Meaningful Quality, beyond Meaningful Connectivity in Africa

Industry viewpoints on *Enhancing Over-The-Top (OTTs) service quality and connectivity assessment in mobile networks*

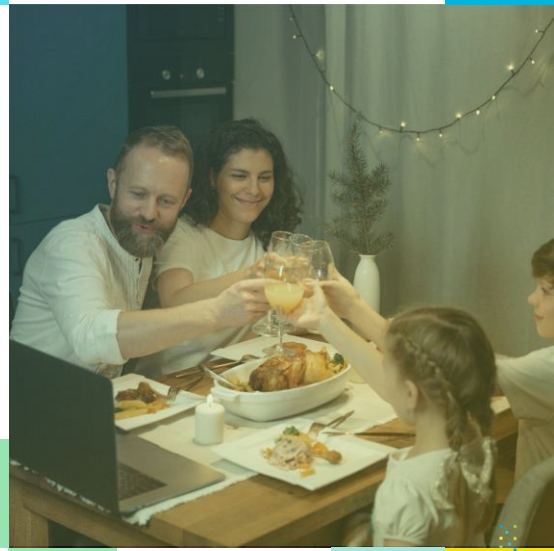
Recommendation
ITU-T E.813 (05/2024)

ITU Workshop
"Telecommunication Service Quality"

Sierra Leone,
1-4 July 2025

Content

1. Meaningful Quality, Beyond Meaningful Connectivity
2. Measuring Meaningful Quality
3. International Use Cases
4. SDG 2030 Goals



Meaningful Quality, beyond Meaningful Connectivity

We want to transform our society

A Path Towards Impactful Connectivity

QoE Everywhere in the Digital Era

Quality of Experience Everywhere

"Universal access to reliable enriching, satisfying, and productive Services"

Speed is not enough, comprehensive KPIs are necessary

Accessibility

Speed Delivery Time

MOS **Reliability**

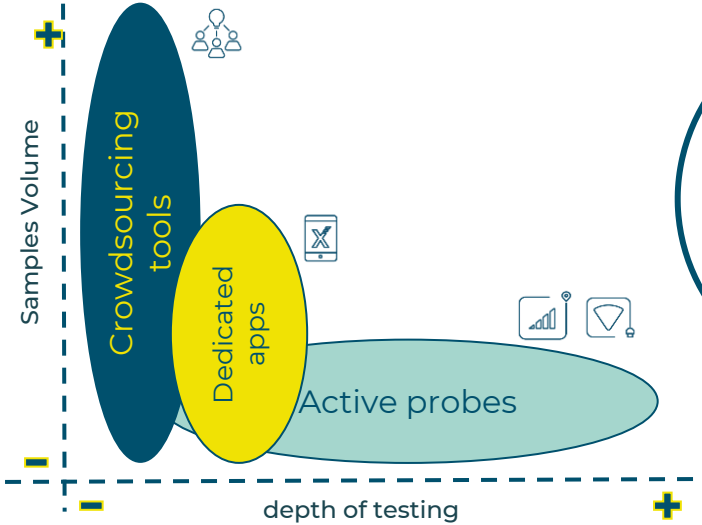
Time to content

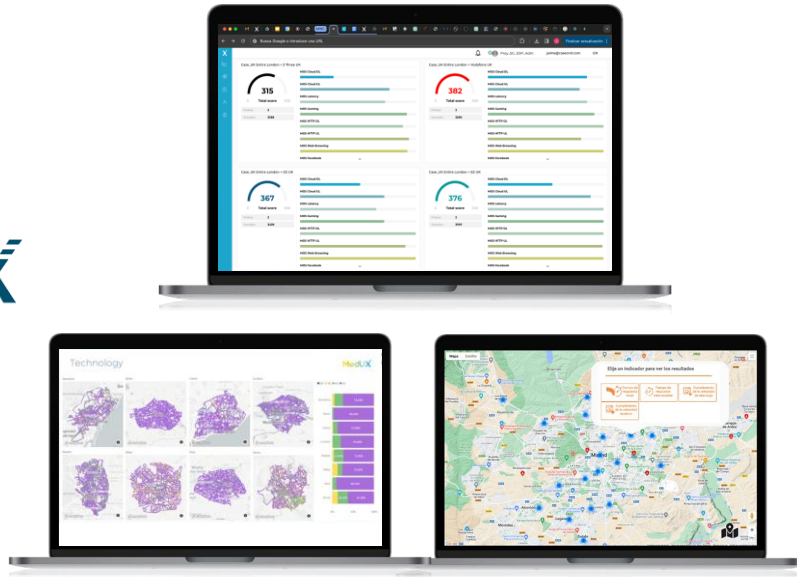
Stalls

Measuring Meaningful Quality

The HOW? Crowdsourcing and complementary method based on robots

MedUX integral QoE Vision in line with ITU: Mapping and visualization strategies for the assessment of connectivity





