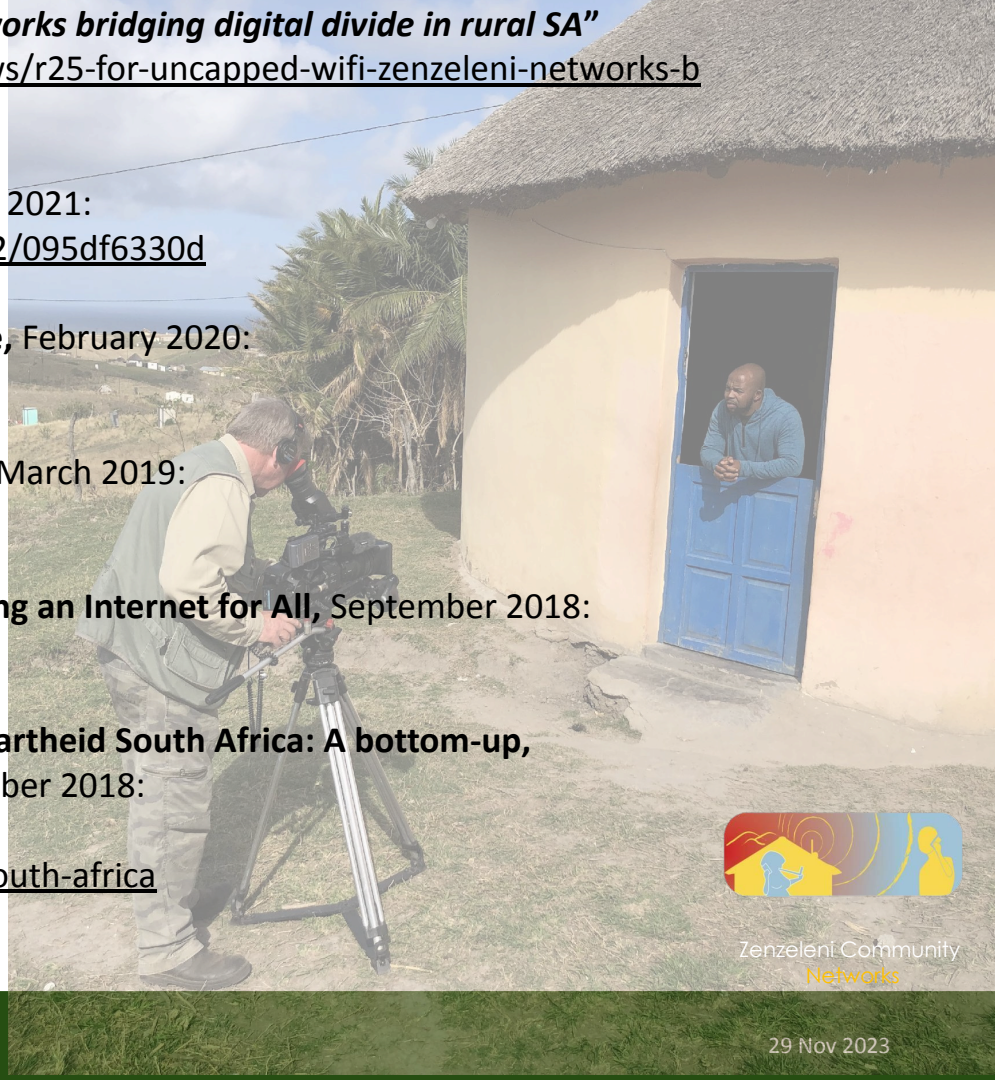
E-TV 30-minute documentary on Zenzeleni's work, April 2021:
https://vimeo.com/user23260986/download/475895752/095df6330d

SABC News, First community owned ISP in Eastern Cape, February 2020:
https://www.youtube.com/watch?v=Vhg2u1O9dVU

BBC Africa, The village that built its own wi-fi network, March 2019:
https://www.youtube.com/watch?v=R9u-hfxAeBo

SABC News, Community networks important for ensuring an Internet for All, September 2018:
https://www.youtube.com/watch?v=n7Z5kH7LEDA

Global Society Watch, Challenging inequality in post-apartheid South Africa: A bottom-up, community-led business model for connectivity, November 2018:
https://giswatch.org/community-networks /
https://giswatch.org/en/country-report/infrastructure/south-africa



