

Unveiling #1 QoE Countries in Europe

MedUX Insights: QoE Research Study

Detailed Report - Q4 2025

[CONFIDENTIAL]

26 February, 2025

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5G



Content

1. **Executive Summary**
2. Introduction
3. Methodology
4. Quality & Deployment Insights
5. Quality of Experience Insights
6. Annexes: Detailed Results
7. MedUX - A trusted partner



Executive Summary

- About this research study
- QoE Crowdsourcing Overview
- Stats and Scope of the Benchmark
- Key findings

Crowdsourcing Benchmarking in Europe with TRUE QoE KPIs



MedUX Insights: QoE Research Study

MedUX conducted a pan-European benchmarking study to capture **real-world mobile Quality of Experience (QoE)** through the voice of end users. Using large-scale crowdsourced measurements collected in Q4 2025, we translate complex network performance into a single, comparable QoE Score. The result is a clear view of how experience truly differs across European markets.

The results reveal a **varied landscape**: while some countries excel across all services, others lead in specific use cases, and some trail behind in overall user experience.

Built on millions of real-life measurements, the report provides an **independent, user-centric view of network performance** — highlighting where experience leads, where it falls short, and what to prioritize next.



Highlights about QoE in Europe

The mobile network benchmark conducted in Europe in the fourth quarter of 2025 (Q4 2025) highlights a very close competition in the “**Best Mobile Experience**” (Top Awards) category, with The Netherlands, Denmark, Norway and Switzerland, all demonstrating strong performance across multiple metrics.

Q4 2025 results demonstrate that all provide excellent mobile experiences, with the Netherlands excelling in consistency and reliability, closely followed by Denmark.



The Netherlands shows **excellent, stable and balanced mobile performance across all categories with the most reliable network**

- Country with the highest total score, standing out for Reliability.
- Leader in Data & OTT and Value for Speed.
- Strong performance in Streaming, Gaming and Network Responsiveness (Accessibility) reflecting a consistent experience for its users.

QoE Score: 4.51 over 5
Best Experience and most reliable network

91.1% Service Reliability Score
91.3% Data& OTT Score
91.8% Value for Speed Score



Denmark shows **excellent** results **in Value for Speed and Data & OTT**, providing the fastest download experience

- Second country in total score, demonstrating very strong overall performance.
- Leader in Social Media and Co-leader in Gaming (#2).
- Competitive in Value for Speed (#2), indicating that customers enjoy the speeds they expect.

QoE Score: 4.43 over 5
92.9% Social Media Score



Norway overall results are **excellent**, standing out in **Streaming**

- Third country in total score, offering a balanced mobile experience, behind the Netherlands and Denmark.
- Competitive in Reliability (#2) and in Value for Speed (#3).

QoE Score: 4.39 over 5
88.1% Streaming Score



Switzerland has an **excellent** performance, **delivering the fastest response times**

- Fourth country in total score.
- Co-leader (#1) in Gaming and Co-leader (#1) in Network Responsiveness .

QoE Score: 4.34 over 5
88.7% Network Responsiveness Score



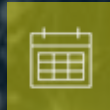
Stats and Scope of QoE Crowdsourcing Benchmark in Europe

MedUX

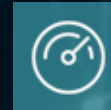
In Europe



33 countries
monitored



Q4 2025
reference
period



+180 MM
performance
tests executed



+6.18 MM Km2
surface
monitored



+656 MM
inhabitants
covered



+39 bn
radio samples
collected



Crowdsourcing overview

MedUX continuously expands its global crowdsourcing solution, gathering real end-user data via passive and active tests, and reaching millions of users covered and billions of samples collected.

Our comprehensive QoE crowdsourcing solution already covers most European countries. This benchmark report is based on data collected during Q4 2025, covering 33 countries and 656MM people.

Q42025 Scope



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QoE Crowdsourcing Initiative

Active Testing with real services and applications



- Technology: Up to 5G+ & Wi-Fi 7.
- Active QoS Testing against popular CDNs: CloudFlare, Akamai, etc.
- Active QoE Testing against application servers: Youtube, Facebook, Tiktok, Instagram, Google, Amazon, Whatsapp, Riot Games, etc.
- Available testing against dedicated measurement servers (on-net or off-net).
- Consumer privacy protection, such as GDPR in Europe.

Key findings

This Q4 2025 crowdsourcing benchmark reveals substantial differences across European countries in real-world Quality of Experience (QoE) and results show an uneven landscape: some countries lead across all measured services, others excel in specific use cases, and others lag behind in overall experience—insights that reflect what users actually perceive and closely link to satisfaction.

QoS Ranking

- **Top Speeds:** Denmark, Norway, Switzerland, the Netherlands, Finland and Bulgaria lead the balance of high peak download (above 283 Mbps) and upload (above 55 Mbps) speeds delivering the strongest balance between download and upload speeds.
- **Top Latencies:** Switzerland, the Netherlands, Austria, Czech Republic, Greece, and Portugal show the best responsiveness profile with an average latency below 21.8 ms.

QoE Ranking

- **Top Streaming:** Norway, Denmark, Luxembourg, the Netherlands, Switzerland and Sweden achieve the highest 4K playback percentage with and average above the 53%.
- **Top Gaming:** the Netherlands, Switzerland, Austria, Denmark, Ireland and Germany lead on gaming stability and responsiveness with an average latency below 24 ms.
- **Top Social Media:** the Netherlands, Switzerland, Sweden, Denmark, Luxembourg and Finland deliver the fastest social media performance with an average TTFB below 425 ms.
- **Top Web Browsing:** the Netherlands, Denmark, Norway, Luxembourg, Finland and Sweden deliver the fastest browsing experience overall showing an average web browsing time below 1.4 s.

5G Availability

- **Overall 5G Availability:** the Netherlands, Denmark, Czech Republic, Greece, Finland and Switzerland with an average 5G availability above 81.5% of 5G technology usage.
- **Take-up 5G:** Norway, Denmark, Sweden, the Netherlands, Switzerland and Finland with an average 5G take up above 78%.



Denmark: P90 DL → 379 Mbps



Netherlands: P90 UL → 70 Mbps



Switzerland:
16.2 ms



Norway: 60% 4K Playbacks

Norway: 99.4% playbacks w/o Stalls



Netherlands: 19.7 ms



Netherlands:
385ms TTFB



Netherlands:
1.3 s Web Browsing Time



Netherlands:
89% in 5G



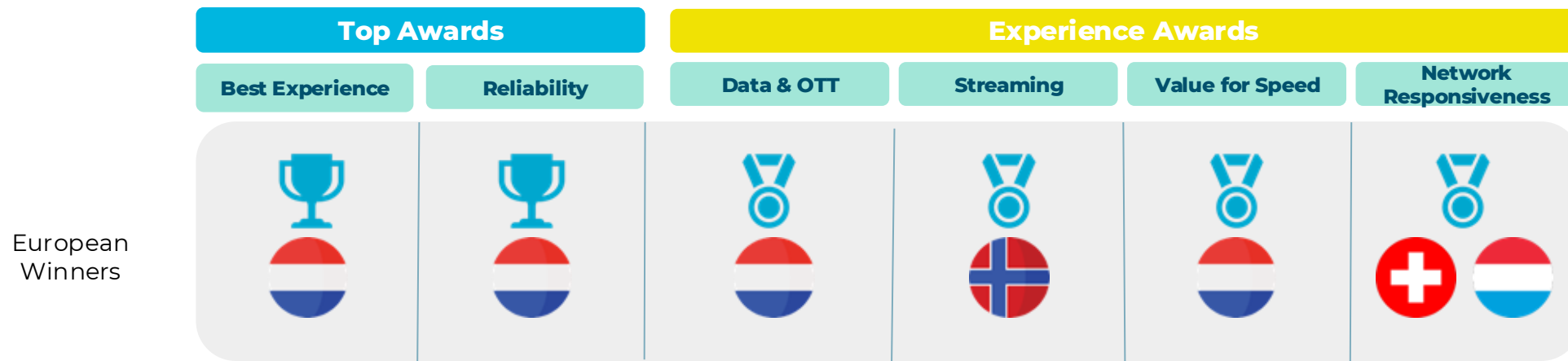
Norway: 88% take-up



Mobile Experience Awards

Awards are granted to the best performing operators in each attribute or category we test. If two or more operators record statistically indistinguishable results, each operator earns an Experience Award while sharing the highest rank in that category.

The Netherlands lead the European QoE Benchmarking campaign, with an outstanding performance in the Value for Speed and the Data and OTT categories



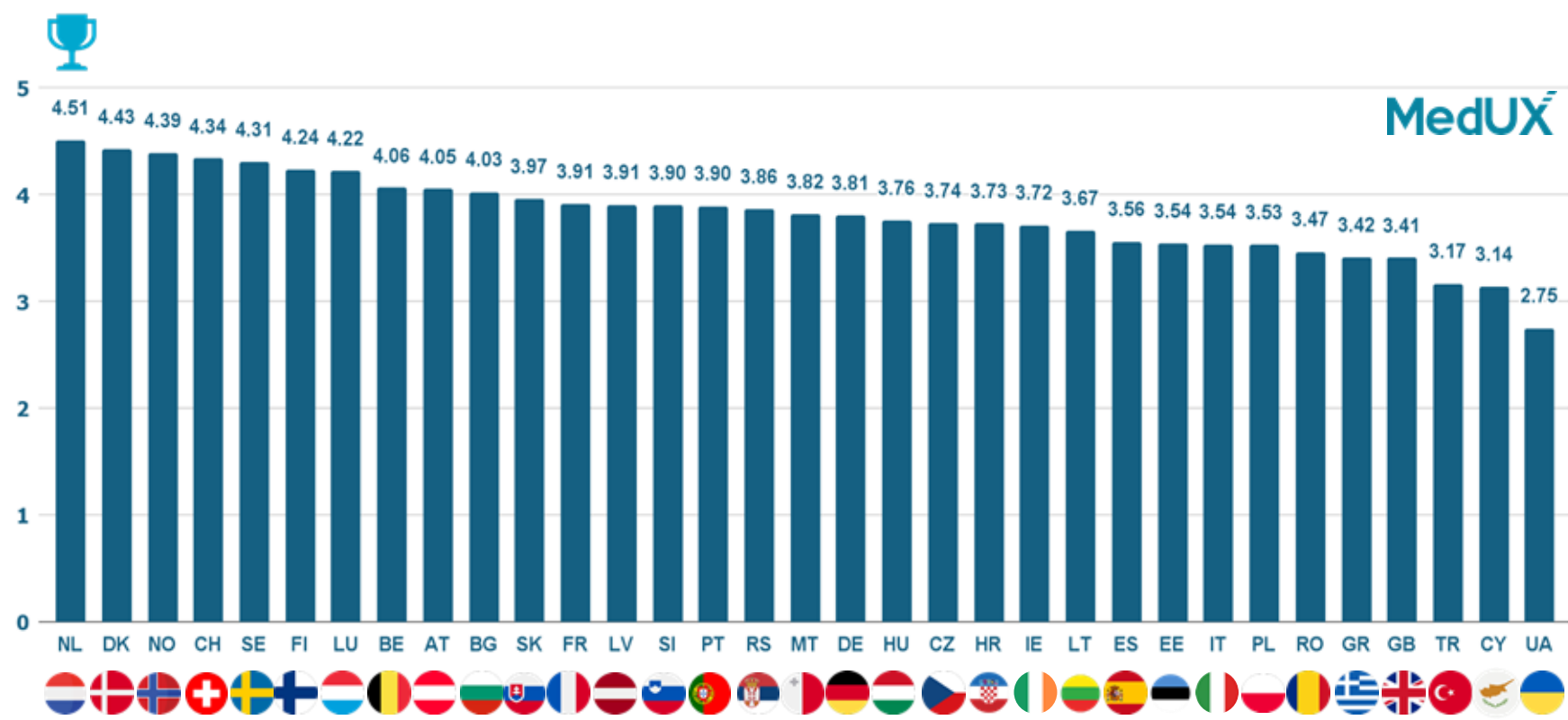
- **The Netherlands leads** most of the rankings across all mobile experience categories.
- The Netherlands takes the second most important award for **Best Reliability**, as well as other specific awards on **Data & OTT** and **Value for Speed** award.
- **Norway** wins the **Streaming** award.
- **Switzerland and Luxembourg** share the **Network Responsiveness** award.