Data Collection

"A connectivity assessment interface for regulators should be able to accommodate detailed performance and coverage indicators derived from different database sources"

Scoring, Index & Visualization

"Identifying different performance and usability levels in different geographical areas through a connectivity index can provide a better understanding for the end users service status and can lead to greater competition and investment"

A Multiplatform strategy | Massive field-data & Grand scale monitoring

Crowdsourcing & Agents SDK

- Massive measurements from **end user perspective** using real consumer devices are essential to understand **network connectivity status** and detect network issues at large geographical levels
- Very useful for **improving QoS** and **enhancing QoE** nationwide.

Robots

- **Emulating end-user's** behaviour with dedicated active testing devices is crucial to provide **reliable QoS and QoE** measurements with **in-depth information.**
- It allows to compare, diagnose and troubleshoot network coverage and **quality issues** in specific locations in **real-time**.

A unique Meaningful Quality Multi-platform approach for

Regulators

Provides both high-level and detailed connectivity information and QoE KPIs comparison at different geographical levels. It enables benchmarking, service compliance and punitive regulatory use cases.

Operators

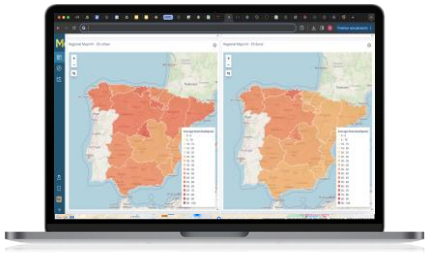
Enables both high-level and detailed understanding of network performance and different use cases such as benchmarking, planning, optimization and trouble-shooting, based on coverage, performance, service degradation and targeted lower-layer KPIs.

End-users

End-users are empowered via value added services and utilities. This generates a new touchpoint with their service provider, catering for an open service provision

Mapping and visualization strategies for assessing the connectivity

Accelerating infrastructure deployment

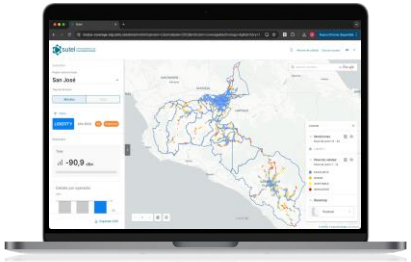


Cloropeth maps can provide useful means of highlighting which administrative groupings may required investment

Resolving quality of service issues

Hexagon-based maps enable the users to understand patterns that can lead to service issue identification

Providing informed choices to end users in terms of services



Public portals provide a basic view for citizens through visualizations such us network coverage, network consistency, general QoS and QoE performance

Improving transparency and governance

Mapping tachnical KPIs into synthetical KPIs using a scorecard can help regulators and governements monitor operator's complicance

International use cases

End-user empowerment

for

Regulators

Use case 3 ITU Recommendation ITU-T E.813: Providing informed choices to end users in terms of services

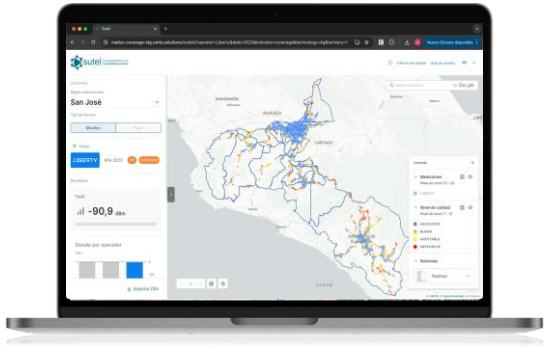
Robots

Costa Rica – Multiplay visualization platform

Grand Scale QoE Monitoring for SUTEL in Costa Rica

SUTEL, the telecom regulatory authority of Costa Rica, needs to benchmark the performance of 3 mobile and 4 fixed operators at a national/regional level to empower end-users with transparent information

- Understanding market trends and encouraging operators to continuously enhance the service quality.
- Empowering telecommunications customers with informed decisions when choosing a service.
- Supporting quality compliance analysis and investigations.
- Making informed decisions in regulation and policy shaping.



