GSMA mAgri Webinar
18th October 2018

Innovations in Mobile IoT & Big Data for climate resilience

Webinar Agenda

1. Which services strengthening the climate resilience of the rural sector can most benefit from Mobile IoT and Big Data?

2. What are the technology assets that the private sector, including mobile operators, can offer to improve weather monitoring and forecasting in developing countries?

3. What business models can support the creation of viable public-private partnerships in this area?

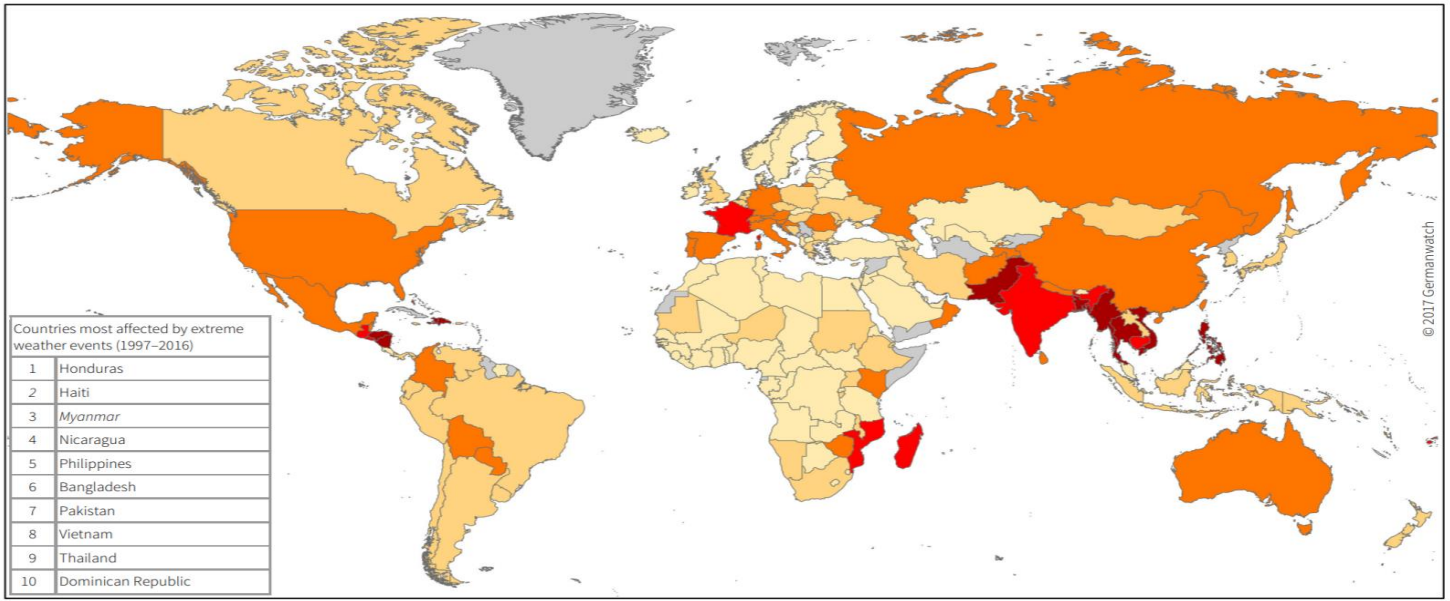
4. Case study: Ericsson Weather Data

5. Q&A

The GSMA mAgri Programme

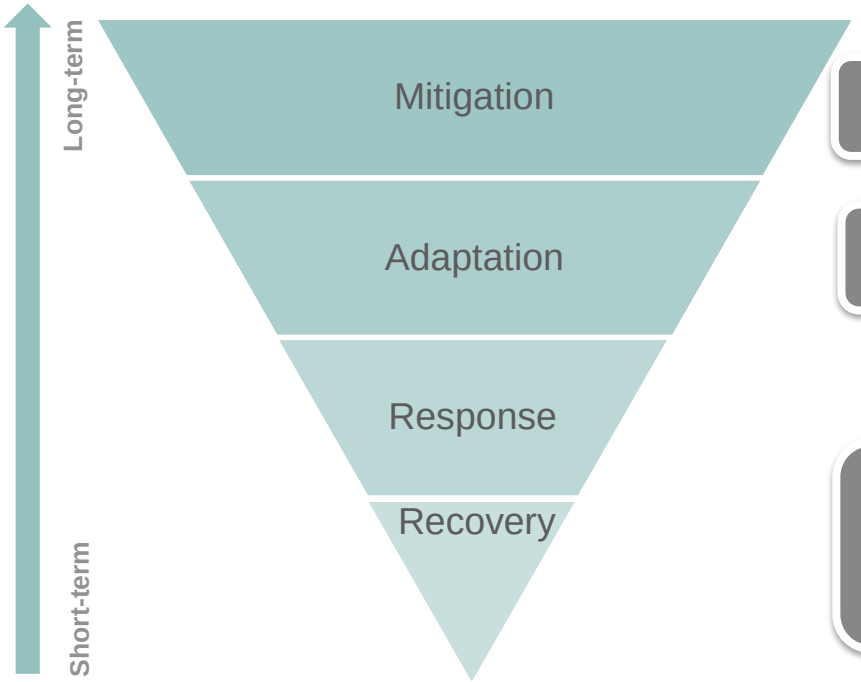
Who is GSMA M4D?	GSMA Mobile for Development (M4D) works with the mobile industry to identify opportunities and deliver innovations with **socio-economic impact**.
What is mAgri's mission?	The mission of M4D's mobile agriculture programme (mAgri) is to advance the **productivity, profitability** and **financial inclusion** of **smallholder farmers** through **scalable** and **commercial mobile services**.
What have we achieved?	Since 2009, the mAgri programme has supported **12 projects** which have reached **14 million** smallholder farmers across **Asia & Africa** with mobile information services.
Plans for 2018/19	• **Convene** the industry to share experiences and learnings on mobile agriculture. • **Identify** best practices for service design, business models, go-to-market. • **Engage** in six markets to support B2B agribusiness digitization services in Sub-Saharan Africa and South Asia

Developing countries are the most affected by climate and weather related disasters



Source: Global Climate Risk Index 2018 – Germanwatch

Mobile technology can play a role from climate change mitigation, through to adaptation and response and recovery



Digital use cases

Slow down climate change

- PAYG utilities
- Environmental monitoring

Adjustment to climate change

- Agronomic advice