Zenzeleni Community Networks

Case Study Telecomunicaciones Indígenas Comunitarias

Session 2.2

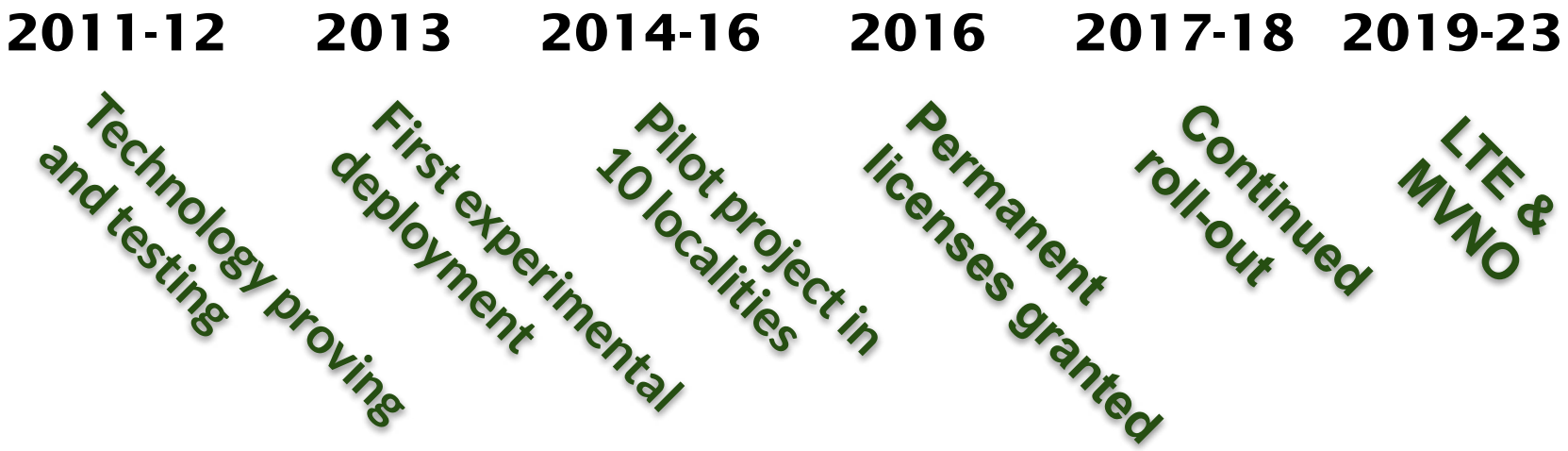
telecomunicaciones
indígenas
comunitarias

RHIZOMATICA

Profile Information

Country	Mexico
Organisation Type	Indigenous, Non-Profit
Technology	GSM (2.5G) & LTE (4G)
Addressable Region	Unserved rural areas in five states
Addressable Population	3 million people