Quality of Experience: Mobile Experience European Ranking

Our measurement campaigns capture the real end-user experience, providing a holistic view of network quality by balancing performance, consistency, and service usability. A consolidated **Total Score** combines results across Reliability, Data & OTT, Responsiveness, Value for Speed, and Streaming into one clear, comparable indicator.

This study reveals one winner **the Netherlands**, followed closely by two very strong competitors: **Denmark** and **Norway**.



MOBILE PERFORMANCE
Best QOE

In European countries
NETHERLANDS

Q4/2025

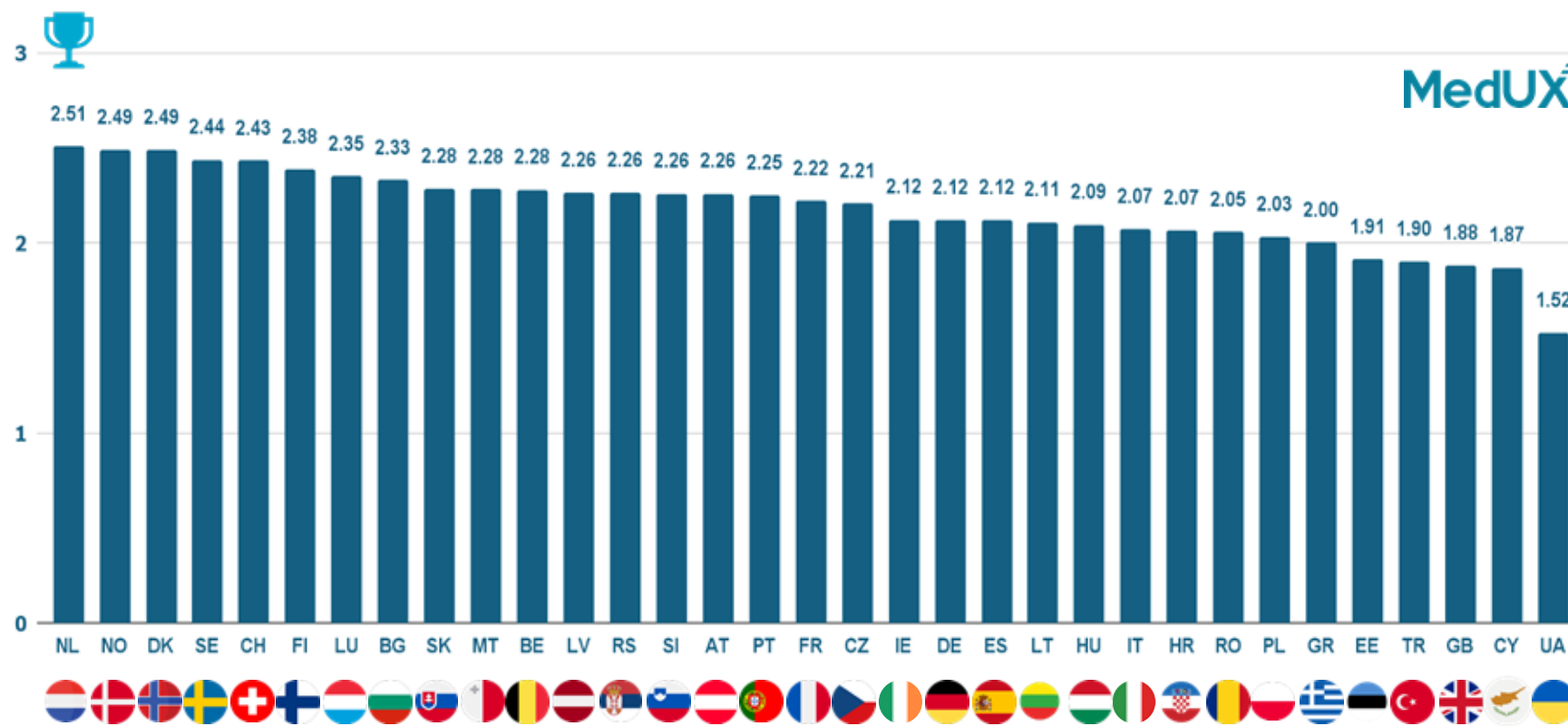
www.medux.com



Reliability: Mobile Experience European Ranking

Reliability captures how consistently users can stay connected and complete everyday actions without interruptions. It reflects stability across sessions, covering dropouts, failed attempts, and the network's ability to deliver a consistent performance over the minimum service thresholds.

The study unveils one winner, the **Netherlands**, followed closely by two very strong competitors: **Norway** and **Denmark**.



MOBILE PERFORMANCE
Best Reliability

In European countries
NETHERLANDS

Q4/2025

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Introduction

Compromise

Powering Digital Societies through Real Experience Data

At MedUX, we transform massive, real-world QoE data into actionable insights that accelerate digital transformation, enable evidence-based decisions, and foster more connected, inclusive societies

#MedUXImpact



Discover more about **MedUX Impact**





Instrument

The MedUX Connectivity Observatory

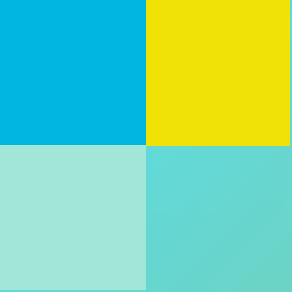
A continuous, independent view of
digital experience performance across
countries and services.

Measure - Compare - Improve



Discover the **MedUX observatory**





Impact

From Data to Digital Leadership

Real Data. Proven Leadership. Earned Recognition.

Measurement - Benchmark - Lead - Recognize



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Methodology

How We Collect and Validate Data

- MedUX QoE Crowdsourcing Methodology
- Quality of Experience - Ranking approach
 - KPIs and Metrics overview

MedUX QoE Crowdsourcing Methodology

MedUX delivers a comprehensive and objective view of mobile network experience through a global crowdsourcing methodology. By embedding a lightweight SDK into real mobile applications used by millions, MedUX captures user experience from the end-user perspective, generating reliable insights that support regulatory, operational, and commercial decisions across the telecom sector.

Real-world Data collection

Data is collected through a combination of passive and active measurements, providing a multi-dimensional view of network performance. Active tests are designed to replicate typical user activities — such as web browsing, file downloads, video streaming, or online gaming — and are executed under standardized conditions to ensure comparability across networks and geographies. Crucially, these tests are launched only when the device is idle and connected to a network, ensuring that ongoing user activity does not influence the results or create unrealistic performance scenarios. Passive measurements, on the other hand, capture ongoing network conditions and device behavior without initiating traffic. These include signal strength, type of network connection, cell transitions, and handovers.

Data is collected from a wide array of real-world conditions, covering urban and rural areas, indoor and outdoor environments, and users in motion or stationary. This broad coverage ensures the representativeness and contextual relevance of the collected dataset.

Data validation and processing

To guarantee the integrity and reliability of the dataset, all collected data is subjected to a rigorous, multi-stage validation process.

This begins with the automatic detection and exclusion of anomalous or corrupted samples, followed by the removal of duplicate entries and any data points that fall outside defined temporal and spatial uniqueness thresholds. Particular attention is given to identifying and filtering extreme values in both signal metrics and active test results, which may result from atypical environmental or device-specific anomalies.

Additionally, test results from devices running outdated versions of the operating system are discarded, as these can introduce inconsistencies in performance measurement. These comprehensive quality controls are part of a standardized methodology that aligns with international best practices and ITU-T recommendations, ensuring the consistency, comparability, and technical soundness of MedUX's performance analytics.



MedUX QoE Crowdsourcing Methodology

Representativeness and scale

MedUX's global panel of millions of devices enables a robust and statistically representative view of mobile network performance at national, regional, and operator-specific levels.

The extensive reach of the platform allows for consistent data collection across diverse geographies and user contexts. For each country analyzed, MedUX ensures that the number of samples and users meets the statistical conditions necessary to report with confidence. Specifically, key performance indicators (KPIs) are calculated with a 95% confidence level and a maximum margin of error of $\pm 5\%$, derived from the national-level sample size and distribution.

While this precision may vary for more granular segments, such as regional or technological splits, the methodology ensures that broader national comparisons remain statistically robust and meaningful.

Thanks to the sheer volume, variety, and continuous nature of data acquisition, MedUX delivers near real-time visibility into mobile connectivity trends, enabling stakeholders to make well-informed, evidence-based decisions.

Privacy and data security

User privacy is a foundational principle in MedUX's approach, underpinning every aspect of data collection and processing. At no stage is any personally identifiable information (PII) collected, stored, or analyzed. IP addresses are systematically anonymized or aggregated, and all datasets are pseudonymized to prevent any possibility of user identification, even in cases of large-scale data analysis.

The SDK operates seamlessly in the background, designed to have minimal impact on battery life, data usage, or device performance. It requests only the permissions that are strictly necessary for measurement purposes, following a transparent and consent-based process.

Moreover, MedUX adheres to the highest international standards of data protection, with full compliance to the GDPR and all applicable local regulations. Internal procedures are regularly audited to maintain security, and data is stored and processed using secure infrastructure. This ensures not only compliance, but also builds trust with users and partners by guaranteeing the ethical handling of sensitive network performance data.

Benchmarking Methodology

With the goal of providing an independent and international benchmarking tool, MedUX developed its own QoE ScoreCard to determine and certify the best provider or operator with respect of the services accessed via mobile networks.

This goal is achieved by executing benchmarking tests that represent a major part of the services used by final customers of mobile networks. The results collected are individually and collectively weighted and aggregated into an overall score.

The service category scoring model and its drill-down capabilities makes it exploitable by different stakeholders, from executive management (CxOs) to more technical departments (engineering and optimization). Thus, providers or operators can improve their networks and services offering a better experience to their customers.

