

DATA SOURCES FOR THE VIZUALISATION/MAPPING (Connectivity/Service performance)



SOURCE	CONNECTIVITY	SERVICE PERFORMANCE
1-Official declaration from Operators	X	X
2-Walk/Drive tests	X	X
3-Probes	X	X
4-Data directly from Operator Network equipments (NMS)	X	X
5-Crowdsourcing	X	X
6-Customer complaints	X	X

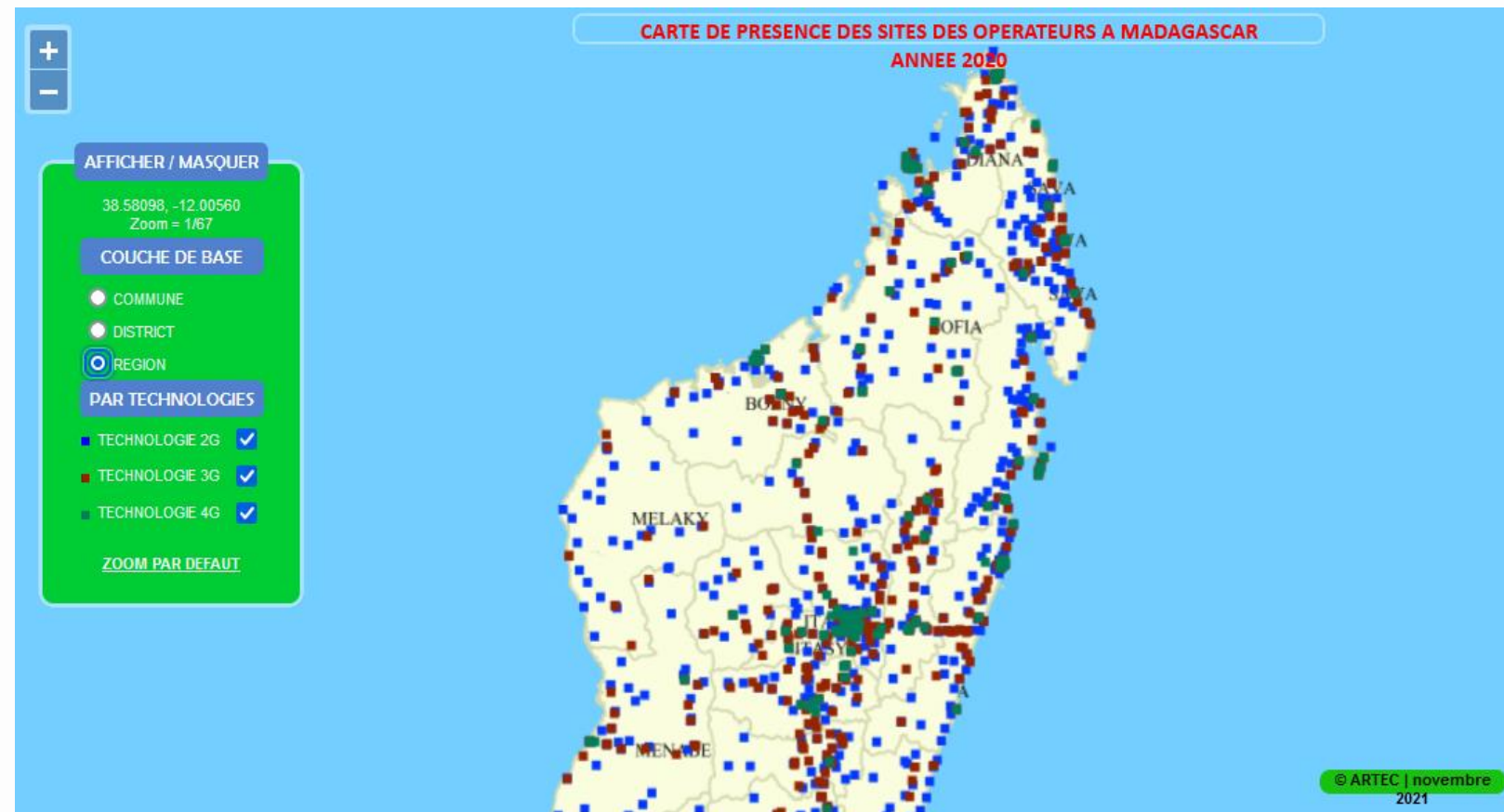
X:Case of Madagascar

MOST OF THE CASE:CONNECTIVITY MAPPING CONCERNS MOBILE NETWORKS

DATA SOURCES AND MAPPING OF CONNECTIVITY

CONNECTIVITY: -Infrastructure Rollout and location (Mobile base stations) provided by MOBILE operators to ARTEC (Yearly basis) based on the commitment on the licence documents