Timeline

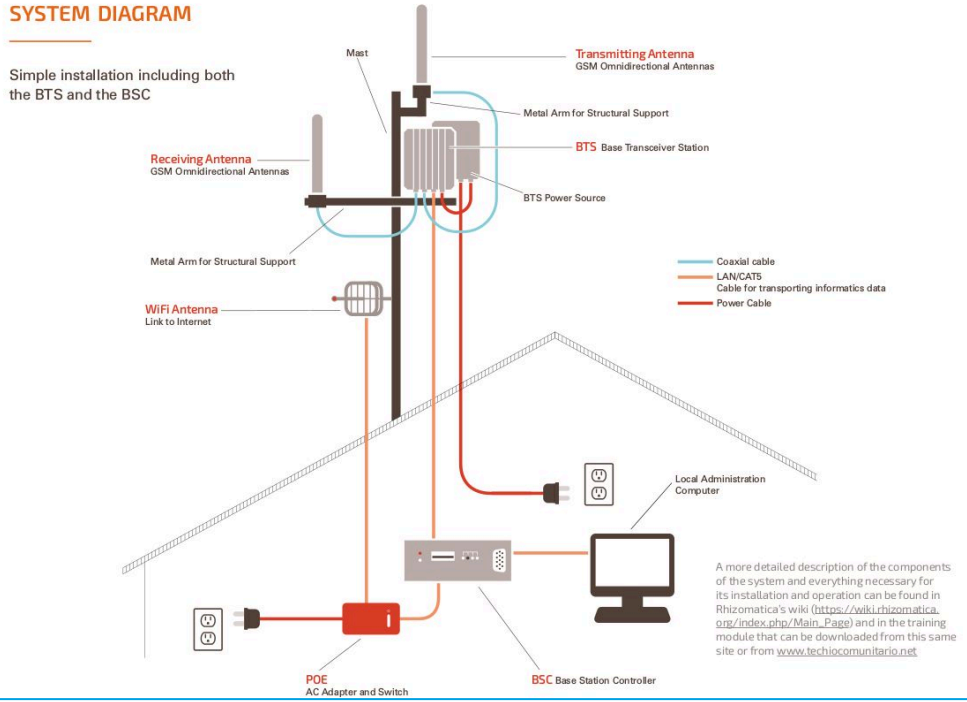

2011-12
Technology proving and testing
2013
First experimental deployment
2014-16
Pilot project in 10 localities
2016
Permanent licenses granted
2017-18
Continued roll-out
2019-23
LTE & MVNO

Basic facts

- Community-owned & operated cellular networks
- 17 networks, 70+ localities, ~ 4,500 users daily
- Operates with a Social-Indigenous concession
- 2+2 MHz of GSM 850 spectrum & 5MHz FDD for LTE in 900MHz
- Organized as a non-profit, membership association: TIC,A.C.

Technical Infrastructure

- Low Power
- Low-cost GSM & LTE
- Simple Graphic Interface for Local Management
- VoIP for Call Termination
- Open Source platform reduces cost, increases flexibility
- Licensed spectrum for backhaul
- Satellite failover backhaul



Cost about 10K USD to set up

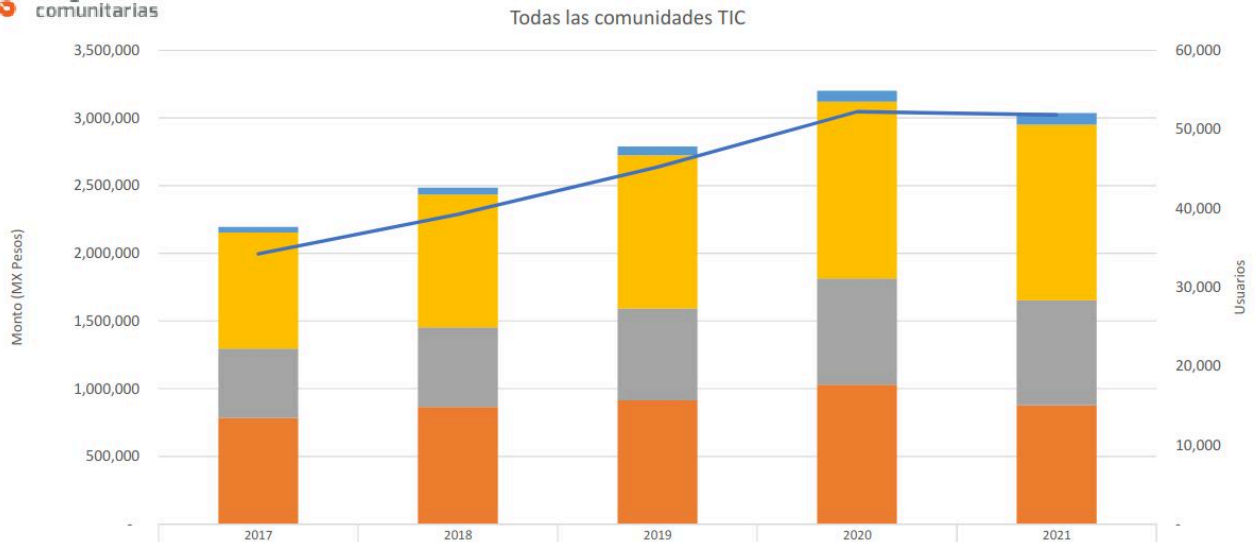
Technical infrastructure

Barriers to growth

- Insufficient spectrum for growing existing network
- Access to spectrum slow and bureaucratic
- Difficulty in finding reliable backhaul from rural sites
- Community ability to invest can be lacking