To give transparency and a clear interpretation of the benchmarking results, MedUX publishes a description of the scoring methodology, in line with the current state of the ETSI TR 103 559 V1.2.1

In this context we introduce the following terms, Quality of Service (QoS) and Quality of Experience (QoE):

- QoS: “Totality of characteristics of a telecommunications service that bear on its ability to satisfy stated and implied needs of the user of the service.”
- QoE: “Degree of delight of the user of a service. In the context of communication services, it is influenced by content, network, device, application, user expectations and goals, and context of use.”

MedUX propose a model where technical measurements are transformed into perceptive indicators taking into account the human response to mobile service’s events, improvements and degradations.

For further details about the methodology used please visit our blog [Assessing customer experiences with an advanced mobile broadband benchmarking methodology](#)

Quality of Experience – Ranking approach

MedUX benchmarking approach, based on our QoE crowdsourcing data and QoE Scorecard, assesses network performance and end-user experience in the 5G Era. We revisit criteria and thresholds once a year to consider best practices but also to reflect technology and industry development.

At MedUX we use a set of KPIs and the concept of Mean opinion score (MOS) for most of the rankings, which ratings are algorithmically estimated based on test results, in line with the current state of the ETSI TR 103 559 V1.2.1 and ITU Recommendation ITU-T P.800.1.

• Top Awards:

- **Overall QoE Score** – a combination of availability, accessibility, speed, streaming, and data and OTT experience results.
- **Reliability** — assesses network consistency across all service categories. A test is considered as not successful if it fails or if does not meet minimum service thresholds.

• Experience Awards:

- **Accessibility** (responsiveness) – how long it takes to access the network. Particularly in 5G it measures how long takes to access the 5G network across all testing categories while taking latency and network responsiveness results into account.
- **Value for Speed** (throughput) - how much data can be transferred. Particularly in 5G it measures how is the network capacity when stressing the line (multi-thread and multi-server stress test with our patented Cloud Speed Test).
 - DL Speed
 - UL Speed
- **Video Streaming experience** - it measures the average video experience for each operator while considering video resolution, video loading time, and stall ratio.
- **Data and OTT experience** - a combination of gaming, web browsing and social networks.

Quality of Experience – Ranking approach

Our QoE Scorecard is the tool for facilitating benchmarking and reducing the complexity of service quality and performance improvements. We combine different performance indicators into a synthetic indicator or single Global Score.

Global Score

MOS Combination

Overall Experience Score

Synthetic Experience Indicator

- The Global score is a combination of MOSes from all service categories, weighted based on international best practices and industry experience.

MOS

**MOS: MedUX
Opinion Score**

By service

MOS

- The MOS is an aggregation of several QoS/QoE KPIs for each service category, which allows for a more granular QoE analysis.
- Each MOS is characterized by a Qualifier KPI and one or more Differentiator KPIs.

Qualifiers

Differentiators

KPI aggregation

By Test case

KPIs Aggregation

- KPIs are combined into Qualifier and Differentiator indicators to transform network and service quality indicators into a Experience metrics by Service.

Minimum expected performance

Minimum requirements to define a satisfying customer experience

Performance exceeding basic expectations

Additional performance assessment for tests fulfilling the qualifier criteria

Quality of Experience – Scoring

- Each service category is an aggregation of at least one MedUX Opinion Score.
- Each MOS is characterized by a Qualifier KPI and one or several Differentiator KPIs.

Services	Services' Weights	Max Score	MOS	MOS' Weights	Max Score
Accessibility	7.5%	0.375	Network Responsiveness	7.5%	0.375
Value Speed	25%	1.25	Cloud DL	15%	0.75
			Cloud UL	10%	0.5
Video Streaming	25%	1.25	Streaming	25%	1.25
Data and OTT	42.5%	2.125	Web Browsing	20%	1
			Social Media	15%	0.75
			Gaming	7.5%	0.375

Reliability, which contributes to the QoE Scorecard, is determined by qualifier KPIs weighted at 55% of each MOS. This allows for a maximum of 2.75 points toward the total score:

- Data & OTT - Reliability (1.17p)
- Value for speed - Reliability (0.69p)
- Streaming Experience - Reliability (0.69p)
- Accessibility - Reliability (0.21p)

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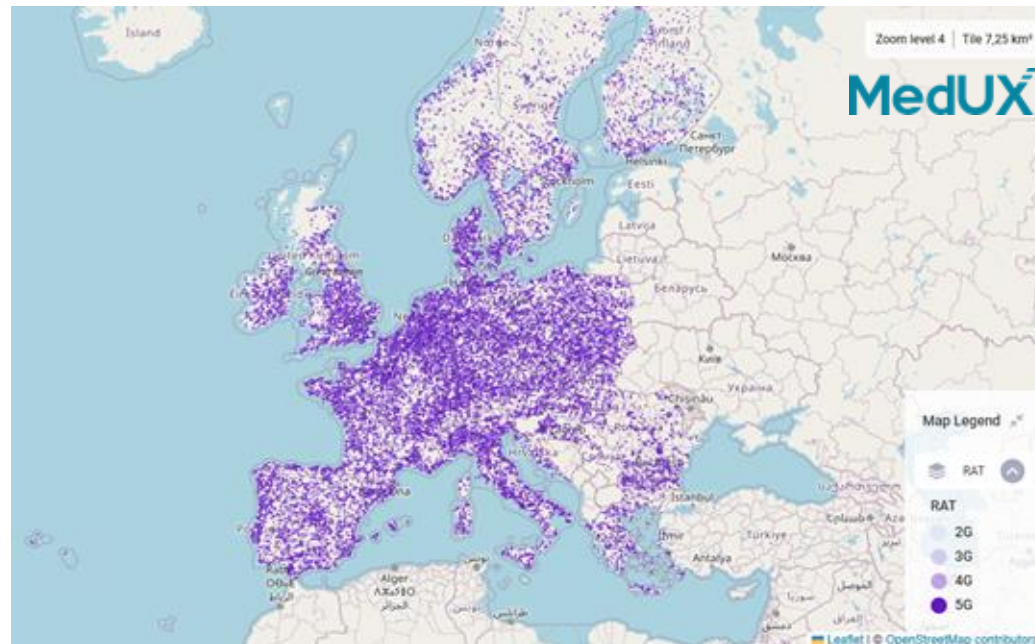
5G Quality and Deployment Insights

- Status of 5G deployments and availability
- QoS country-level comparisons

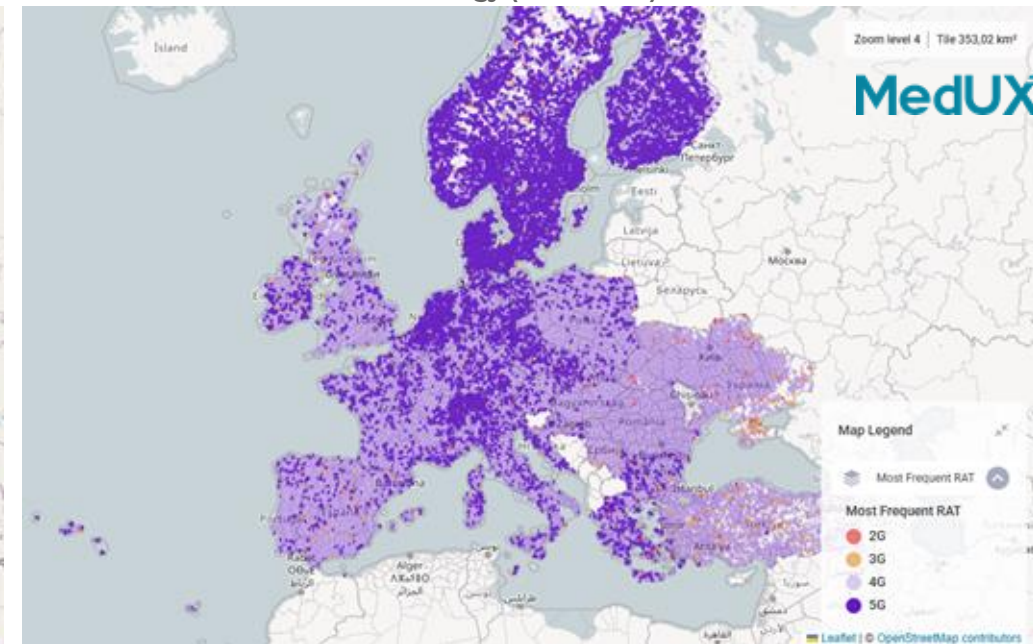
Progress toward the Digital Decade Targets – 5G Availability

5G Availability is far from universal when we consider not only urban, but also suburban and rural areas ^(*)

5G Availability



Predominant Radio Access Technology (All devices)



- 5G availability is widespread across Western and Central Europe, but it's still noticeably uneven in parts of Southern and Eastern Europe.
- 5G is becoming predominant in more than just the Netherlands and Denmark: large 5G-led areas also stand out in the Nordics and Switzerland, reflecting strong deployment and a take-up.
- Most big markets remain mixed (DE/FR/GB/ES/IT): even with broad 5G presence, 4G is still predominant in many areas, with 5G dominance concentrated in dense urban zones.



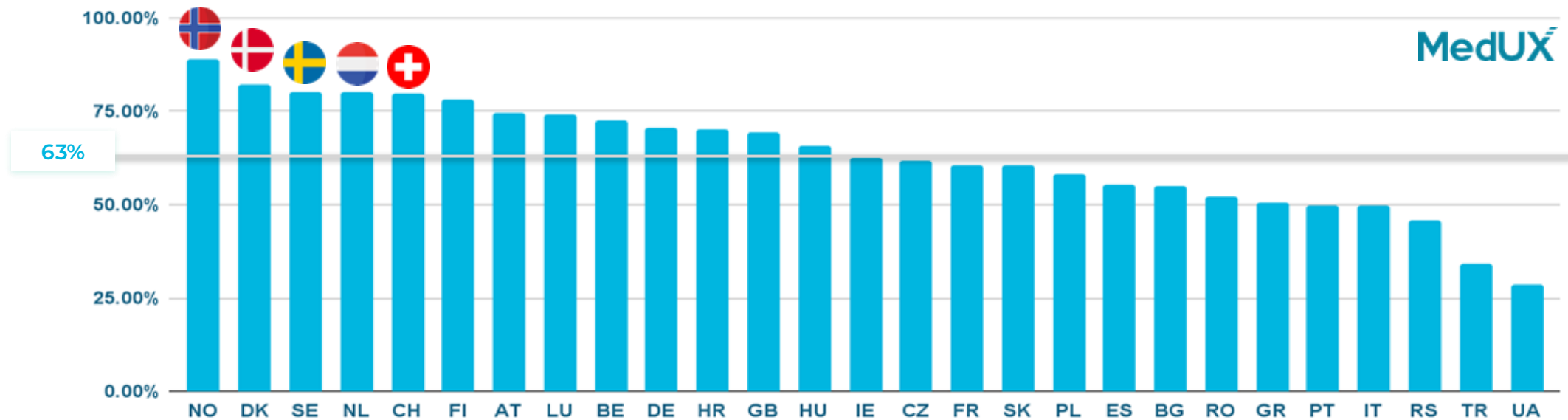
Have a look at our 5G QoE
Crowdsourcing [here](#)

^(*) Note that only countries that achieve a 95% confidence level and have a margin of error lower than $\pm 5\%$, based on national-level sample size and distribution, are ranked.

