2025 Mobile Networks Benchmarking Framework

Abstract
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Benchmarkıng, our Terrıtory
The Industry Standard.

Our top priority is to fairly and transparently assess the global development of networks, push their quality and performance with our benchmarks and ultimately achieve improvements for every customer.

Today, more than 200 mobile networks in more than 120 countries are being evaluated by our unique scoring methodology.

As the de–facto industry standard, our benchmarking methodology focuses on customer–perceived network quality and covers a wide range of mobile services. It allows a technical analysis that is unprecedented in its level of detail.

Every year, our methodology is moving toward more challenging test cases and evaluation criteria to evolve with customer expectations.

umlaut is able to collect crowdsourced data worldwide but limits its services to countries that are under no political ban or embargo.

Preface
The umlaut Benchmarking Framework Basis.

The umlaut Benchmarking Framework is based on a unified measurement method for true international comparability combined with the umlaut–Score approach.

Key features:

- International comparability
- End customer relevance
- Full drill–down capability
- Transparency
- Rooted in ETSI TR 103 559 recommendations

Rationale
How to stay focused?

Measuring performance means collecting a vast multitude of different performance indicators, so the important aspects can be easily missed. The question is how to stay focused and communicate results smoothly?

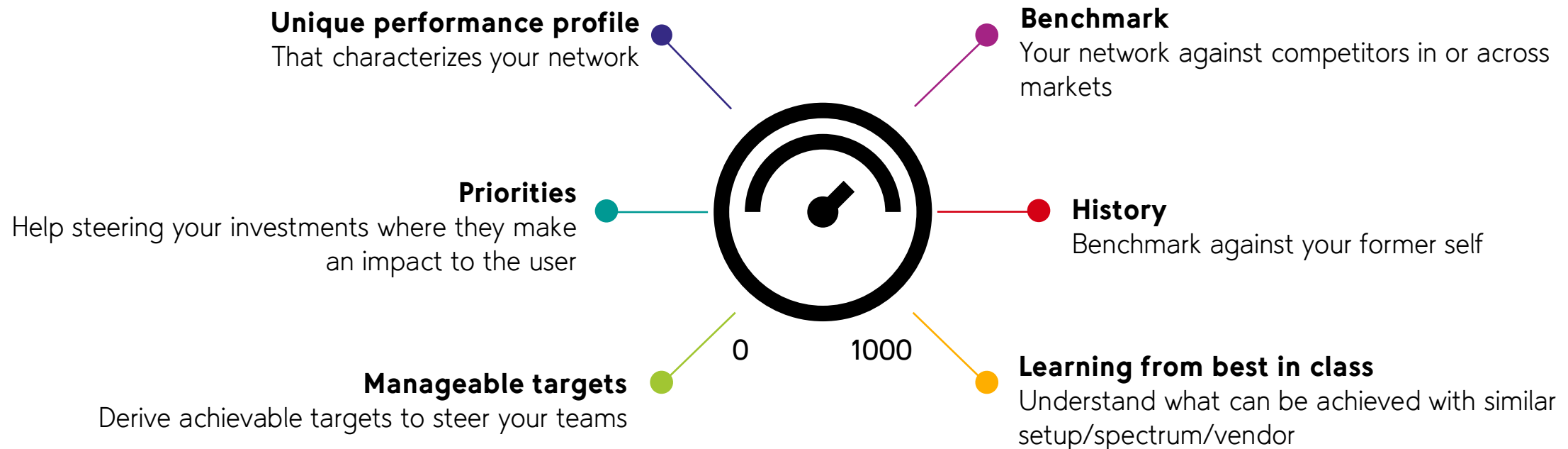The umlaut Score, as a management tool, is umlaut's solution which:

- aggregates the complete set of KPIs into a single score figure, preserving the drilldown capability

- features implicit weighting of environment, services and KPIs and comparability on national and international level …
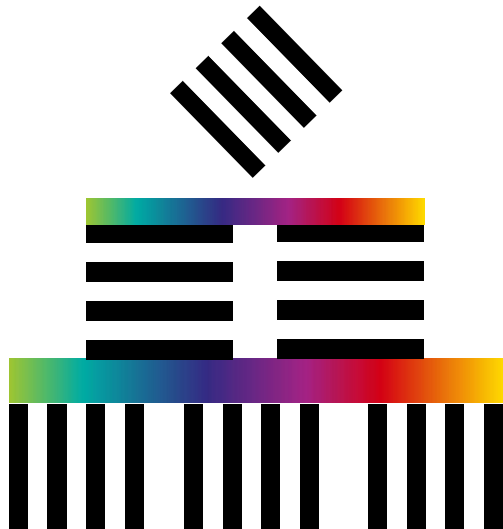
umlaut Score.
As a Management Tool.

Unique performance profile
That characterizes your network

Benchmark
Your network against competitors in or across markets

Priorities
Help steering your investments where they make an impact to the user

History
Benchmark against your former self

0   1000

Manageable targets
Derive achievable targets to steer your teams

Learning from best in class
Understand what can be achieved with similar setup/spectrum/vendor

umlaut Score Principles
Building Blocks.