Mapping in the ARTEC Web site
<http://www.artec.mg/obs/sig/carto.html>



DATA SOURCES AND MAPPING OF CONNECTIVITY

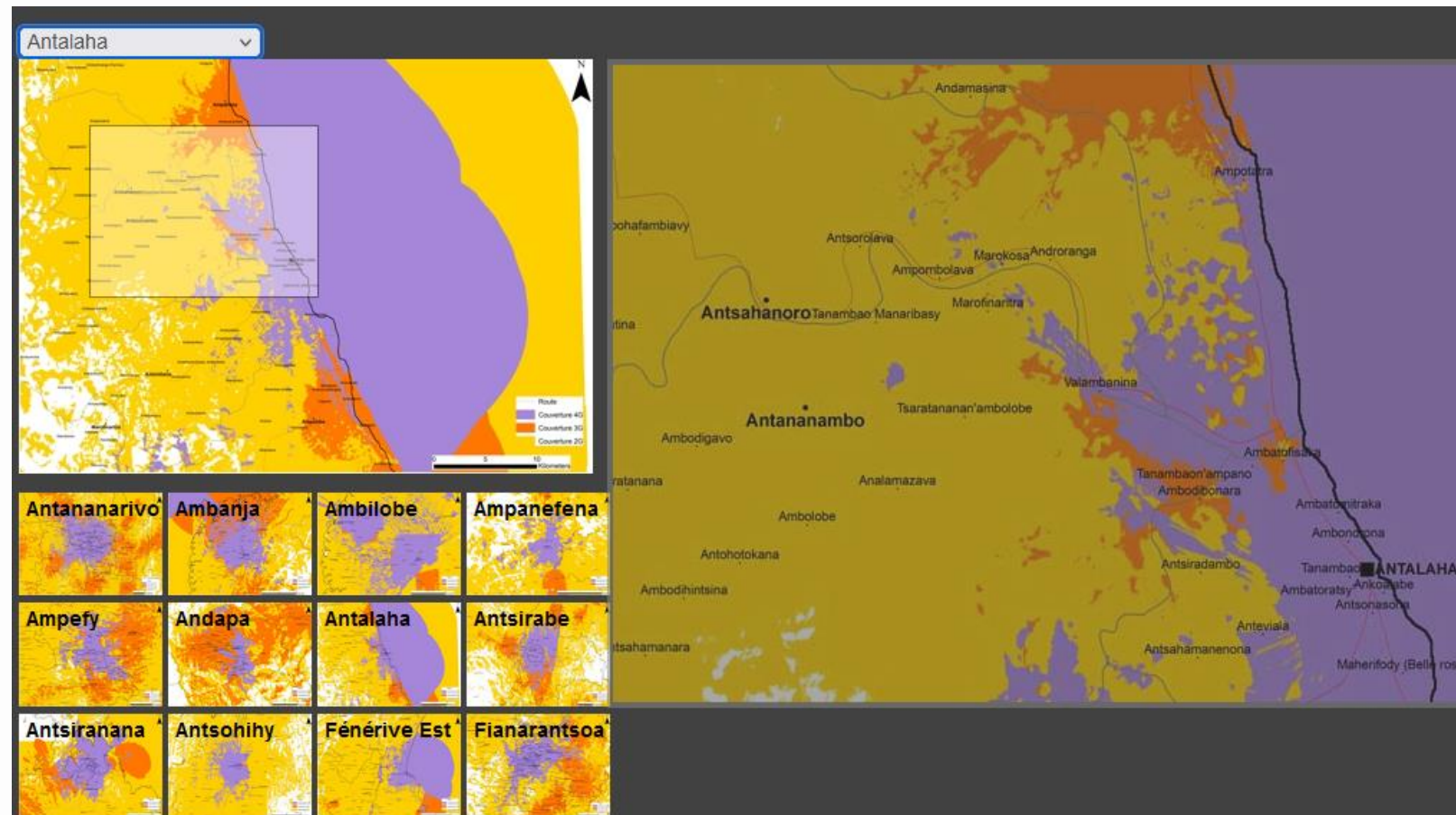
CONNECTIVITY:

-Operators are requested to publish coverage information on their website

Example 1:

2G-3G-4G coverage of Orange
Madagascar

[:https://www.orange.mg/extra/4G/couverture.html](https://www.orange.mg/extra/4G/couverture.html)



DATA SOURCES AND MAPPING OF CONNECTIVITY

CONNECTIVITY:

-Operators are requested to publish coverage information on their website

Example 2:4G/Optical fiber coverage of TELMA
Madagascar

[:https://www.telma.mg/reseaux/couverture-reseaux](https://www.telma.mg/reseaux/couverture-reseaux) ;



DATA SOURCES FOR SERVICE PERFORMANCE VIZUALISATION

SERVICE PERFORMANCE:



-Quality of services indicators provided by Operators based on licence documents on Yearly basis (Based on licence documents)

-Complaints from end users via the ARTEC ticketing tool of the complaints tracking center (E-TRACE)

VIZUALISATION OF SERVICE PERFORMANCE

SERVICE PERFORMANCE:

→ **QoS observatory** based on official declaration /updated manually every year



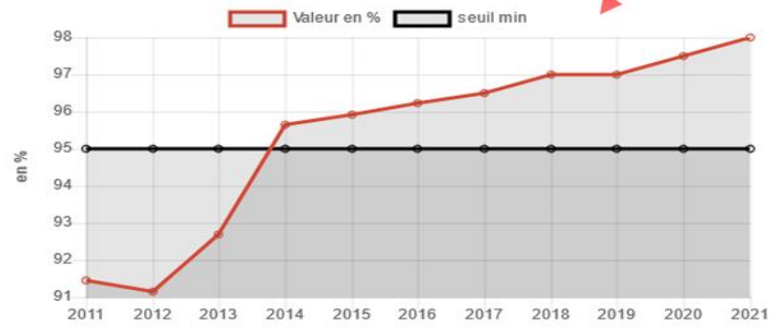
Autorité de Régulation des Technologies de Communication

- ACCUEIL
- UTILISATION
- MARCHE
- NOS SITES
- QOS
 - Données annuelles 2010-2021
 - TABLEAU RECAP.
 - Détails FIXE
 - Détails MOBILE
 - Détails INTERNET

OP1 OP2 OP3 OP4

- ✓ : Conforme par rapport au cahier des charges
- ✗ : Non Conforme par rapport au cahier des charges
- N/A : Statistiques non fournies

Taux d'appels efficaces intra-réseaux



OP4	
Taux d'appels efficaces intra-réseaux	✓
Taux d'appels efficaces inter-réseaux	✓
Taux d'appels efficaces internationaux	✓
Durée cumulée d'indisponibilité de chaque station - hors cas de force majeure (période d'un an)	✓
Temps moyen entre deux pannes d'une même station de diffusion	✓
Délai de traitement des réclamations émanant des abonnés	✓
Taux de communications réussies et maintenues 2 minutes	✓

VIZUALISATION OF SERVICE PERFORMANCE

SERVICE PERFORMANCE:

→ MANUAL reporting based on the received complaints from the data of a Ticketing Tool named e-TRACE

e-TRACE Rapporter une réclamation TELMA tahiry

Mon affichage

Afficher les réclamations

Rapporter une réclamation

Synthèse

Administration

Liste des réclamations 1-7/7

Imprimer des rapports Export CSV Export Excel Synthèse Tendances des réclamations

	P	n° Ticket		Date de réception	Source	Résumé	Qualification	Statut	Mis à jour	Date d'échéance
<input type="checkbox"/>		0006215	6	2021-12-22 10:17	AUTRE	Problème de couverture réseaux	Réclamation	fermé (telma)	2022-02-10 15:19	2022-01-13 10:17
<input type="checkbox"/>		0006015	4	2021-07-02 14:43	APPEL	Doléances du Député RANDRIANARIVELO Justin concernant la « Couverture Réseaux » dans le district d'ANTANAMBAO MANAMPOTSY	Réclamation	fermé (telma)	2021-11-17 09:21	2021-07-04 14:43
<input type="checkbox"/>		0006014	4	2021-07-02 09:33	AUTRE	Doléances du Député SATRA AUGUSTIN concernant la « Couverture Réseaux » dans le district de BRICKAVILLE	Réclamation	fermé (telma)	2021-11-17 09:20	2021-07-04 09:33
<input type="checkbox"/>		0005979	6	2021-05-12 13:29	APPEL	problème de réseau	Réclamation	fermé (telma)	2021-11-17 09:15	2021-05-26 13:29
<input type="checkbox"/>		0005980	6	2021-05-14 08:36	APPEL	Problème de réseau TELMA à Betatao, Ambatomanohana ANJOZOROBE	Réclamation	fermé (telma)	2021-11-17 09:14	2021-05-28 08:36
<input type="checkbox"/>		0006172	2	2021-09-28 14:50	AUTRE	Demande de pylônes - demande de planning de déploiement- District Antsalova	Demande d'information	fermé (telma)	2021-10-01 08:49	2021-10-05 14:50

Example of Reporting (Manually)