MedUX Solution

MedUX deployed a total of 560 robots (active testing probes) with national and regional granularity, including 270 **MedUX MOBILE** and 290 **MedUX HOME** to measure mobile and fixed network performance and quality of service in nRT (near Real Time). MedUX also provided a **Public Portal** where the information extracted from the measurements can be used by end-users through an interactive and friendly interface.

Quality of Experience testing functionalities:

- ✓ Service availability
- ✓ Ping (Mobile, Fix)
- ✓ HTTP transfers (Mobile, Fix)
- ✓ DL/UL Speed Tests (Mobile. Fix)
- ✓ Voice Tests (Mobile)
- ✓ POLQA (Mobile)
- ✓ MedUX MOS (Mobile)

Massive field-data monitoring

for

CSPs and Regulators

Use case 2 ITU Recommendation ITU-T E.813: Resolving quality of service issues

Apps/Agents

Colombia – Embedded agents

Massive QoS monitoring for CRC in Colombia.

CRC, regulatory entity and main mobile network operators (Movistar, Claro, Tigo, WOM) need to understand the Quality of Service of mobile networks in Colombia throughout the entire country.

- Understanding market trends and empowering the end-user (rational consumer)
- Addressing the informational needs for mobile quality measurements to facilitate continuous network improvement.
- Enabling punitive processes if minimum quality thresholds are not met.

MedUX Solution

MedUX has massively deployed an **SDK solution,** that performs quality of service measurements, embedded into the customer care apps of major mobile network operators, thanks to the collaboration of millions of users in Colombia.

Our **Crowdsourcing methodology** allows operators to access information in near real-time to meet performance requirements, including specific regulation on data granularity (geographical levels) and minimum number of samples. Additionally, our platform delivers periodically reports to ensure regulatory duties.

The following QoS/QoE testing functionalities are part of the solution:

- ✓ Service availability
- ✓ Latency, jitter, PL
- ✓ Speed tests DL/UL

Massive QoS monitoring for CRC in Colombia.

Project Scope

- Field measurements collected from the operator's end-user applications to:

  ✓ Elaborate **statistical service performance analysis.**

  ✓ Benchmark service quality among **mobile network operators.**

  ✓ Understand service **trends and evolution.**

- More than **15 million speed tests** per month covering **982 municipalities**.

- More than **7 million unique devices** reporting.

- Evaluation of **2G, 3G and 4G** technologies.

Bridging the digital divide

for

CSPs and Regulators

Use case 1 ITU Recommendation ITU-T E.813: Use case 1: Accelerating infrastructure deployment

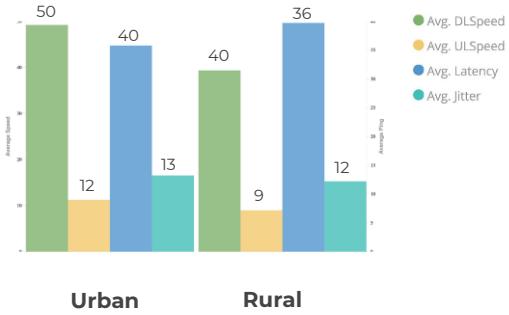
Crowdsourcing

Spain – Crowdsourcing

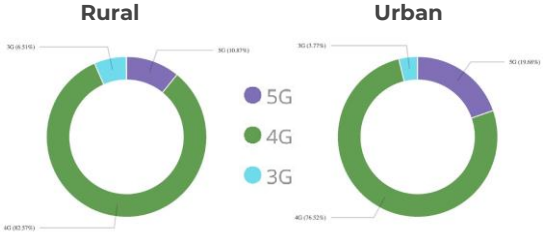
Massive monitoring for regulatory purposes in Spain.

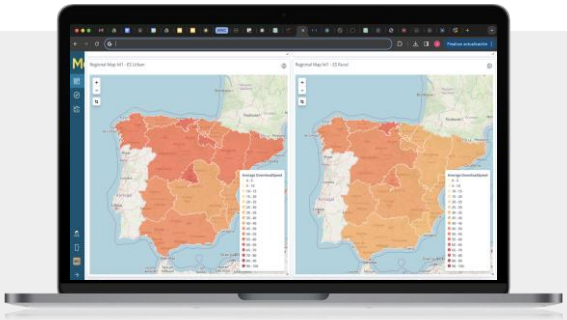
Understand the QoS and QoE of mobile networks in Spain throughout the entire country.