Progress toward the Digital Decade Targets – 5G Take-up

5G Take-up is a challenge based on our estimations of users with 5G-capable devices

%5G Capable Devices (Estimated proportion of users)



- Nordics, Netherlands and Switzerland clearly lead in 5G capable devices penetration : Norway 88.8%, Denmark 82.2%, Sweden 80.3%, plus Netherlands 80.2% and Switzerland 79.8%.
- A broad top tier is above 70% take-up: around 11 of the 33 countries are over this threshold (including AT, LU, BE, DE, HR).

Progress toward the Digital Decade Targets

And there is a long way to go, especially when it comes to universal 5G...

% of Radio Access Technology Usage per country (5G Capable Devices only)



- 5G is the default experience in leading countries: Netherlands, Denmark, Czech Republic, and Greece report around 87% 5G usage, with Finland, Switzerland, and Sweden also above 80%.
- A smaller group of markets is still 4G-led (example for 5G usage: Hungary 48.8%, Romania 33.3%, Serbia 13.2%, Turkey 1.1%, Ukraine 0.1%). The broad middle group shows a 60%–80% 5G usage.
- Europe presents a two-speed market, but 5G now carries most of the mobile load, except in the lagging markets. 4G remains a meaningful fallback, even in advanced countries.

Quality of Service Insights

- Service performance (throughput, latency)



Value for Speed



Scope

The Value for Speed category evaluates the performance of an internet connection by measuring download and upload speeds — providing a reliable view of how fast and responsive the network really is for the end user.



Main Throughput KPIs

Download & Upload Speed



Category weight

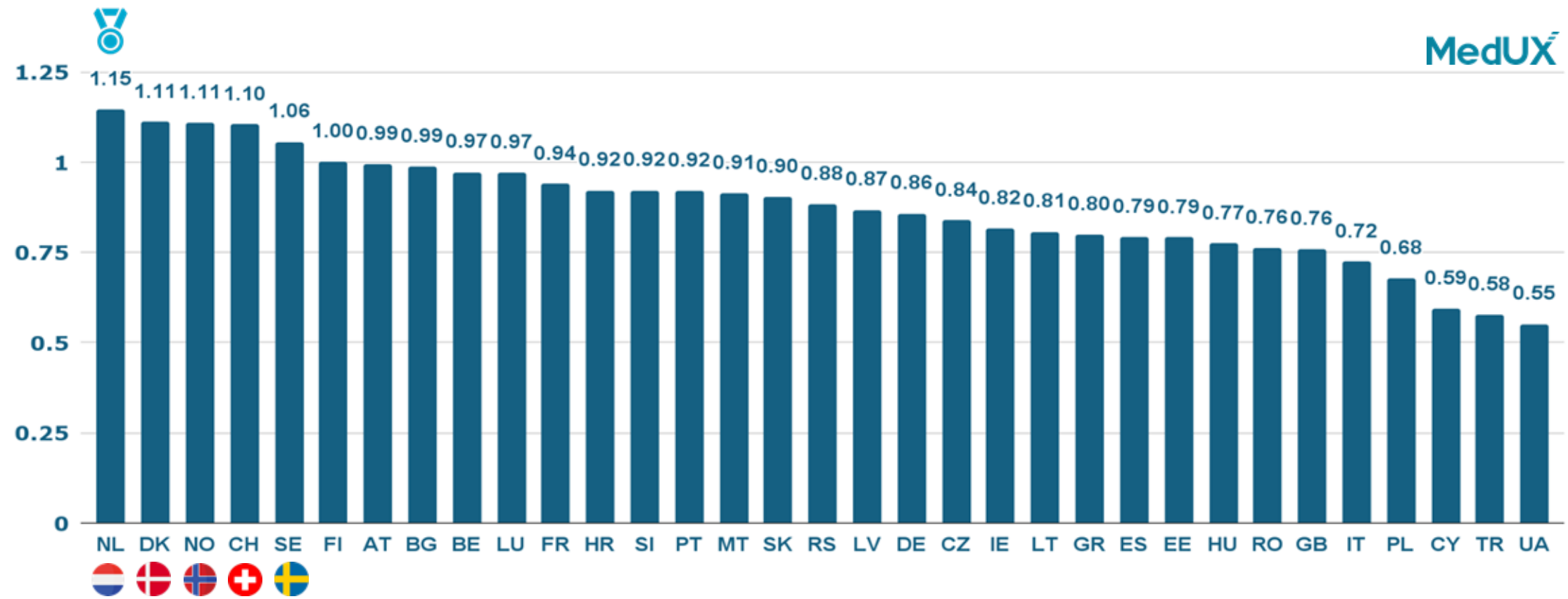
This category accounts for 25% of the total score, translating to a maximum possible score of 1.25 from 5



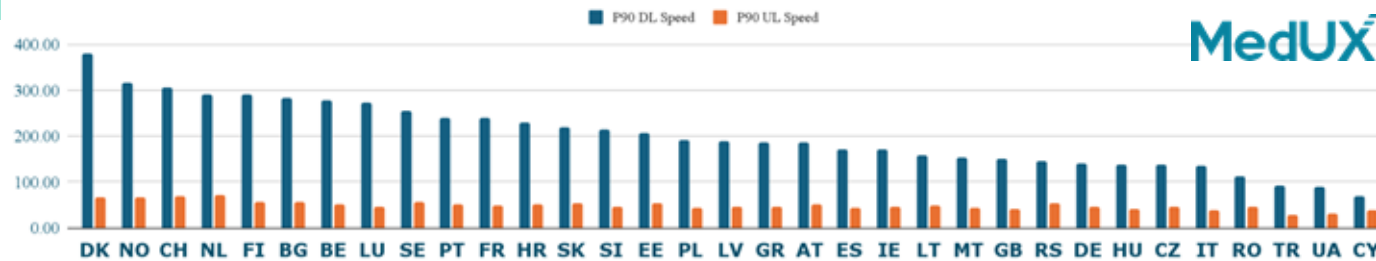
Value for Speed: Mobile Experience European Ranking

Value for Speed measures how much real mobile speed users actually get, highlighting which networks deliver the best speed performance in everyday conditions.

The study points to **the Netherlands** as the leading country, with **Denmark** and **Norway** in pursuit.



QoS Country-level comparisons | Speed Metrics - P90 DL/UL Speed



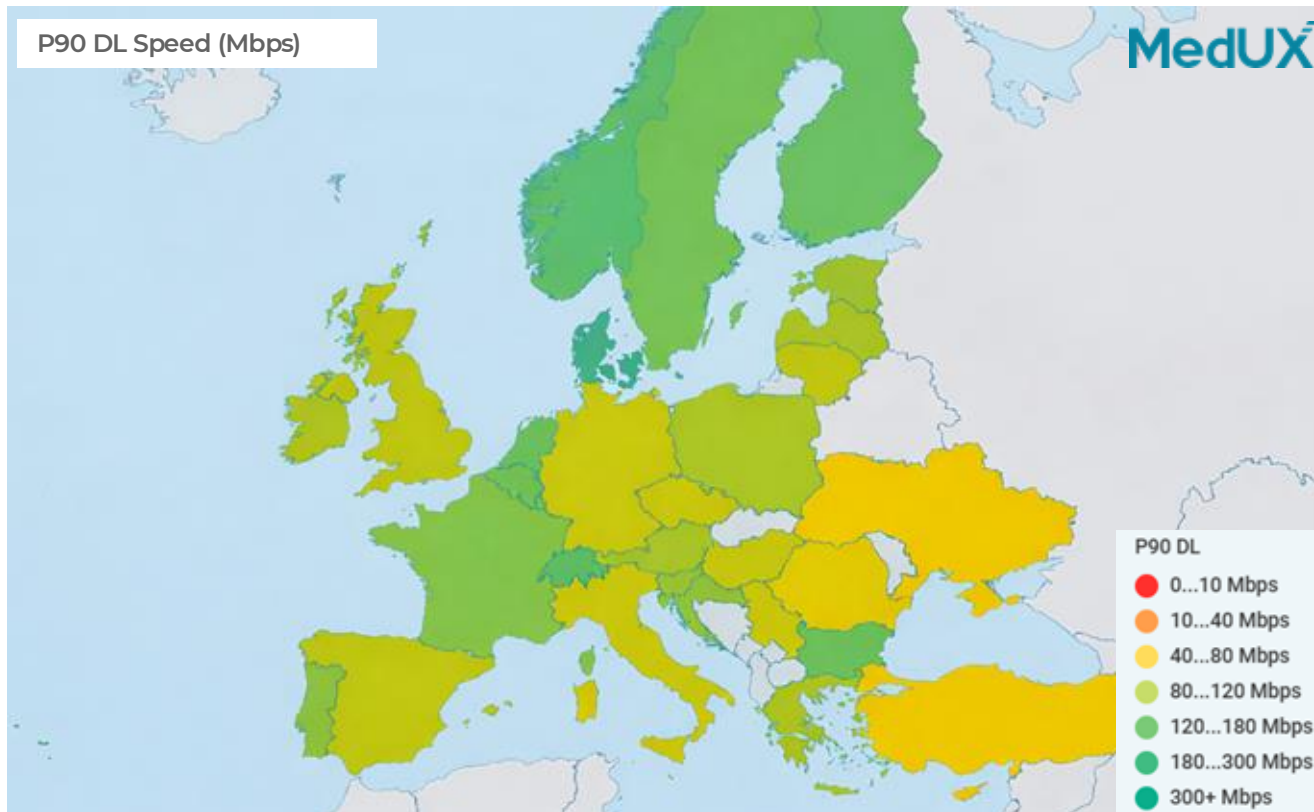
Europe shows strong peak performance, but at very different levels by market: P90 download spans from 68 Mbps to 379 Mbps, and upload from 29 Mbps to 71 Mbps, confirming a wide “best vs. worst” user-experience gap across the region.

- **A clear top tier is setting the benchmark on both DL and UL:**

Denmark, Norway, Switzerland and the Netherlands lead (DL roughly 290–379 Mbps and UL 66–71 Mbps), with Finland, Belgium and Luxembourg close behind on download.

- **The strategic priority is consistency:**

Several markets still sit below ~100 Mbps P90 DL and UL is often the limiting factor; achieving “high performance everywhere” requires extending capacity beyond hotspots through densification, spectrum efficiency and backhaul upgrades.