- Weather monitoring & forecasting
- Precision agriculture
- Livestock & fishery management
- Supply chain & logistics
- Weather index insurance

Response to impacts of climate change

- Flooding alerts
- Drought prediction
- Population movement tracking
- Data collection on food security

Mobile IoT & Big Data are already supporting innovations in climate adaptation

Equipment Monitoring:
- Connected pumps - Nano Ganesh, Ericsson, Smarf
- Drip irrigation systems - SunCulture, Illuminum Greenhouses

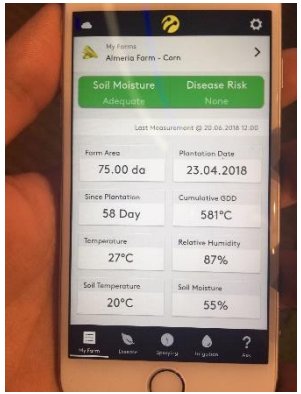
Weather Monitoring & Forecasting
- Low cost weather stations - Arable
- Remote sensing (satellite) solutions – Ignitia

Precision Agriculture:
- Weather adaptive agronomic advice – Libelium, aWhere (data driven agronomy)

Livestock & Fishery Management
- Dacom/Orange

Supply Chain & Logistics
- Warehouse management– Telefonica's Silos Bolsa, BeanIoT

Weather Index Insurance
- Digital index insurance - ACRE



By leveraging their IoT & Big Data assets there is an opportunity for operators to create new products & services

		Mitigation	Adaptation	Response
Revenue opportunity	End user products and services (B2C)	PAYG utilities	Agronomic advice; Weather forecasts; Weather Index Insurance	Flooding alerts
	Enterprise solutions (B2B; B2B2C; B2G)	PAYG utilities; Environmental monitoring	Agronomic advice, weather forecasting, precision agriculture; livestock & fishery management; Supply chain & logistics; Insurance	Flooding alerts; Drought prediction
	Leveraging data (IoT, CDR, mobile money use, etc.)	Environmental monitoring	Weather monitoring and forecasting	Flooding alerts; Drought prediction; Population movement tracking; Food security.
OPEX	Business practices	Business travel reduction; Materials used in S&D; E-Waste, etc.		Business continuity for customer support
	Operations management	Green energy for networks; Energy optimisation		Business continuity of operations and network recovery