- Evaluate how network investments have an impact on the quality perceived by citizens at any type of community



- Ensure that operators make efforts to close the gap between urban and rural connectivity





MedUX Solution

MedUX has massively deployed an **Crowdsourcing solution,** that collects quality of service and quality of experience data from embedded SDKs deployed into multiple apps available in the main market places.

Our **Crowdsourcing methodology** allows operators to access information in near real-time to meet performance requirements, including specific regulation on data granularity (geographical and demographical levels) and minimum number of samples.

Connectivity Index

for

CSPs and Regulators

Use case 4 ITU Recommendation ITU-T E.813: Improving transparency and governance

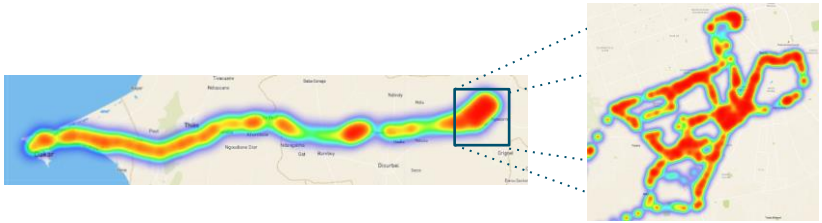
Robots

Senegal – Light Drive Testing Robots

Use Case

Mass event monitoring and benchmarking for ARTP in Senegal.

ARTP, need to understand the performance of mobile networks in Senegal during a crowded pilgrimage



- Gaining actionable insights into real services experience.
- Leveraging results to make informed regulatory decisions.

MedUX Solution

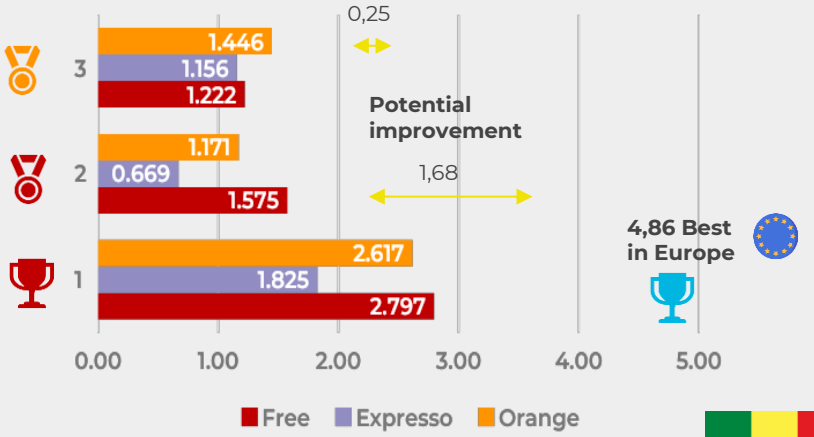
MedUX deployed **active testing robots** to measure mobile network performance and quality of service along the predefined city and route.
To provide meaningful quality results we applied our scoring methodology.

Service category weights:

- 35% - Voice & SMS
- 5% - Accessibility
- 20% - Value for speed
- 20% - Streaming Experience
- 20% - Web & OTT

Test area weights:

- 60% - City
- 40% - Road



Integral multi-platform testing and monitoring strategy

Quality of Experience is the KEY

A meaningful quality multi-platform monitoring strategy

Crowdsourcing Data

Initial crowdsourcing fast & direct data access

- Objective: monitoring and **benchmarking of different market actors**
- Use cases: monitoring, benchmarking and identification of improvement areas