Usage and sustainability

telecomunicaciones indígenas comunitarias

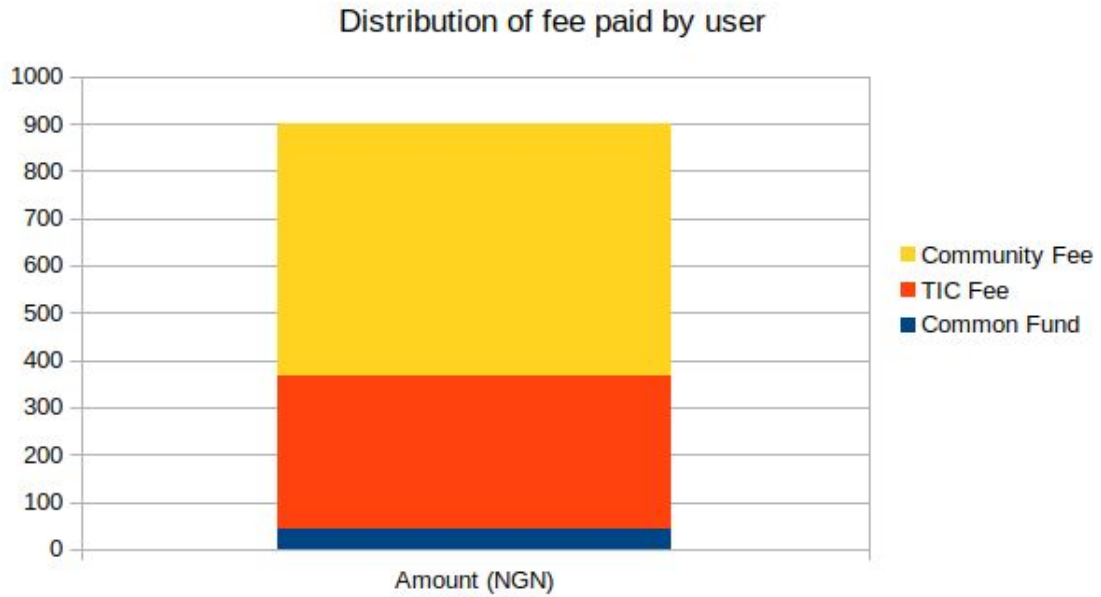


	2017	2018	2019	2020	2021
Fondo Común	41,014	51,794	66,022	81,578	86,992
Cuota Comunidad	855,225	980,550	1,130,200	1,305,300	1,295,550
Cuota TIC	513,135	588,330	678,120	783,180	777,330
Recargas	784,949	865,437	915,405	1,031,355	876,588
Usuarios	34,209	39,222	45,208	52,212	51,822

Each site generated ~900 USD/month in 2021

Sustainability innovation

- Licensing of a non-profit entity aimed at social benefit and local ownership
- Cost-oriented network
- Local community purchases, owns and operates network
- Community networks associate to share costs for maintaining legal team, developers, technical support



Free to make and receive calls and SMS within the network, free to receive international calls, cheaper rates to call outside

Impact

- TIC networks saves users and their families well over $1 million USD per year
- Creates over $600,000 USD in additional income for users
- Saves the Mexican government $750,000 USD.
- The networks increase security, community participation, access to information, small business development, access to services, and disaster mitigation.

Data from Research conducted by the Swiss Development Cooperation and Empatitis

Additional Resources

Websites

- https://www.rhizomatica.org
- https://wiki.rhizomatica.org
- https://www.tic-ac.org
- https://www.bbc.com/mundo/noticias-america-latina-63125802

Telephony Manual

- https://wiki.rhizomatica.org/index.php/Manual_telefonia_comunitaria

Videos

- https://www.rhizomatica.org/resources/

Case Study: CH4LKE Mobile

United Kingdom

- Community Network in Chalke Valley, Wiltshire, United Kingdom (a NOTSPOT)
- Inspired by B4RN, highly successful community-owned fibre optic network in Lancashire
- Using both *Local Access* and *Shared Access* license frameworks to build network.

Case Studies Part 1

With the support of

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