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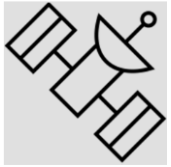
Farmers need access to weather advisory but developing countries lack the infrastructure to provide accurate forecasts

Radars

- Provide coverage of wide areas up to 200km
- Generate frequent and highly accurate measurements
- Very expensive & so prohibitive for developing countries to use

Weather Stations

- Provide frequent and highly accurate measurements for all basic weather parameters
- However only provide measurements at their exact location
- Can be difficult to maintain



Satellites

- Provide global earth coverage
- Fill in gaps from sparse ground based measurements
- However unable to detect small-scale weather phenomena

Weather and agronomic advice services & weather index insurance can benefit most from Mobile IoT & Big Data

Site Pyo weather app

- ✓ Mobile IoT (low cost sensors, automated weather stations) can provide the granular observations needed for accurate, localised weather forecasts and for index insurance
- ✓ Advances in big data technologies mean that it is now possible to forecast weather changes more accurately than ever before
- ✓ In a changing climate accurate weather information services are highly valued by smallholder farmers

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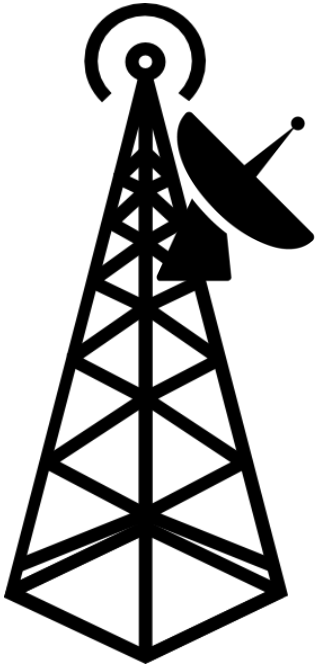
Mobile operators can leverage their infrastructure to support weather monitoring and observation systems

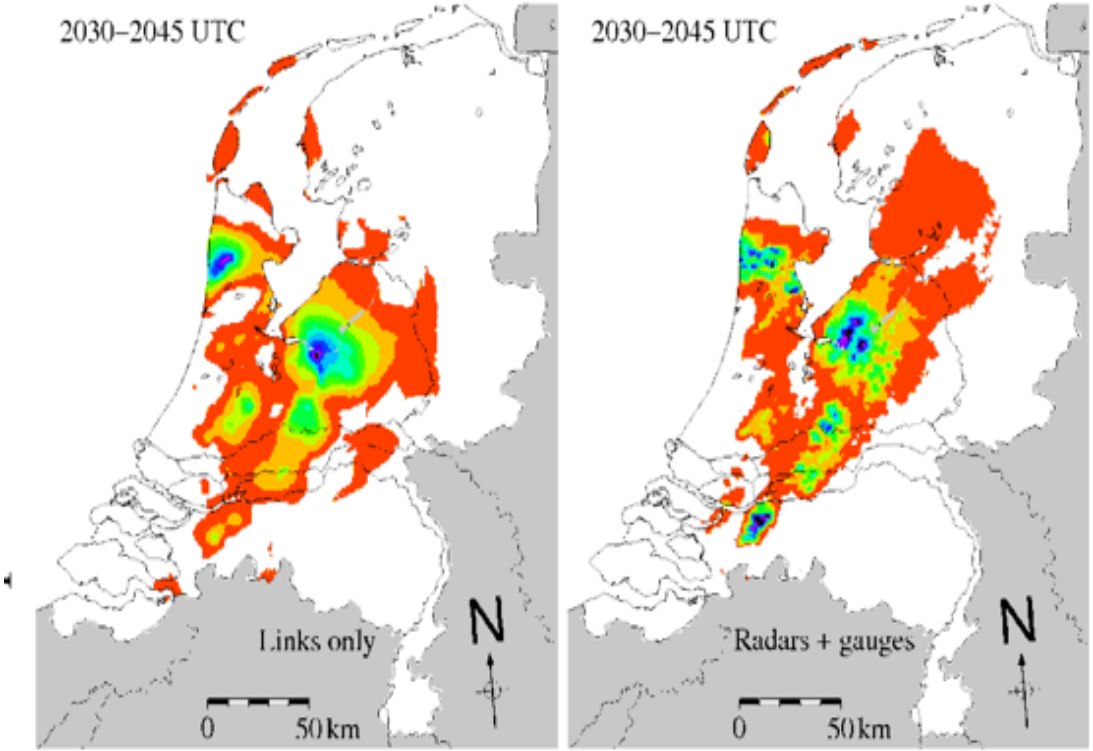


- Low cost connected weather stations are increasingly being deployed at base station sites for access to power & connectivity
- Pervasiveness of mobile, 90% + 2G population coverage in most developing countries
- Lowering CAPEX & OPEX due to the decreasing cost of weather sensors