SDK or Stand Alone App

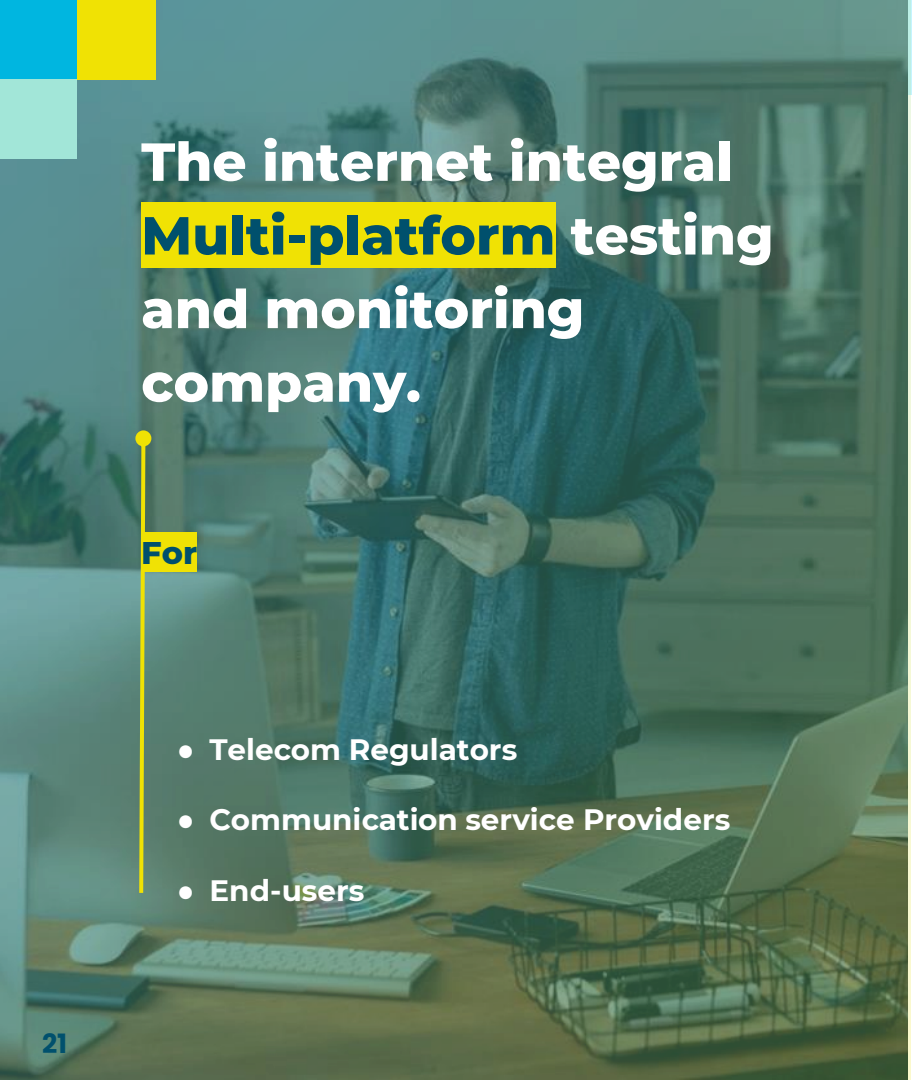
Massive QoE data augmentation

- Objective: massive **monitoring of own network quality**
- Use cases: massive own network quality monitoring, basic service, network planning and optimization, **end user branded utilities**

Deploying Robots

Advanced system leveraging easy deployment of robots

- Objective: monitoring and advanced network quality testing with plug&play robots
- Use cases: **advanced planning & optimization**, VIP customers, Troubleshooting



The internet integral Multi-platform testing and monitoring company.

For

- Telecom Regulators
- Communication service Providers
- End-users

Multi platform	Multi network	Multi technology
Mobile & Home Robots	Fixed	WiFi
		xDSL
		Fiber
Agent App		FWA
SDK & Crowdsourcing	Mobile	2G
		3G
Advanced Analytics		4G
		5G

THANK YOU

SUSTAINABLE DEVELOPMENT GOALS

#MedUXImpact

QoE Everywhere in the Digital Era

MedUX

Gracias

Thank you

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About MedUX


The internet Quality of Experience
testing and monitoring company.
QoE Everywhere in the digital Era.

Why MedUX

With MedUX, you get a unique ecosystem that provides a one-stop-shop QoE suite for all your needs.

We integrate robots and agents, our full-stack technology and advanced analytics to deliver comprehensive multi-play testing and grand scale monitoring.

Our solutions

1

5G

Benchmarking

Wholesale control

2

Regulatory compliance

Anomaly Detection

3

Grand scale QoE monitoring

Massive field-data monitoring

4

In-Home performance

CPE performance

Our clients

Communication service Providers

Telecom Regulators

Digital Enterprise

Multiplatform QoE Suite

Mobile & Home Robots

Mobile network monitoring and In-Home QoE measurements from real end-user perspective.

Agent App

Available on iOS, Android and Harmony; supports various QoE measurements.