Network Responsiveness



Scope

The Network Responsiveness category measures how quickly and reliably the network reacts to user requests — helping assess the real-time quality of the connection, essential for activities like web browsing, gaming, or video calls



Main Network Responsiveness KPIs

Avg Latency, Jitter & Packet Loss



Category weight

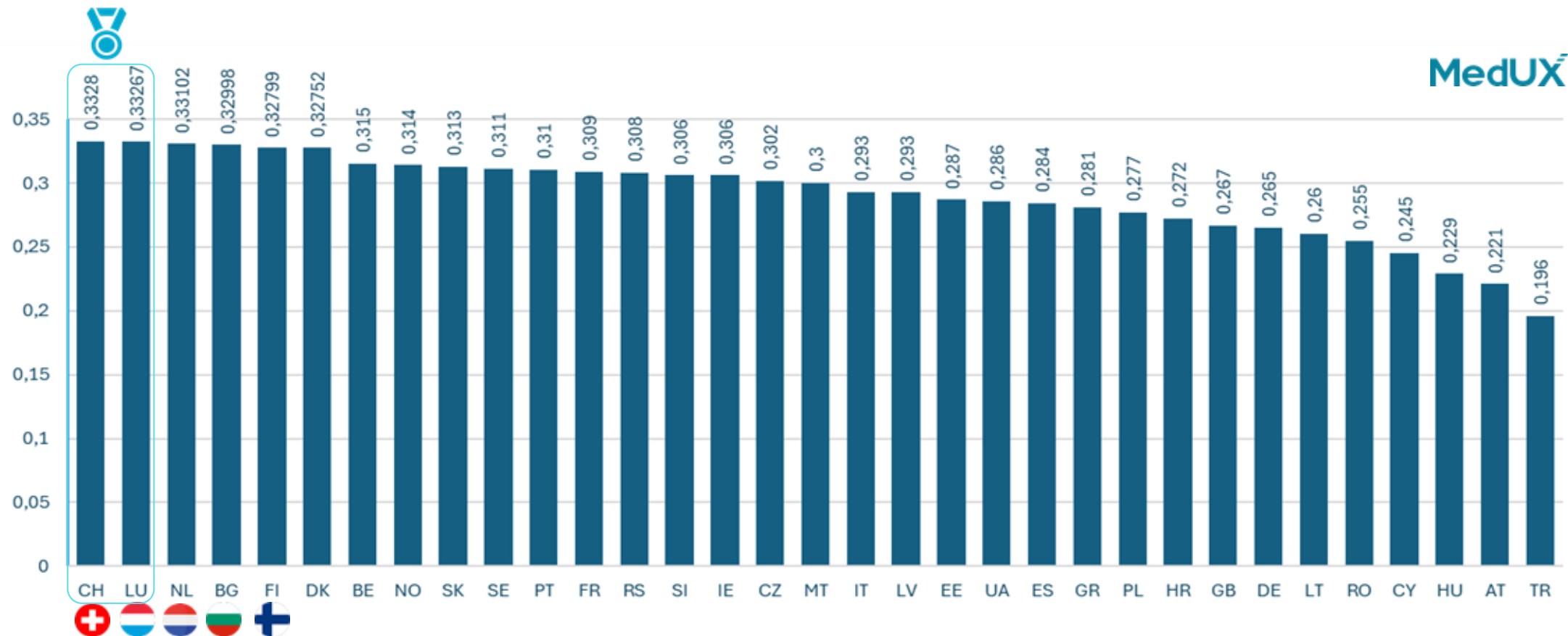
This category accounts for 7.5% of the total score, translating to a maximum possible score of 0.375 from 5



Network Responsiveness: Mobile Experience Eur. Ranking

Responsiveness is about how fast the network reacts to user requests—how quickly content starts, pages respond, and interactions feel “instant.” It is typically driven by latency and network efficiency, and it strongly impacts perceived quality even when speeds look good.

The study highlights two clear winners: **Switzerland** and **Luxembourg** followed closely by **Netherlands**



QoS Country-level comparisons | Latency Metrics - Avg Latency

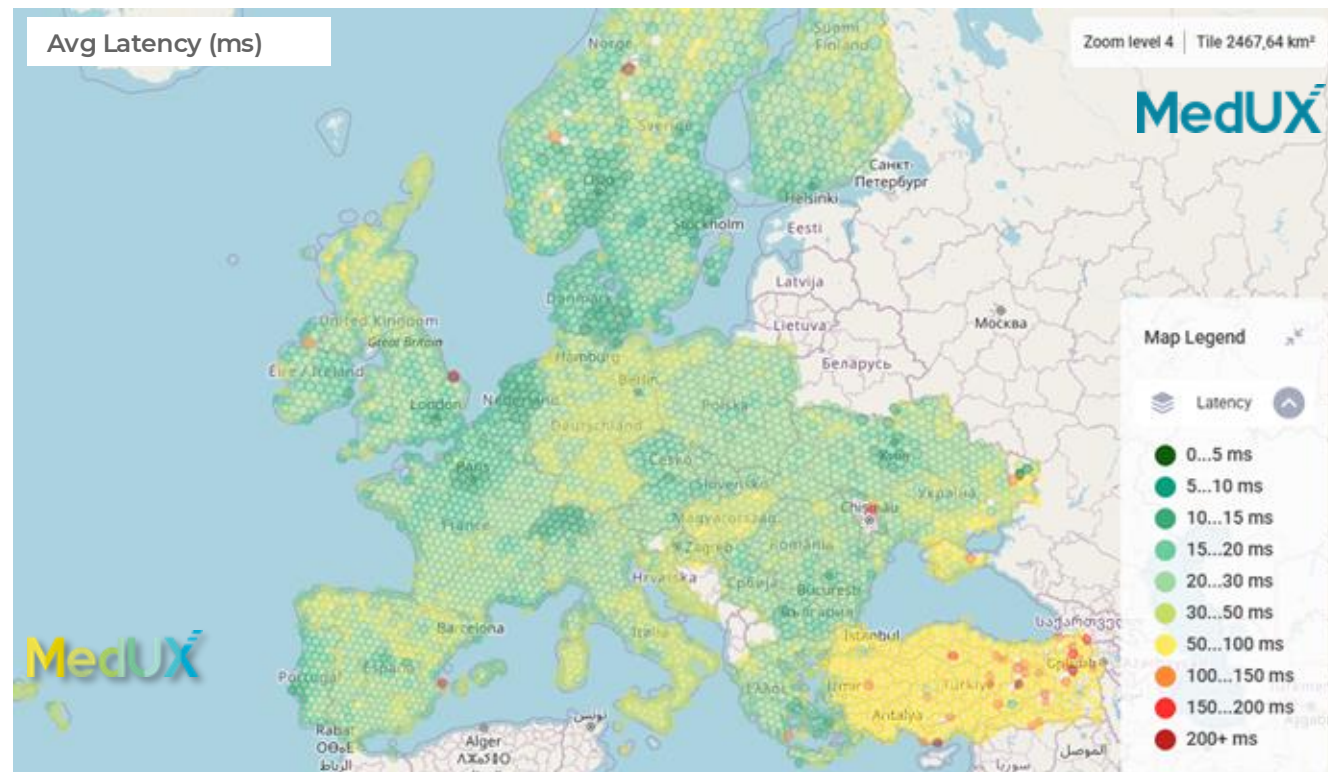


Europe's latency picture is improving, but truly "low-latency" is still not the norm: average latency ranges from 16 ms to 64 ms, meaning many markets remain well above the sub-15 ms ambition for ultra-responsive 5G use cases.

- **A small top tier leads on responsiveness:** Switzerland (16 ms) and the Netherlands (19 ms) set the benchmark, with a strong group around 19–22 ms (e.g., Austria, Czechia, Portugal, Greece, Denmark, Bulgaria).

- **Consistency remains the key deployment goal:**

Most large markets cluster around 26–34 ms (DE/FR/IT/GB/ES), while outliers like Turkey (64 ms) (and higher-latency pockets such as Malta/Cyprus) show that reducing variability is essential to deliver real-time performance beyond hotspots.



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Quality of Experience Insights

- Service performance (streaming, gaming and social media experience)



Streaming Experience



Scope

The Video Streaming Test checks how well video streams are delivered to end-users. We play the requested video stream and evaluate the video playback and exploring the different phases



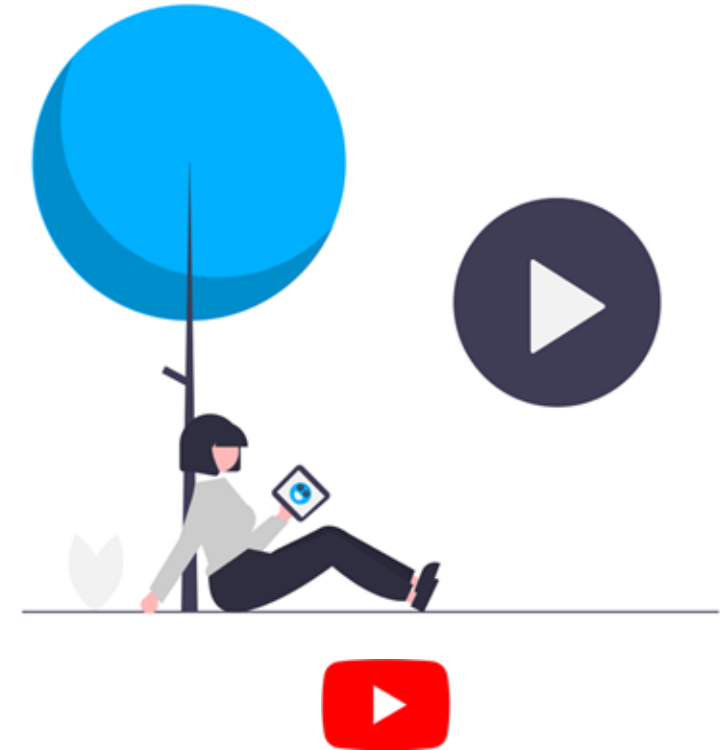
Main Streaming Experience KPIs

Video download speed, Video streaming bitrate, Video startup time, Number of rebuffering events, Video Stalling Ratio or Dominant Streaming Bitrate



