# Satellites and Vanuatu
# How We Are Doing It?

**ITU Satellite Symposium**
**Bangkok, Thailand**
**August/September 2017**

The Government
of The Republic
of Vanuatu

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# Agenda

- About Vanuatu
- Competitive Landscape
- Satellite Use in Vanuatu
- Future Challenges
- Summary

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# Vanuatu – Geopolitical Overview

- Archipelago consisting of 83 islands of which 63 are inhabited
- Population of approximately 272,500 (July 2017 mini census estimates)
  - 40% of the population are under 15
  - 75% of the population live in rural areas
- GDP (2015) of $US767.4 million
- Largest contributor to GDP is Services (tourism)
  - Agriculture follows close behind
- GNI per capita (2014) $US3,1480
  - 5% of monthly income is $US13
  - Cheapest unlimited internet service is $US58 (512kbps)
  - 1Gb monthly prepaid mobile data is $US10
- Political system is unicameral
  - Single chamber, multiparty, democratic republic
- Challenges
  - Political stability, economic development, natural disasters, high cost of logistics (transport and shipping)


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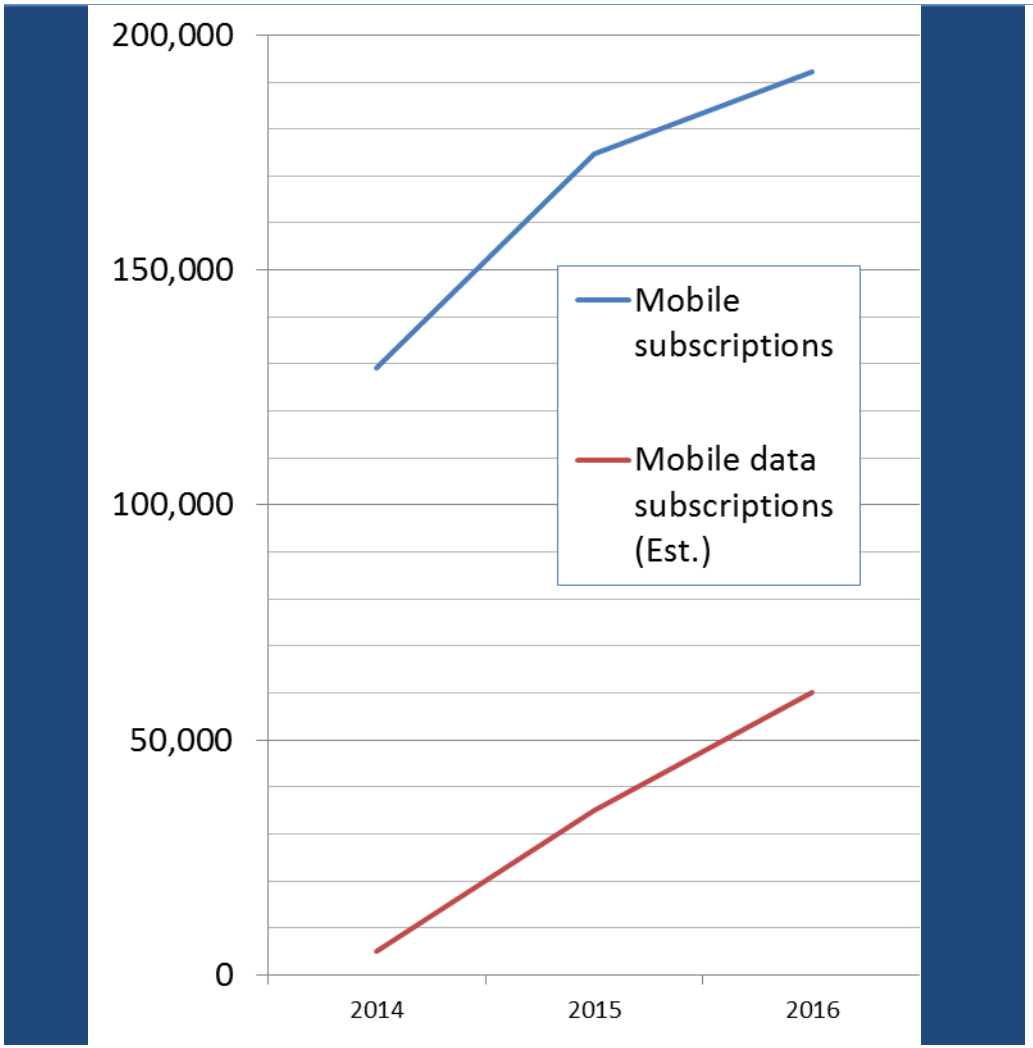
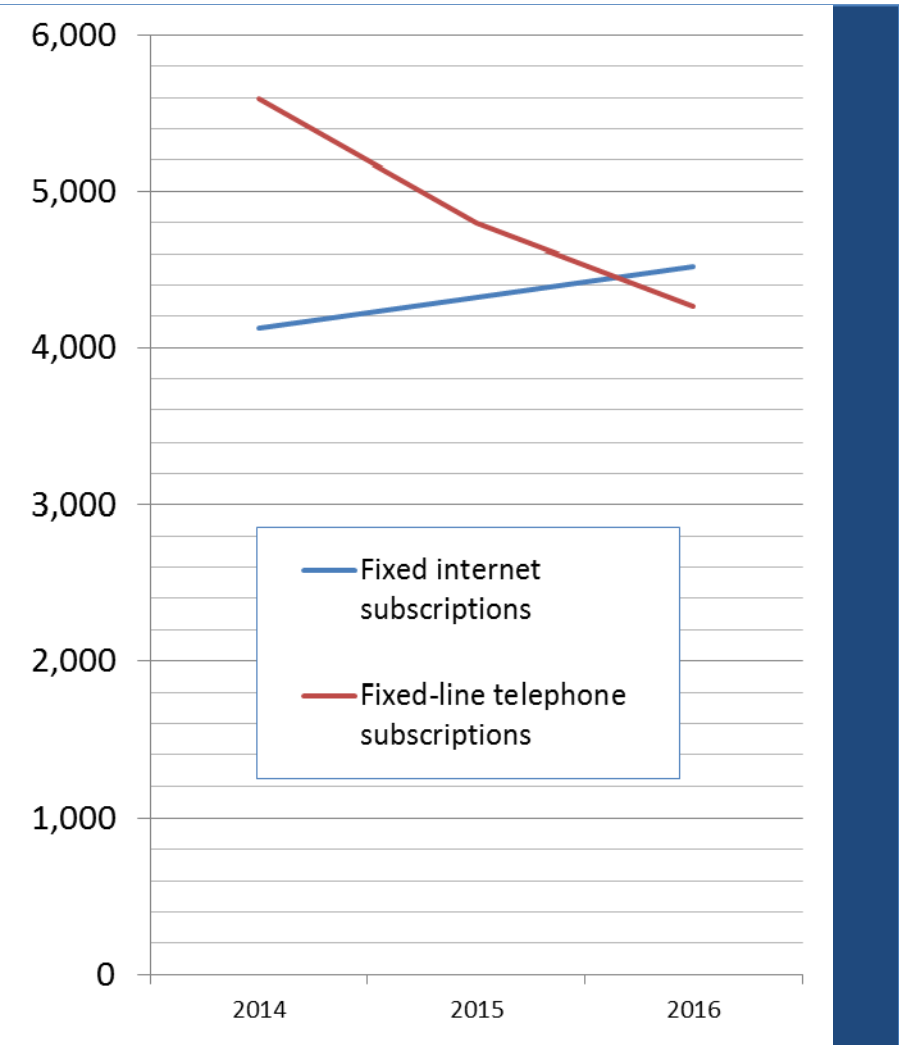
# Competitive Landscape