Another key asset that mobile operators can offer is the ability to geo-locate users at the farm level

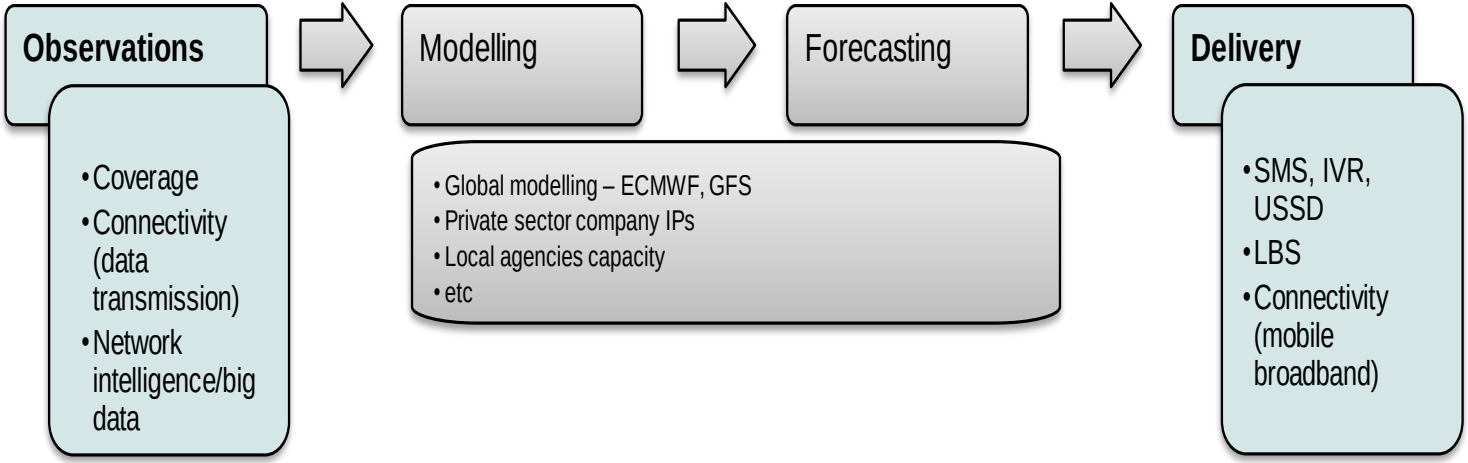
- Using the mobile network for geo-location enables localised, granular forecasts and weather index insurance
- Cell-ID is virtually a no-cost solution
- Triangulation requires location based software

Mobile operators can also leverage their network data to enable rainfall monitoring in real time