MOTIF RECLAMATION	% du motif
DEMANDE DE REQUISITION	52,0%
COUVERTURE RESEAU	9,5%
MOBILE MONEY	5,5%
MIGRATION OFFRE	4,5%
RECHARGE : CONSOMMATION CREDIT NON CLAIRE	4,5%
DEMANDE DE RESILIATION	3,5%
COUPURE INVOLONTAIRE	3,0%
LENTEUR DATA	2,5%
APPEL NON ABOUTI	2,0%
LENTEUR DE REPOSE AUX REQUISITIONS	2,0%
RECHARGE : NON CREDITE APRES RECHARGE	1,5%
DEMANDE DE RECUPERATION DE CREDIT	1,0%
DEMANDE DE REMBOURSEMENT CAUTION	1,0%
PROBLEME SMS	1,0%
SOUSCRIPTION OFFRE	1,0%
TELEPHONE VOLE	1,0%
ACCES SITES WEB	0,5%
CHANGEMENT DE TARIF SANS AVERTISSEMENT PREALABLE	0,5%
CONSTRUCTION DE PYLONE	0,5%
FRAIS DE SERVICE ELEVE	0,5%
FRAIS DE TRANSFERT	0,5%
HAUSSE DE TARIF	0,5%
PERTURBATION FO	0,5%
SITE INTERNET BLOQUE	0,5%
VICTIME D'ARNAQUE	0,5%

ISSUES vs CHALLENGES: MADAGASCAR



CHALLENGES FOR ARTEC

- COLLECT THE MAXIMUM VOLUME OF DATA TO GET CLOSER TO REALITY
- AUTOMATIC/REAL TIME PROCESSING OF DATA (Analysis, prediction if needed)-
- THE RIGHT DASHBOARD FOR RIGHT INDICATORS (threshold and reference values)
- COMPLETE MAPPING OF OPERATORS NETWORK

ISSUES FACED BY ARTEC

- SMALL VOLUME OF COLLECTED DATA
- MANUAL PROCESSING
- INDICATORS TO BE UPDATED
- CONNECTIVITY MAPPING FOR OPERATORS NETWORKS NOT COMPLETE

VS



WHICH STRATEGY TO ADOPT?

NON TECHNICAL ASPECTS

-Put in place an updated QoS regulatory framework so as to be able to monitor /visualize/Assess the Connectivity & Service performance-to publish all the results for each operator (on **3Months basis**)-To request to the operators to publish the whole information related to their networks coverage-to have access to their monitoring system-To involve them in a QoS/QoE committee to deal with all QoS/QoE issues and resolution



-**Separate the document related to QoS/QoE Indicators from licence document** in order to facilitate any changes on it if needed.

-Involve **all the stakeholder** in the process in order for them to get **the common acceptance of the results** of the assessment (operators,Ministry of telecom,users)

-**Inform/Educate/Sensitize end users** to be part of the ecosystem as stakeholder to contribute in providing as much data as possible related to user experiences possible via Crowdsourcing Application

WHICH STRATEGY TO ADOPT?

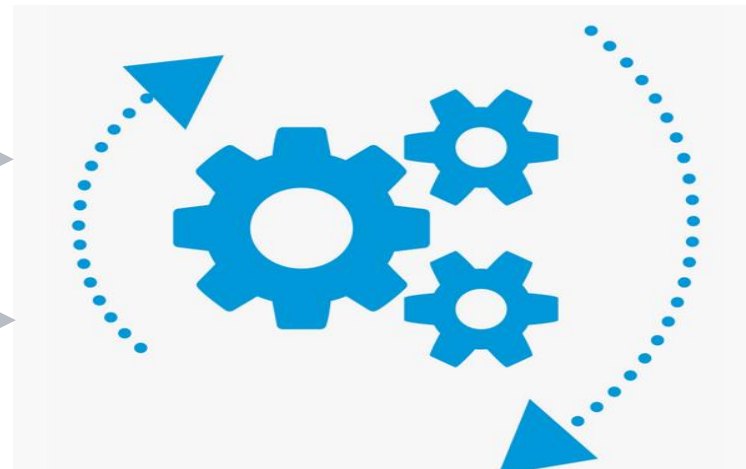
TECHNICAL ASPECTS

- **Updating** of the **right indicators and Thresholds** to be more efficient in the assessment (according to existing recommendation)
- **Automation of the reporting** related to the trends of user QoE complaints from the **tracking center**
- **Genuine automatic tool** to collect all the relevant information for the right Mapping (connectivity and Services performance) ,to facilitate the assessment.

INPUTS

End users data from
crowdsourcing application

Drive tests Results

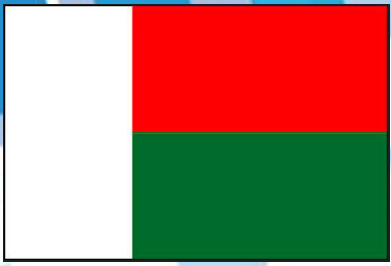


OUTPUTS

Interactive Mapping of network
coverage and service
performance

Notification/alerts in case of
detected abnormal trends

Collect /Process/Analyze /Visualization/Mapping



Misaotra Tompoko !!!!

Merci!!!

...Thank you!!!