- TRR is an Independent Regulator
- Two full service carriers (Telecom Vanuatu, Digicel)
  - TVL dominant in fixed line and ISP
  - Digicel dominant in mobile
- A further 3 ISP players
  - Telsat, Wantok (fixed 4G), SPIM
  - Cover Port Vila only at this point in time
- Single Submarine Cable – Interchange Cable Limited
  - Fiji – Vanuatu
  - Wholesale pricing is starting to reduce with volume uptake
- Broadband satellite coverage – Kacific Broadband Limited
  - Ubiquitous coverage of Vanuatu landmass via Ku and future Ka satellite broadband
  - Ku band operational since June 2016 (9 pilot sites)
  - Retail service provision via Telsat
  - Niche implementation into areas unable to be served by terrestrial infrastructure

# Subscriber Growth

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# Market Trends

- Mobile penetration rate continues to grow from 53% in 2914 to 71% in 2016
- Analysis suggests around 98% of the population will have mobile coverage by 1 January 2018
- Mobile data has grown dramatically in the last 2 years
- Fixed internet subscriptions are growing gradually
- SMS has declined and substituted with OTT applications
- Mobile data bundles now have typical unit costs of US1 cent per MB
- Streaming services such as Netflix and YouTube are very popular, leading to demand and quality of experience improvements

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# Activities Contributing to the Increase in Connectivity

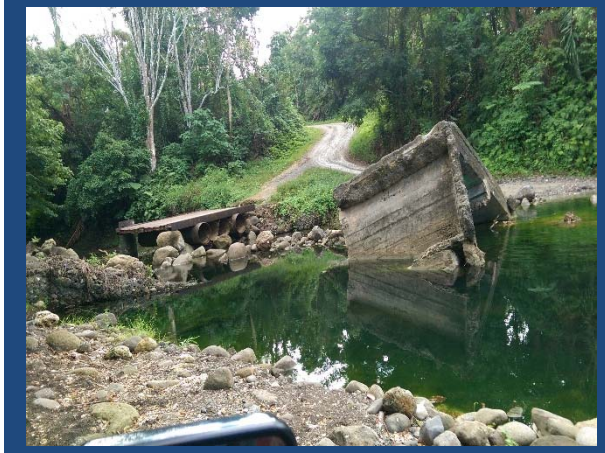
- Increase/improvement in mobile and internet coverage to unserved and under served areas
  - Combination of operator commercial activities and Government Universal Access Policy (UAP) funded projects
- Operator Activities
  - Pay or Plat approach under UAP
  - Involves signed undertakings to rollout infrastructure in un/underserved areas
  - Other contributions can be made such as bandwidth
- UAP Funded Projects
  - Initial focus on education – delivery of school/community labs
  - Assist in implementing school and student administration systems
  - Investigate and assist in opportunities in health, agriculture and Government services delivery
- Consumer awareness and education programs to schools ad communities across Vanuatu

# Why Satellite Technology

- Previously limited use of satellite technologies
  - Carrier use as gateway entry/egress until fibre
  - Some small scale VSAT services supplied by other Carriers
- UAP programs allocated funds to unserved areas for the establishment of
  - Computer Laboratories and Internet Community Centres (CLICC)
    - Provision of computer labs, solar power and internet facilities to 15 schools
  - Tablets for School (TFS)
    - Provision of tablets, solar power, secure storage and internet facilities to 7 schools
  - Telemedicine pilot
- Provided an opportunity to pilot alternative technologies in difficult environments
  - Kacific Broadband Satellites stepped up to provide “free” bandwidth for 12 months to 9 sites
  - Local ISP undertook all installation work
- ITU Disaster Community Centres
  - Currently in implementation phase
  - Commencing with 2 sites selected in Banks and Santo