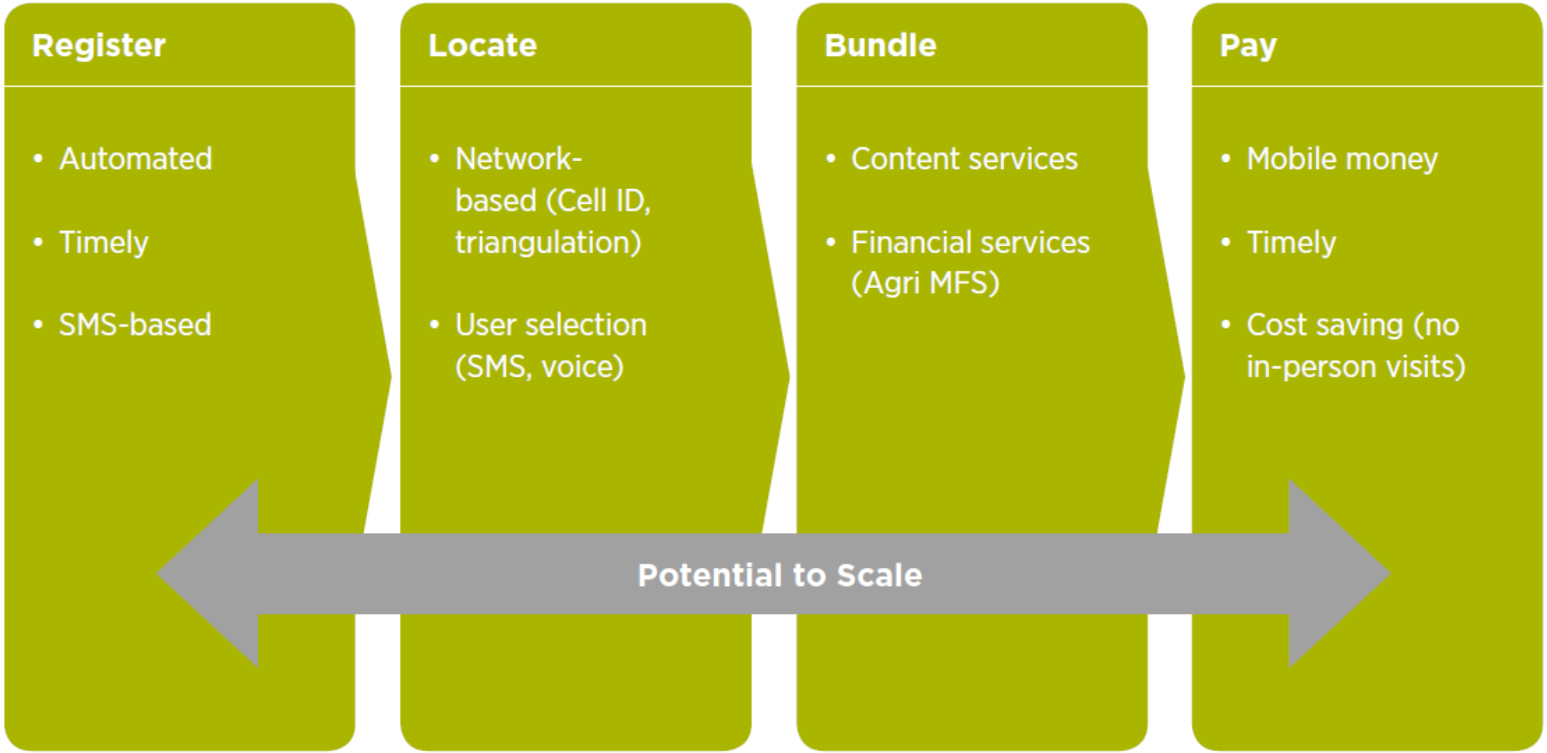


Source: Wageningen University/ Royal Netherlands Meteorological Institute

Mobile operators can therefore leverage their assets to help create and disseminate accurate weather forecasts



They can also play a key role in enabling digital weather index insurance through geo-location & mobile money



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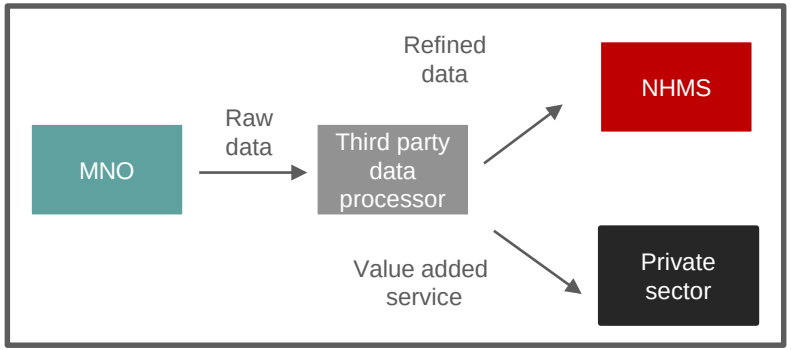
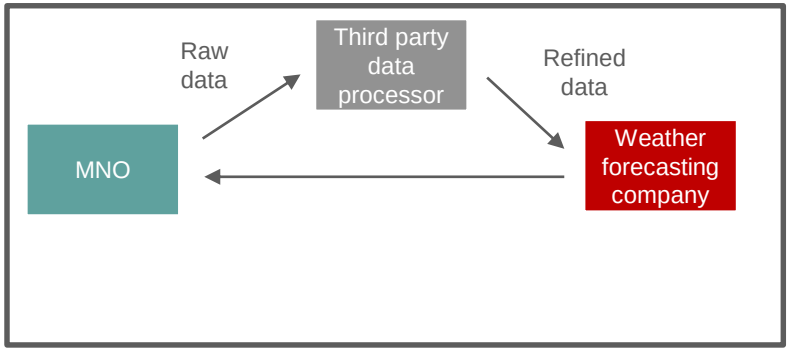
Developing viable business models that support public-private partnerships remains a challenge