SDK & Crowdsourcing

QoE insights from real world end users. Collects information on the mobile network.

Advanced Analytics

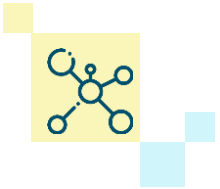
Offers Agile tools for monitoring network services and discovering insights in real time.

QoE Revolution.

Since 2014, MedUX has been revolutionizing networks and services testing from the **customer perspective**. Our figures have not stopped growing.

16.500
Robots

Active testing devices all over the world.



+20 Billion
Samples

Analyzed in real time, without integration and 100% operated by us.

+500M
People

Covered by MedUX deployments.

+3M
Agents

SDK Agents and APPs collecting insights from any device.

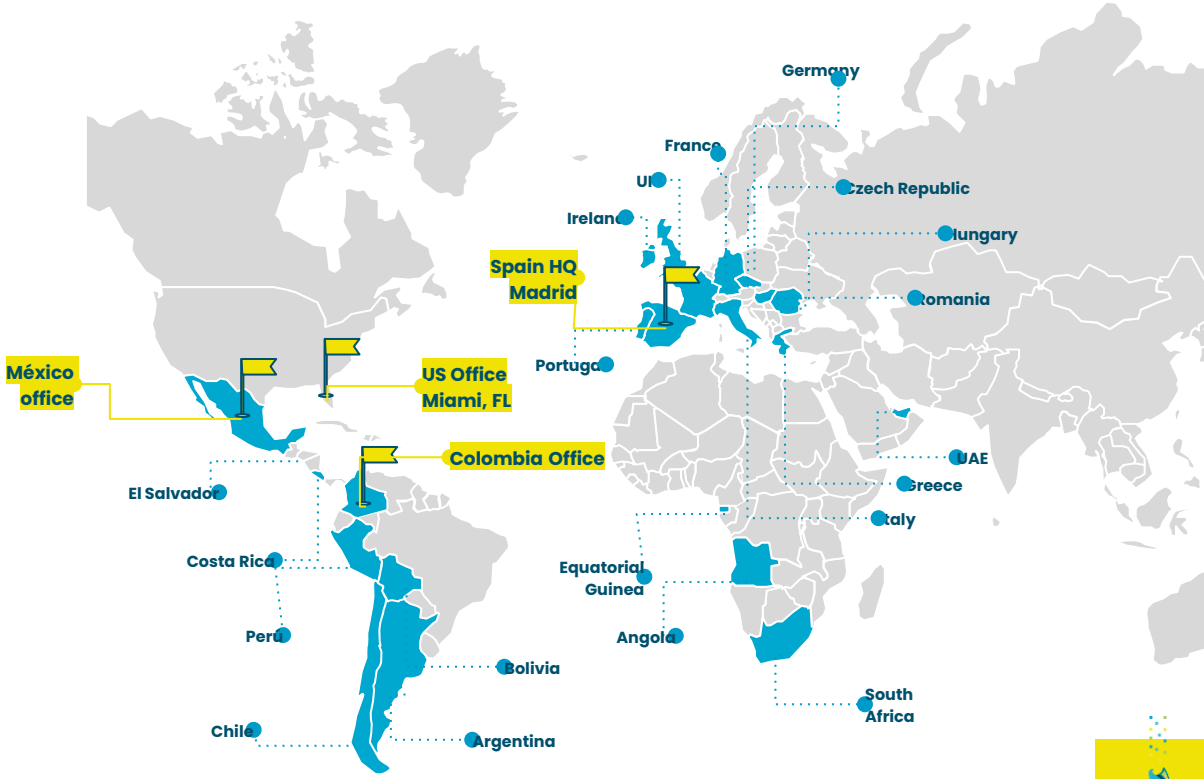
Global Trusted Partner.

+ 20 Countries
International presence.

Global presence.
Centers of excellence throughout the world.

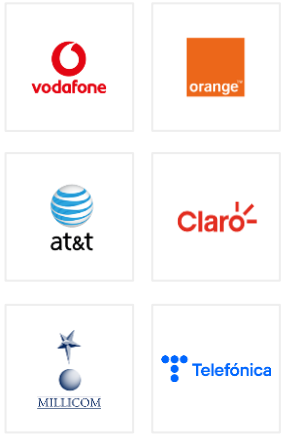
Revenues

Offices



Success stories.

Global TELCOs



Governments

Other Carriers