Category weight

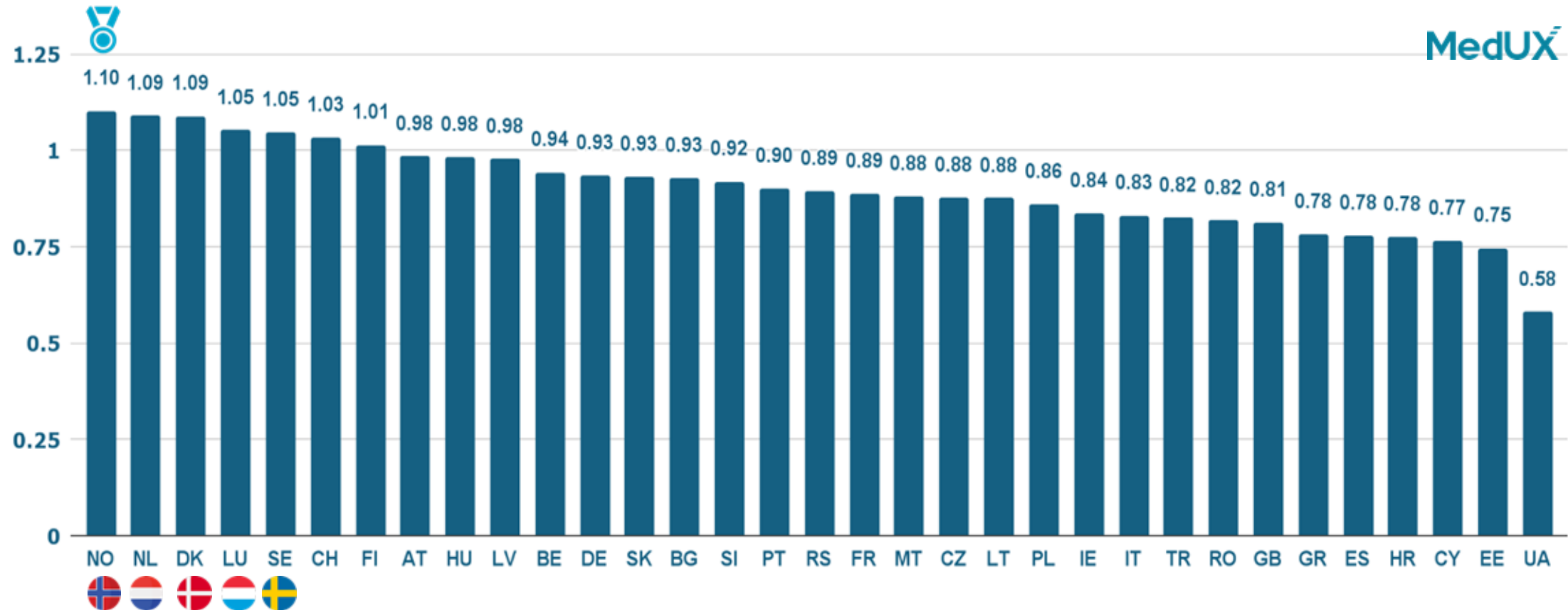
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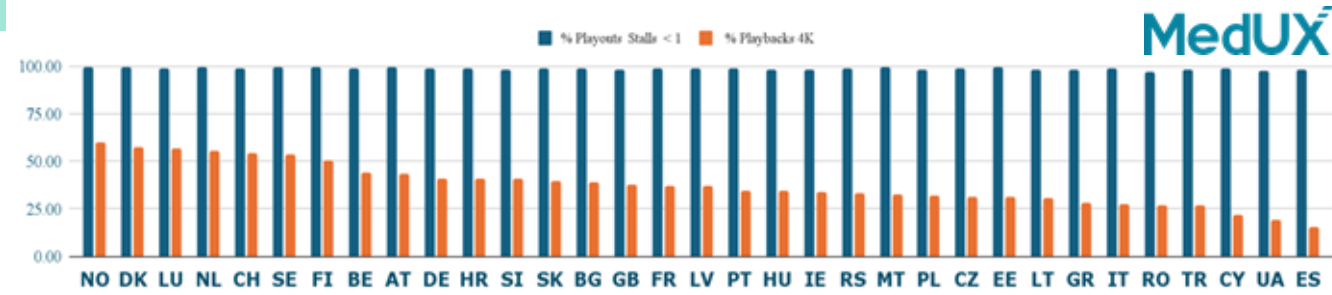
Streaming: Mobile Experience European Ranking

Streaming evaluates video experience under real conditions: start time, buffering, stability, and the ability to sustain quality across variable radio conditions. It reflects what viewers feel in practice—whether playback is seamless during peak hours and on the move.

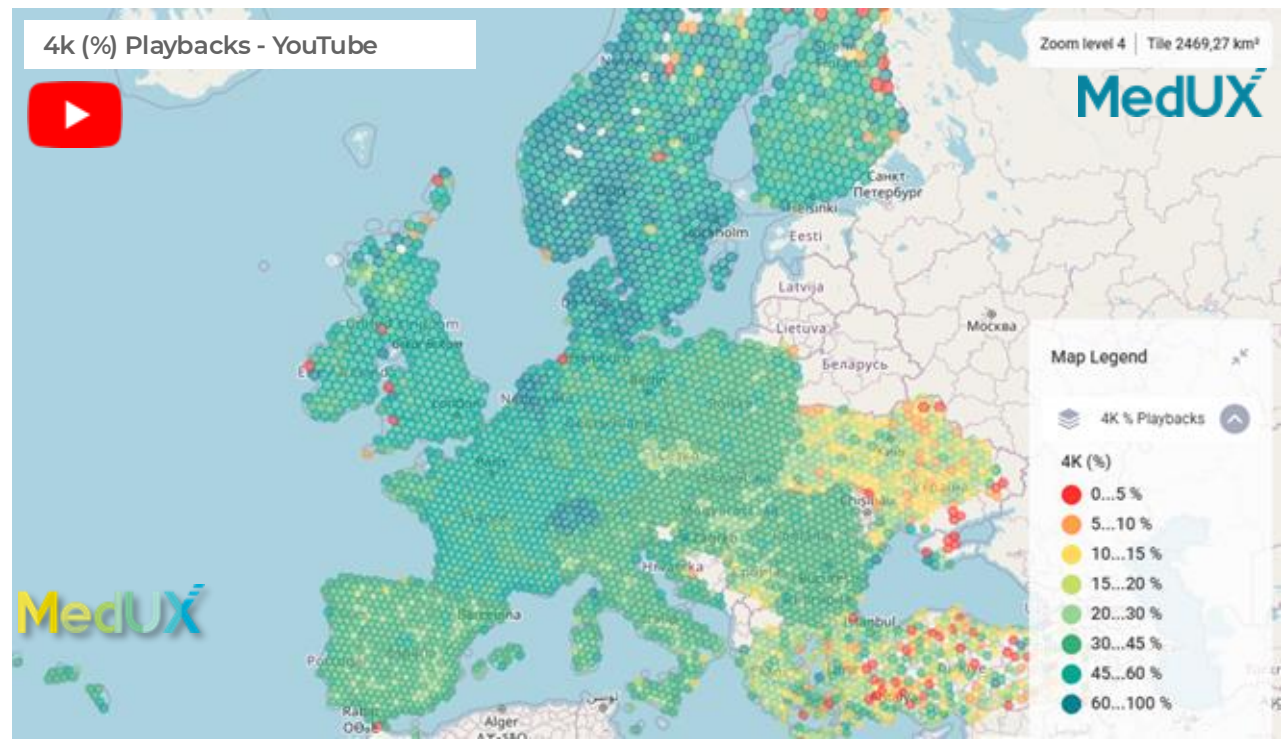
The study identifies one outstanding winner the **Norway**, followed closely by two very strong competitors: **Netherlands** and **Denmark**.



Service performance | Streaming (%) Playbacks in 4K Quality & Stalls



YouTube QoE is strong on stability, but resolution differs widely. Stall-free playback is consistently high across Europe (97–99% of playouts with <1 stall), yet the ability to sustain 4K varies dramatically by country.

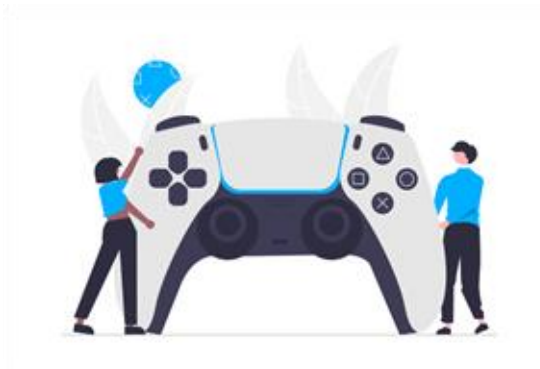


- **4K leadership is concentrated in a clear top tier:** Norway (60%), Denmark (57%), Luxembourg (56.6%), Netherlands (55%) and Switzerland (54%) lead indicating stronger end-to-end conditions.

- **High stability doesn't automatically mean "high quality":** Many markets maintain near-perfect stall performance while showing much lower 4K share (e.g., Spain 15.4%, Ukraine 19%, Cyprus 22%), suggesting that the limiting factor is often sustained throughput or consistency, not just buffering avoidance.



Data & OTT



Scope

The Data & OTT Category evaluates how well real-time online games perform by measuring key metrics such as latency, jitter, and packet loss, using some of the most popular gaming destinations like Riot Games. It Additionally measures how quickly and smoothly social media platforms and webs load by analyzing key browsing metrics when accessing popular destinations like Google, Whatsapp, Facebook, Instagram, and TikTok.



Main Gaming Experience KPIs

Latency, Jitter, and Packet Loss



Main Social Media and Web Browsing Experience KPIs

Loading Time, DNS Time, Avg Fully Loaded or Number of Resources



Category weight

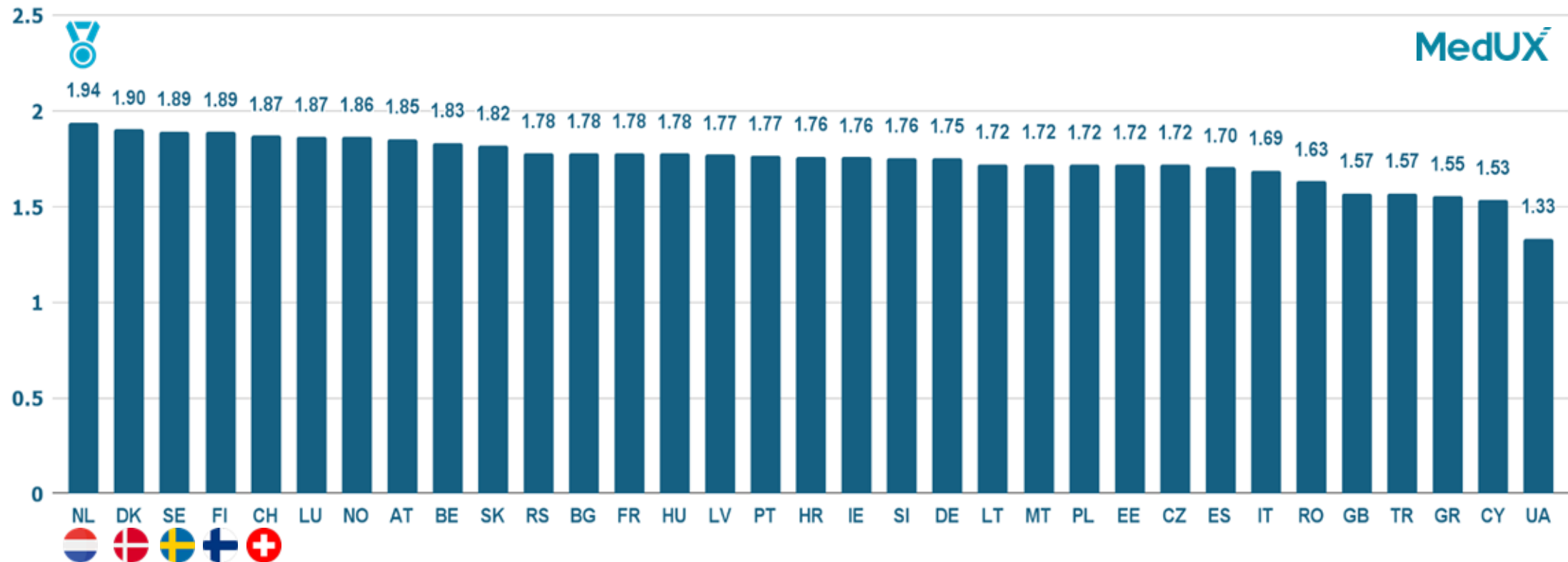
This category accounts for 42.5% of the total score, translating to a maximum possible score of 2.125 from 5