# Satellite Service Locations

# School Sites



Merei Centre School, Santo

Matipavu Centre School, Santo

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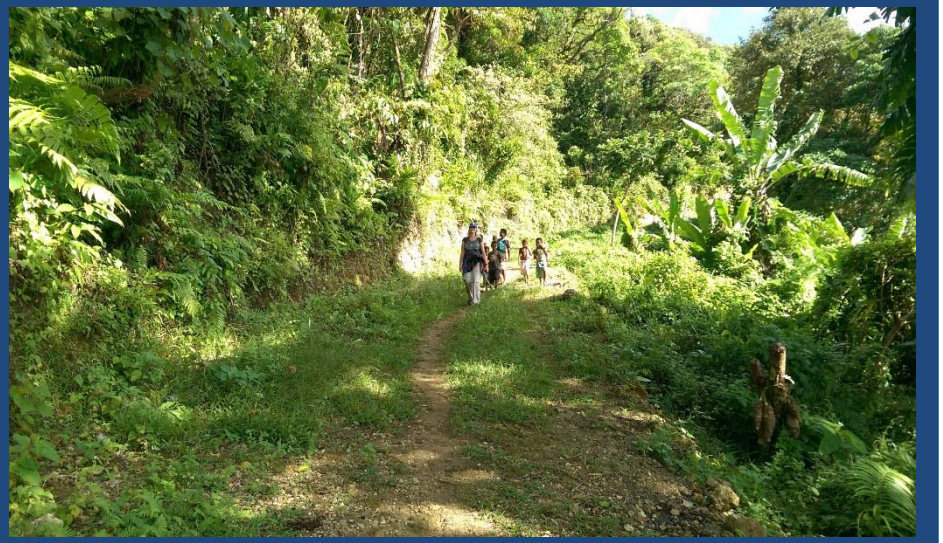
# Health Sites



Naviso Health Clinic, Maewo

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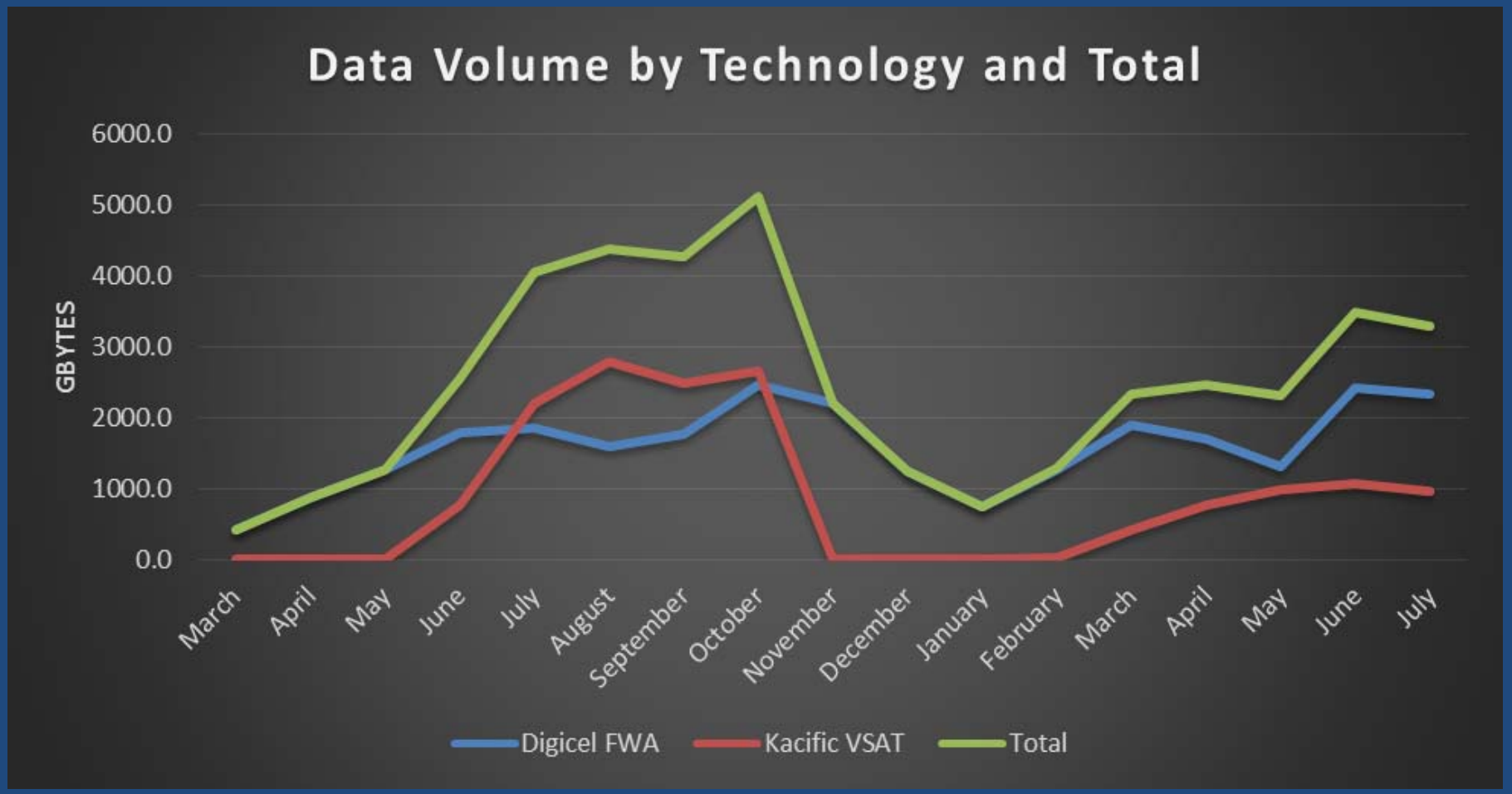
# Data Volume