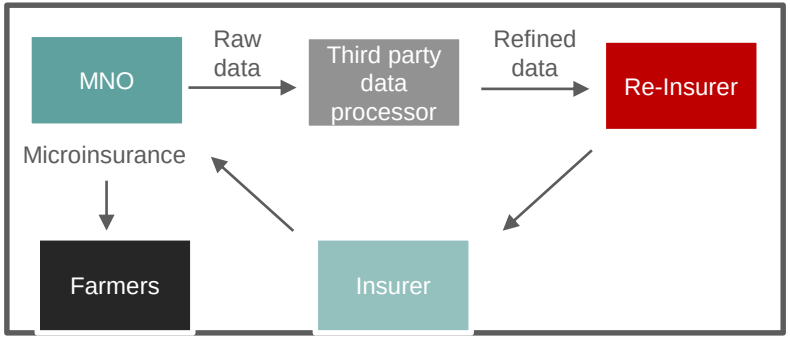
MNO as data provider



MNO as data provider & consumer

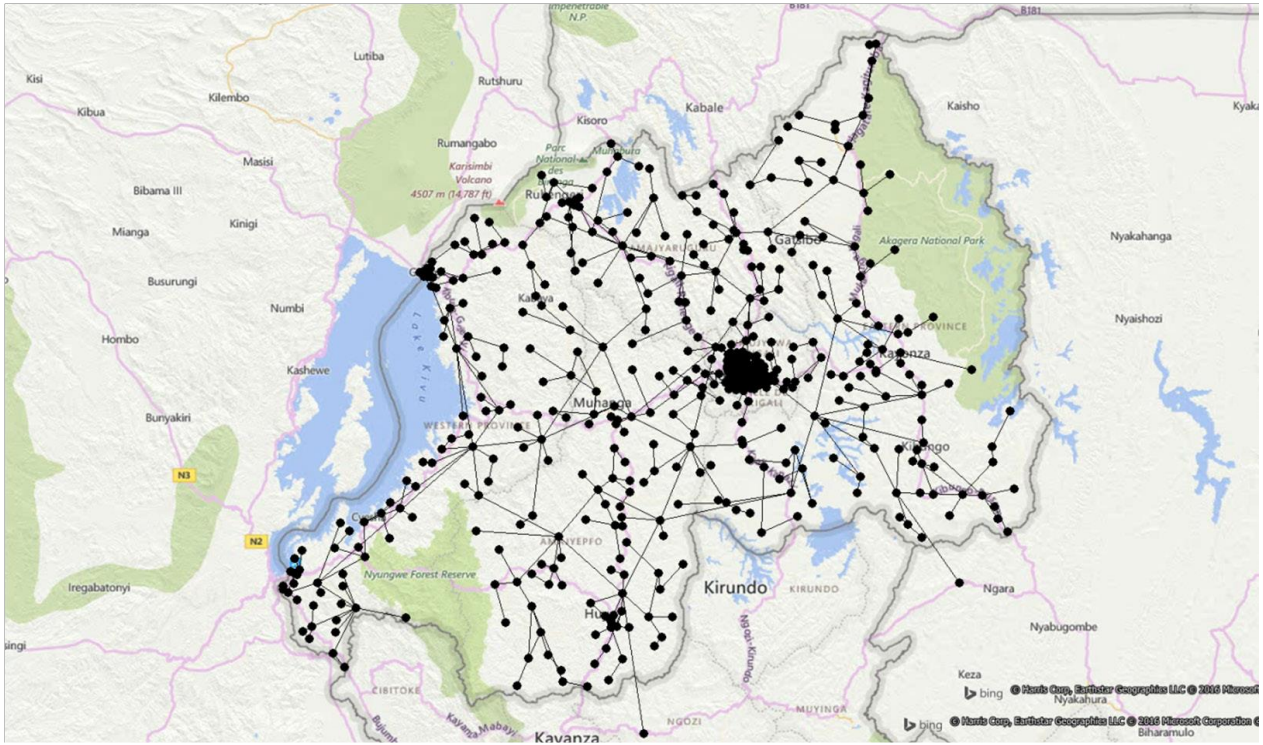


MNO as micro insurance provider



Case study: Ericsson Weather Data

Microwave links in Rwanda



Source: SMHI

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Thank you for joining
For more information reach out to us via mAgri@gsma.com