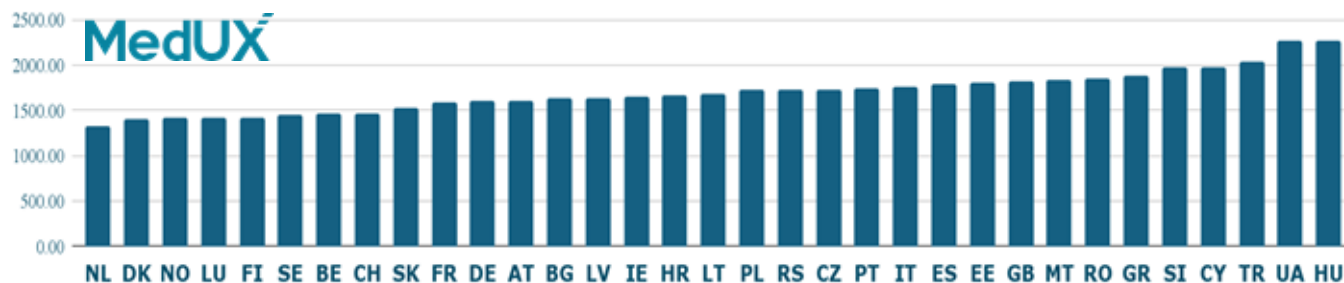
Data & OTT: Mobile Experience European Ranking

Data & OTT measures real-world performance for the apps people actually use—social, messaging, cloud, maps, and popular OTT services. It goes beyond peak throughput, focusing on whether the network supports smooth, reliable usage across locations and times of day.

The study highlights a clear front-runner, the **Netherlands**, followed closely by two very strong competitors: **Denmark** and **Sweden**.



Service Performance | Web Browsing Experience Avg. Loading Time (ms)



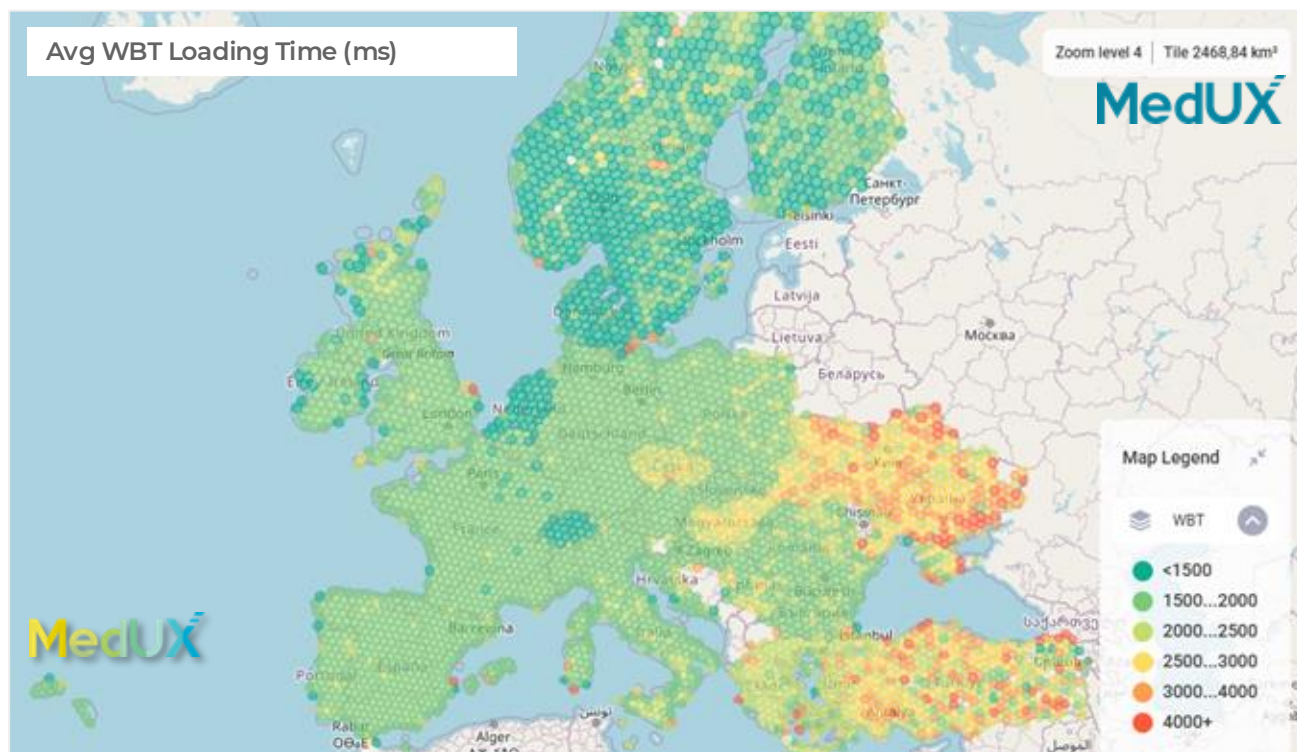
Web browsing time-to-content is generally strong in Western/Northern Europe, but gaps remain: the best markets are around 1.3–1.5s (e.g., Netherlands 1.3 s, Denmark 1.4 s) while others drift closer to 1.8–2.0s.

- **A clear slow tail stands out:**

Ukraine and Hungary (2.2 s) and Turkey (2 s) are materially slower, 70% above the best performer, which is highly noticeable for everyday browsing.

- **Delivery efficiency matters as much as radio performance:**

Differences in latency, congestion, CDN/peering, and routing can dominate WBT, which is why improving “consistent fast browsing” requires optimizing the full path, not just adding coverage.



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Annexes: Detailed Benchmarking Results

Service's Score Percentages (1/2)

MOS	KPI Name	Max. Score	ES (%)	IT (%)	FR (%)	DE (%)	NL (%)	PL (%)	GB (%)	RO (%)	BE (%)	PT (%)	CH (%)	BG (%)	GR (%)	DK (%)	AT (%)	SE (%)	NO (%)
Gaming	Total	100%	83.93	86.1	86.9	88.8	93.6	88.1	82.4	77	89.7	89.6	94.5	82.1	66.5	94.2	93.5	92.9	92.4
Web Browsing	Total	100%	76.5	75.1	80.9	78.7	90	76.3	70.7	71.9	82.9	78.8	84.3	80.7	69.1	85.2	82.3	86	83.1
Social Media	Total	100%	83.4	82	85.8	84.2	91.9	83.5	73.9	83.1	89.1	85.5	89.7	88.5	81.7	92.9	80.7	91.5	91.6
Data & OTT Tot.	Total	100%	80.2	79.5	83.7	82.4	91.3	80.9	73.9	76.8	86.3	83.1	88	83.7	73.1	89.5	83.7	89.1	87.7
Accessibility Tot.	Total	100%	75.7	78.1	82.3	70.6	88.3	73.8	71.2	68	83.9	82.7	88.7	88	74.8	87.3	59	82.8	83.9
Streaming Tot.	Total	100%	62.3	66.5	71	74.7	87.2	65.2	65	61.9	75.4	72	82.7	74.3	62.6	87.1	78.7	83.7	88.1
Cloud Download	Total	100%	65.7	63.5	79.5	72.3	92.6	56	65.6	64	81.6	76.7	87	83.4	71.2	92.4	83.1	85.7	90.1
Cloud Upload	Total	100%	60	49.6	68.7	63.1	90.6	51.6	53.5	56.6	72.1	69	90.4	72.7	53	83.6	74.2	82.8	86.7
Value for Speed Tot.	Total	100%	63.4	57.9	75.2	68.6	91.8	54.2	60.7	61	77.8	73.6	88.3	79.1	63.9	88.9	79.5	84.6	88.7
	Reliability Tot.	100%	71.2	70.7	78.3	76.2	90.2	70.7	68.2	69.3	81.3	77.9	86.8	80.5	68.3	88.6	79.6	86.2	87.8



Service's Score Percentages (2/2)

MOS	KPI Name	Max. Score	FI (%)	IE (%)	UA (%)	HR (%)	RS (%)	SK (%)	CZ (%)	HU (%)	TR (%)	LU (%)	SI (%)	MT (%)	LV (%)	LT (%)	EE (%)	CY (%)
Gaming	Total	100%	91.7	89.7	83.7	84.9	86.5	92.4	93.2	93.4	70.5	92	89.9	82.1	90.2	81.1	85.3	60
Web Browsing	Total	100%	85.5	79.7	58.9	78.6	79.9	80.8	76.3	74.2	71.5	84.8	80.4	81.9	78.6	79.1	75.9	69.8
Social Media	Total	100%	92.6	83	57.3	87.7	87.5	88.4	80.7	78.5	78.7	89.7	82	79.4	86.2	83.6	85.3	81.5
Data & OTT Tot.	Total	100%	89.1	82.7	62.7	82.9	83.8	85.5	80.9	79.1	73.9	87.8	82.6	81	83.3	81.1	80.9	72.2
Accessibility Tot.	Total	100%	87.5	81.7	76.3	72.6	82.2	83.3	80.6	61	52.2	88.7	81.7	79.9	78	69.3	76.7	65.3
Streaming Tot.	Total	100%	81.1	66.9	46.4	62.1	71.4	74.5	70.1	78.5	66	84.2	73.5	70.5	78.2	70.1	59.6	61.2
Cloud Download	Total	100%	81.9	64	55.6	81.8	72.6	74.8	64.7	59.2	50	84.7	77.9	71.5	72	69.4	78.8	57.4
Cloud Upload	Total	100%	77.5	67.3	26.8	61.6	67.7	68.6	70.6	66.1	40.5	67.3	67.5	75.5	65.7	57.3	40	32.5
Value for Speed Tot.	Total	100%	80.1	65.3	44.1	73.7	70.6	72.3	67.1	61.9	46.2	77.7	73.7	73.1	69.4	64.6	63.3	47.4
	Reliability Tot.	100%	84.7	74.3	55	74.6	77.3	79.3	74.7	75.2	63.4	84.5	78.1	76.3	78.2	73.3	70.9	62.8



Service's KPIs (1/2)