Data Volume by Technology and Total
6000.0
5000.0
4000.0
3000.0
2000.0
1000.0
0.0
GBYTES
March
April
May
June
July
August
September
October
November
December
January
February
March
April
May
June
July
Digicel FWA
Kacific VSAT
Total

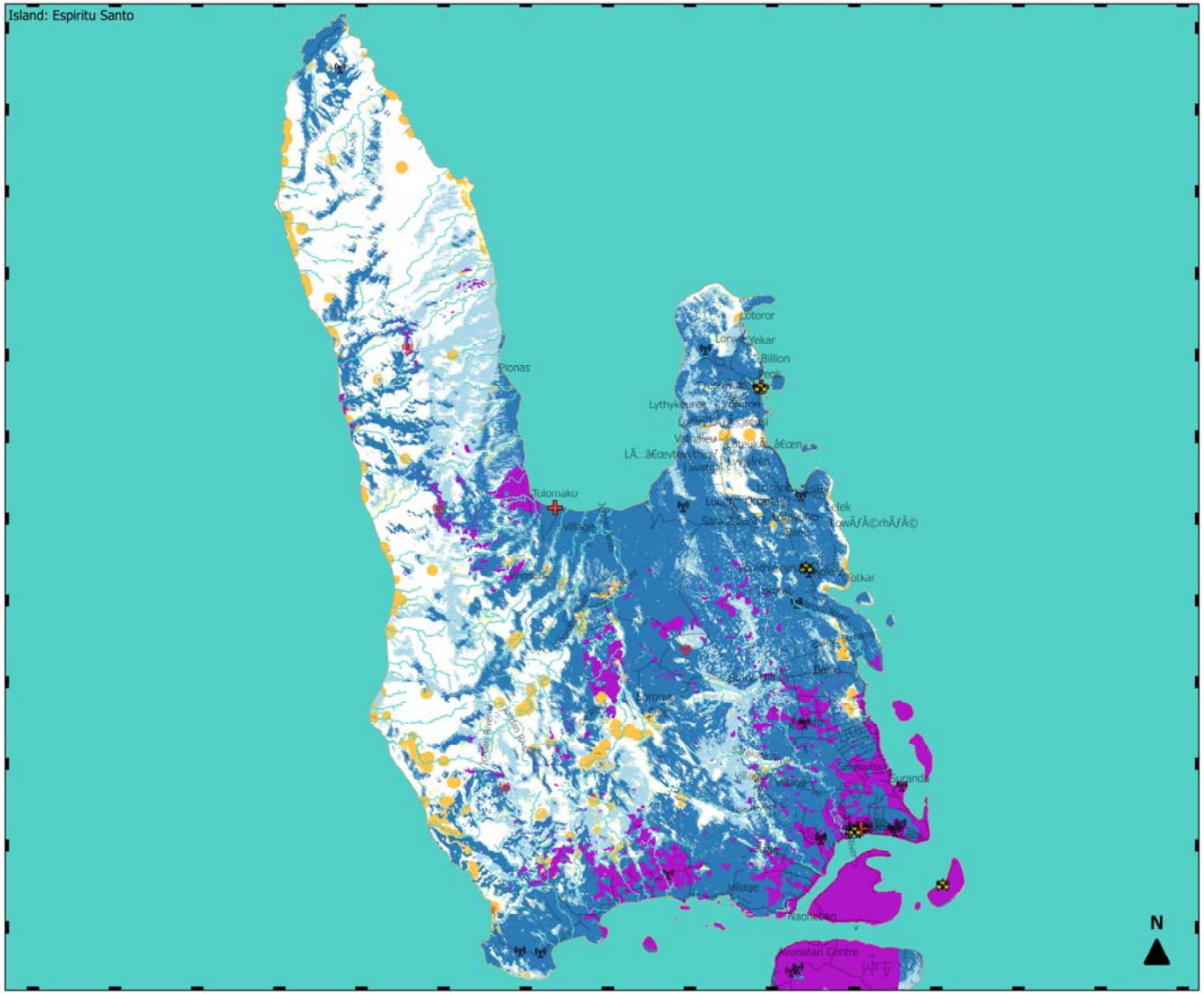
# How Providing Access and Services Help Communities