The umlaut score delivers a robust scale to assess network quality and performance. It is coupled with a unified measurement methodology for true international comparability.

Modular Score Approach

Unified Measurement Methodology

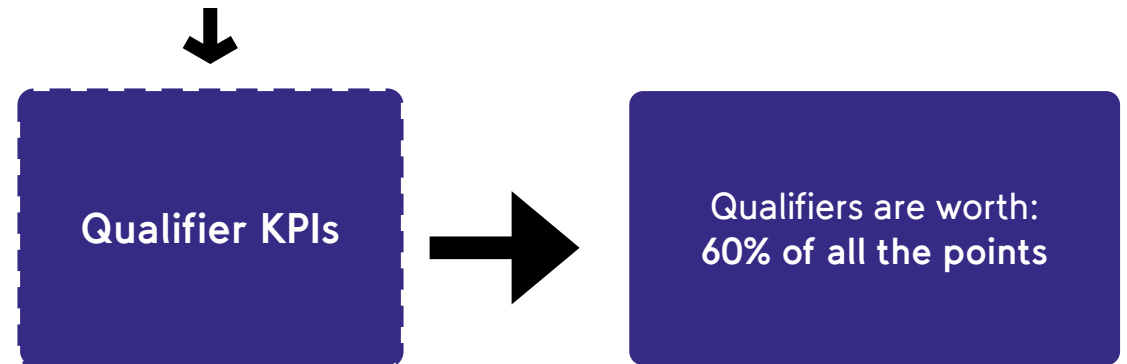**Consistent Reporting**

umlaut Score Principles.
Building Blocks II.

For Drive and Walk Testing, each service session is typically characterized by a **Qualifier** KPI and one or several **Differentiator** KPIs.
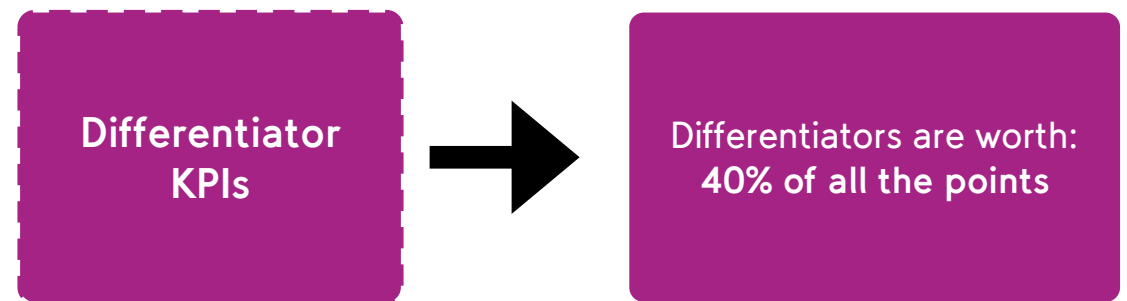
- **Qualifier** KPIs model minimum requirements that have to be met to make the experience of the service satisfactory.

- **Differentiator** KPIs describe additional aspects of those service sessions that fulfil the qualifier criteria

(Click on Box for details)

Qualifier KPIs → Qualifiers are worth: **60% of all the points**

For most types of service sessions, a simple Success / Failure distinction is made

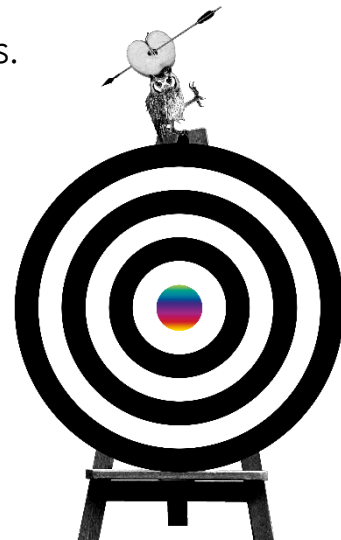**Differentiator KPIs** → Differentiators are worth: **40% of all the points**

Concept Overview

Characterized by

- defined weighting between environments and services
- fixed maximum score
- modular extensions
- qualifiers and differentiators.

Properties

The Baseline **umlaut–Score** covers a default combination of different environments and services, that may be added to or dropped from Score on a yearly basis

Scope:

- Drive Test for Voice and Data services
- In Cities, Towns, Roads
- Complemented by crowdsourcing–based score

and optionally extended by:

- Indoor city Walk Test, public transport, railways (commuter and long–distance)
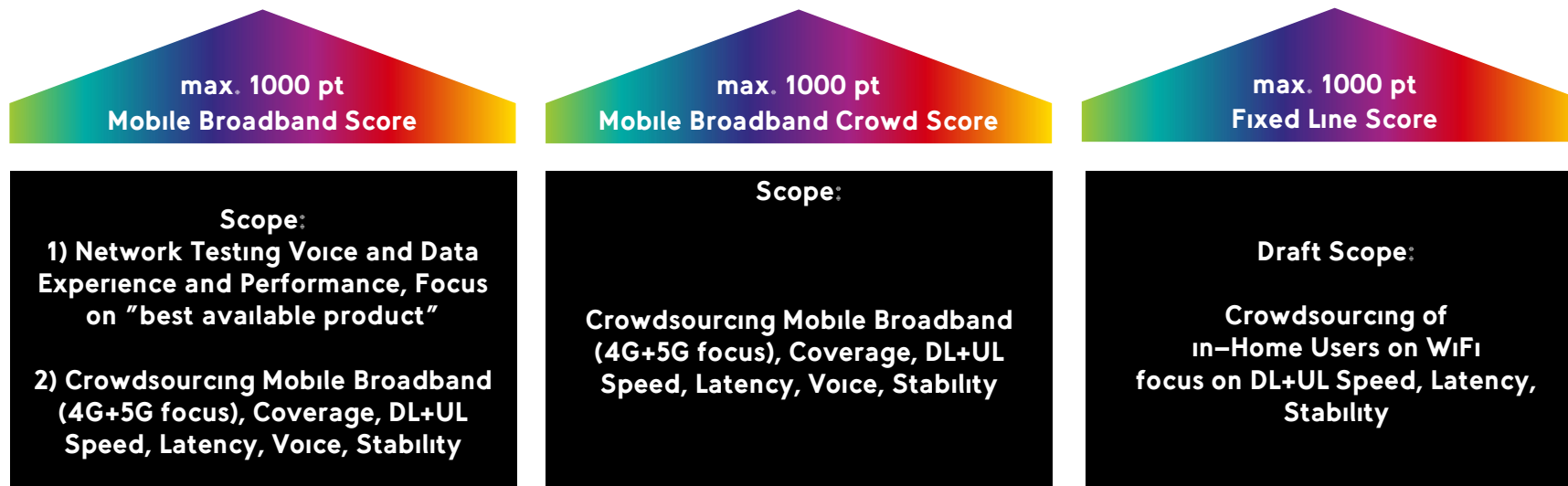
umlaut Score Family
Modularity and Hierarchy.

umlaut delivers user experience and performance ratings for the communications and other industries.
The family of umlaut score products is depicted below and constantly being expanded.

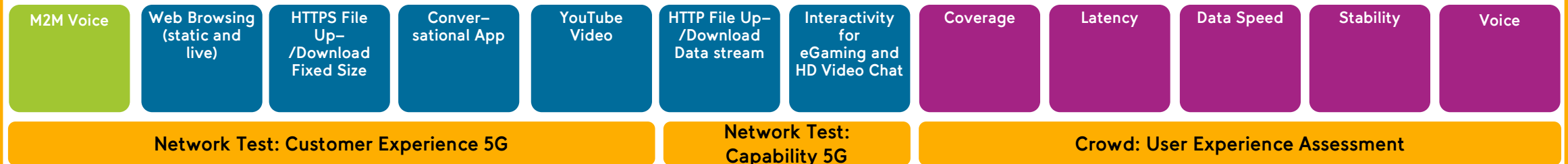**This document focuses on the Mobile Broadband related Scores.**

max. 1000 pt Mobile Broadband Score	max. 1000 pt Mobile Broadband Crowd Score	max. 1000 pt Fixed Line Score
Scope: **1) Network Testing Voice and Data Experience and Performance, Focus on "best available product"** **2) Crowdsourcing Mobile Broadband (4G+5G focus), Coverage, DL+UL Speed, Latency, Voice, Stability**	**Scope:** **Crowdsourcing Mobile Broadband (4G+5G focus), Coverage, DL+UL Speed, Latency, Voice, Stability**	**Draft Scope:** **Crowdsourcing of in-Home Users on WiFi focus on DL+UL Speed, Latency, Stability**

Test and Crowd Assessment Methodology
Test Cases and Modules to be included in the Campaign Scope.

Core Requirements

- The **green** and **blue** sets of test cases represent the Network Test component (drive and walk test).
- The **purple** modules represent the User Experience Test (UET) component based on Crowdsourced data.

M2M Voice	Web Browsing (static and live)	HTTPS File Up–/Download Fixed Size	Conver–sational App	YouTube Video	HTTP File Up–/Download Data stream	Interactivity for eGaming and HD Video Chat	Coverage	Latency	Data Speed	Stability	Voice

Network Test: Customer Experience 5G	Network Test: Capability 5G	Crowd: User Experience Assessment

Publıc Benchmarks, Network Certıfıcatıon, Audıt Reports.

Description of Approach

The umlaut benchmarking activities with public visibility are based on a combination of dedicated testing and crowdsourcing–based assessment. **The umlaut score is the common element of all activities.** These publicly visible activities are:

- **Public benchmarks** executed in cooperation with a publishing partner
- **Independent network certification** activities, commissioned by one or more 3rd parties
  (e.g. mobile network operator, network vendor, etc.)
- **Audit reports**, which are independently executed but can contain bespoke elements as far as technical or geographical scope, timeline, or other aspects are concerned.

The setup, scope and timeline
- for any certification and claim support activity is independently chosen and decided by umlaut
- for any public benchmarking activity is independently chosen and decided by the publisher and umlaut

Per default, network certification activities are a combination of dedicated testing activity + crowd–based assessment

Disclaimer