- The CLICC technology hubs are providing the point where the community can engage with ICT technologies
- The use of these centres allows quick dissemination information that is of benefit to the community
  - General community social issues
  - Establishing and transacting business online
  - E-government services such as agricultural extension services
  - Capturing local kastom, tradition and language
  - Adult and children's ICT training
- Health service provided faster across telemedicine and social media
  - Improves the diagnostic ability of local clinicians with early intervention saving lives and reducing the cost burden on the health system
  - Reduces the need of unnecessary transport of patients
  - Improves the local communities overall wellbeing
  - Facebook chat provides a forum for discussion

# The Future Challenges in Vanuatu

- There are a number of challenges that have been identified that satellite services may help to overcome
  - Unreliable Fixed Wireless internet services,
    - Fixed Wireless Access services at the edge of the network are not stable which have a negative impact on users and the perception of the service provider
    - Failure can be monthly, but due to many factors including poor quality infrastructure and environmental factors
    - Leads to lengthy downtimes
  - Actual geographic terrain is leading to limitations in terrestrial infrastructure
    - Sites identified have little to no access
    - Sites require significant amount of clearing
    - Shadowing of mountain ranges limits coverage to some localities
  - Economic returns
    - Increasing land disputes and terrain difficulties see escalating build cost for operators
    - Local revenues are small leading to loss making towers for operators and poor returns on investment
- Need to consider alternative technologies to facilitate services in remote locales
  - Satellite solutions have small footprint and lower cost
  - Satellite solutions cover the archipelago
  - Active sharing of small cell infrastructure with satellite backhaul?

# Future Use of Satellite - Coverage Example Santo Espirito

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# Summary

- Universal Access/Service is becoming a human right
- The more the population is exposed to and use ICT the better for the country
  - Educationally
  - Economically
  - Healthwise
- Satellite solutions provide complementary services to terrestrial services
  - Access and service is achieved at low cost in areas that are uneconomic or unable to be reached by terrestrial means
- Satellite solutions provide a wider coverage capability
  - Excellent for areas where terrestrial unlikely to be deployed
  - Good for infill in environmental cases
- Terrestrial Infrastructure investment in unserved areas is high with little return on investment
  - Satellite services are economical and provide a variety of services and access
  - Shared risk between private and public partners to support unserved areas
  - Need to consider agnostic infrastructure/spectrum sharing with satellite backhaul

# Tankyu Tumas

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