Services	Test	KPI Name	ES	FR	IT	DE	NL	PL	GB	RO	BE	PT	CH	BG	GR	DK	AT	SE	NO
Data & OTT	Gaming Test	% of samples w/o errors and RTT < QT2	99.06	99.05	99.23	98.60	99.04	99.19	98.58	98.77	99.01	98.84	99.43	99.07	97.89	99.48	99.25	99.31	99.47
		% of samples Jitter < 20 ms	84.14	86.81	87.05	89.78	91.63	87.29	81.54	86.47	87.58	89.97	88.04	91.79	90.01	88.55	88.85	92.20	92.01
		AVG Latency	34.57	30.29	33.93	23.51	19.78	29.73	30.50	46.72	24.73	24.73	19.87	43.42	60.46	21.55	20.55	24.75	27.37
	Web Browsing Time Test	% of samples w/o errors and Web Browsing Time < QT1	98.47	98.43	98.15	98.15	99.38	98.19	97.07	98.28	98.63	98.83	98.91	98.86	98.04	99.45	98.97	99.39	99.37
		% of Sessions AVG TTFB < 600 ms	75.71	83.08	75.55	82.28	89.46	76.75	79.34	66.79	84.50	75.37	84.29	77.66	64.12	79.33	79.74	81.74	75.85
		% of Sessions AVG DNS Delay < 100 ms	95.23	97.32	96.54	96.58	98.25	97.52	96.40	97.28	97.31	96.51	97.08	97.38	96.88	96.97	97.34	97.55	96.67
		AVG WBT	1793.71	1582.34	1762.01	1600.31	1,330.99	1728.44	1826.78	1847.35	1467.27	1748.36	1468.68	1629.77	1889.45	1399.45	1600.82	1451.28	1412.21
	Social Media	% of samples w/o errors and Session Duration < QT1	97.60	97.97	97.69	97.62	98.85	97.70	96.20	97.65	98.49	97.88	98.51	98.51	97.46	99.16	98.31	98.89	98.99
		% of Sessions SD < 6 s	97.23	97.78	94.99	97.73	98.77	97.54	95.25	97.25	98.22	97.45	98.44	98.18	97.14	98.96	97.85	98.73	98.85
		AVG TTFB	470.14	452.20	565.36	434.12	385.46	490.44	560.56	499.68	429.80	441.55	405.71	462.61	516.61	421.10	419.82	419.82	439.41
Accessibility	Ping Test	% of samples w/o errors and RTT < QT2	96.53	97.45	96.67	95.06	97.87	95.79	95.49	94.88	97.52	96.97	97.95	97.95	95.53	97.82	92.54	97.26	97.44
		% of samples Jitter < 50 ms	94.92	95.80	96.41	96.85	98.02	96.02	93.34	95.84	94.12	96.91	97.16	96.62	96.40	95.26	97.91	97.33	97.91
		AVG Latency	33.83	29.70	29.70	26.02	18.97	28.00	29.27	30.31	25.67	21.72	16.19	22.01	21.54	21.82	19.51	25.55	25.53
Streaming	Youtube Test	% of samples w/o errors and (Startup < QT1 && Total Stall Duration < QT3)	97.90	97.78	97.81	98.19	99.07	97.59	97.14	97.88	98.14	98.30	98.59	98.34	97.38	98.93	98.64	98.77	98.93
		AVG Startup Delay	2144.65	2107.43	2162.93	1867.57	1712.93	2160.35	2012.80	2165.32	1952.06	2195.50	1740.13	2126.58	2321.23	1692.95	2033.12	1819.66	1,685.62
		% Playouts Stalls < 1	98.31	99.02	98.59	98.66	99.39	98.05	97.93	96.97	98.83	98.83	98.99	98.96	98.28	99.34	99.24	99.19	99.41
		% Playbacks 4K	15.38	37.11	27.47	41.06	55.22	32.12	37.88	26.75	43.86	34.69	53.82	38.59	28.17	57.46	43.10	53.32	60.07
Value for Speed	Medux Cloud SpeedTest DL	% of samples w/o errors and DL Speed > QT1	98.33	99.26	98.61	99.12	99.80	98.16	98.52	98.51	99.10	99.10	99.50	99.36	98.98	99.66	99.65	99.44	99.84
		% of samples > 100 Mbps	18.43	30.05	15.08	16.55	48.64	22.41	15.68	12.29	33.48	25.56	42.59	34.57	21.74	49.74	32.02	42.39	47.17
		% of samples > 20 Mbps	67.41	79.05	61.74	76.52	90.55	29.04	67.19	67.99	82.91	77.03	83.81	82.93	69.30	88.39	83.85	83.30	83.59
		P90 DL Speed	171.61	238.64	134.87	140.40	290.43	190.76	150.00	113.22	277.91	239.03	304.86	283.51	185.93	379.12	185.93	255.44	315.27
	Medux Cloud SpeedTest UL	% of samples w/o errors and UL Speed > QT1	94.85	96.20	93.18	95.02	99.01	93.43	93.75	93.98	96.48	96.00	99.04	96.56	93.50	98.01	96.78	97.99	98.48
		% of samples > 5 Mbps	75.11	77.65	73.34	80.73	91.50	74.08	74.37	78.82	82.55	81.20	91.22	81.93	75.26	88.51	83.27	87.90	89.30
		% of samples > 2 Mbps	89.48	90.46	88.53	92.37	97.45	88.45	88.88	90.87	93.22	92.56	97.03	92.59	89.69	95.88	93.78	95.86	96.75
		P90 UL Speed	43.07	48.81	37.07	45.07	70.97	43.09	41.94	46.08	50.16	49.83	68.53	55.57	47.12	65.85	50.65	57.24	65.99



Service's KPIs (2/2)

Services	Test	KPI Name	FI	IE	UA	HR	RS	SK	CZ	HU	TR	LU	SI	MT	LV	LT	EE	CY
Data & OTT	Gaming Test	% of samples w/o errors and RTT < QT2	99.40	98.97	98.90	98.84	99.02	99.25	99.57	99.45	97.84	99.40	98.97	99.45	99.48	99.01	98.51	96.69
		% of samples Jitter < 20 ms	88.45	85.10	89.49	92.27	88.29	92.98	91.28	93.12	90.18	87.17	90.84	87.91	90.67	91.94	87.12	88.35
		AVG Latency	25.69	22.73	36.94	35.63	31.84	25.60	26.37	25.79	51.98	24.11	26.09	45.09	31.00	44.75	27.64	59.26
	Web Browsing Time Test	% of samples w/o errors and Web Browsing Time < QT1	99.13	98.13	95.99	98.86	98.77	98.91	98.62	98.27	98.19	98.93	98.85	99.21	98.77	98.43	98.49	98.34
		% of Sessions AVG TTFB < 600 ms	83.28	84.33	69.89	75.08	77.44	81.11	71.92	75.89	69.41	84.97	78.78	78.02	74.13	79.26	73.57	63.09
		% of Sessions AVG DNS Delay < 100 ms	97.93	97.73	95.75	95.06	97.86	91.54	96.99	95.75	95.72	97.03	98.03	96.59	97.32	98.20	96.22	96.13
		AVG WBT	1417.84	1650.71	2276.60	1663.75	1731.92	1530.32	1732.40	2276.60	2043.58	1415.95	1968.12	1835.96	1632.76	1680.50	1809.70	1968.12
	Social Media	% of samples w/o errors and Session Duration < QT1	99.10	97.50	93.99	98.35	98.32	98.35	97.15	96.66	97.13	98.57	97.36	96.91	98.15	97.71	98.05	97.58
		% of Sessions SD < 6 s	99.00	97.00	91.80	97.98	97.43	98.23	96.16	96.26	94.90	98.43	97.64	96.29	97.78	97.56	97.76	96.67
		AVG TTFB	424.89	461.67	559.68	464.56	461.99	427.59	481.50	456.02	566.12	423.16	472.95	480.52	482.42	489.73	497.69	558.36
Accessibility	Ping Test	% of samples w/o errors and RTT < QT2	97.97	96.95	96.21	95.73	97.21	97.19	96.46	93.92	94.30	98.20	97.24	97.98	96.25	94.89	95.98	95.22
		% of samples Jitter < 50 ms	97.91	95.94	96.27	97.13	96.67	97.91	97.54	97.76	96.03	95.76	97.05	95.38	97.68	96.06	96.75	95.22
		AVG Latency	23.69	24.20	27.57	30.60	26.37	23.25	19.84	34.96	63.91	23.64	28.40	43.97	23.58	26.91	23.28	42.50
Streaming	Youtube Test	% of samples w/o errors and (Startup < QT1 && Total Stall Duration < QT3)	98.44	97.64	95.75	95.98	98.26	98.46	98.05	97.57	98.00	98.68	98.39	98.18	98.91	98.35	95.92	97.00
		AVG Startup Delay	1779.84	2113.74	2685.36	2123.78	2104.95	2068.26	2033.21	2023.74	2280.17	1691.66	2006.92	2353.79	1925.97	1977.14	2083.77	2207.96
		% Playouts Stalls < 1	99.16	98.31	97.51	99.00	98.75	98.58	98.74	98.24	98.39	98.92	98.19	99.10	99.02	98.15	99.26	99.01
		% Playbacks 4K	50.41	33.45	19.11	40.63	32.85	39.75	31.12	34.28	26.59	56.66	40.51	32.17	37.07	30.28	31.06	21.93
Value for Speed	Medux Cloud SpeedTest DL	% of samples w/o errors and DL Speed > QT1	98.92	98.45	97.83	99.44	99.14	98.93	99.10	97.67	97.10	99.27	99.38	98.86	98.56	98.55	99.08	99.03
		% of samples > 100 Mbps	38.40	20.14	7.26	33.45	20.77	29.02	15.18	17.21	7.87	38.10	28.72	18.99	25.32	20.66	32.92	5.61
		% of samples > 20 Mbps	82.46	59.77	61.33	80.47	73.55	72.84	57.63	62.29	56.21	85.44	75.02	75.70	74.77	73.17	79.22	51.76
		P90 DL Speed	289.28	171.45	87.97	228.77	145.32	220.07	136.97	137.86	90.46	273.16	213.96	152.11	187.52	157.14	206.83	68.10
	Medux Cloud SpeedTest UL	% of samples w/o errors and UL Speed > QT1	97.30	95.92	87.06	94.80	95.73	95.86	96.42	95.71	92.35	95.92	96.17	97.37	95.60	94.12	91.21	89.17
		% of samples > 5 Mbps	83.67	77.75	61.14	79.19	81.50	80.05	78.08	78.12	57.22	77.75	73.47	79.80	79.59	76.59	72.74	70.83
		% of samples > 2 Mbps	93.93	91.62	81.46	91.32	92.02	93.20	93.02	92.08	85.75	91.62	89.98	91.52	91.21	91.41	88.50	90.50
		P90 UL Speed	55.44	45.66	30.86	49.83	53.99	53.71	45.54	41.94	29.18	45.66	47.04	44.18	44.76	47.35	54.23	37.94



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7. **MedUX, a trusted partner**



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3G

4G

5G

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5G

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2



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Providers

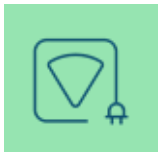
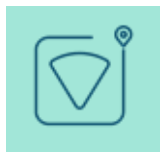


Telecom Regulators



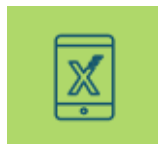
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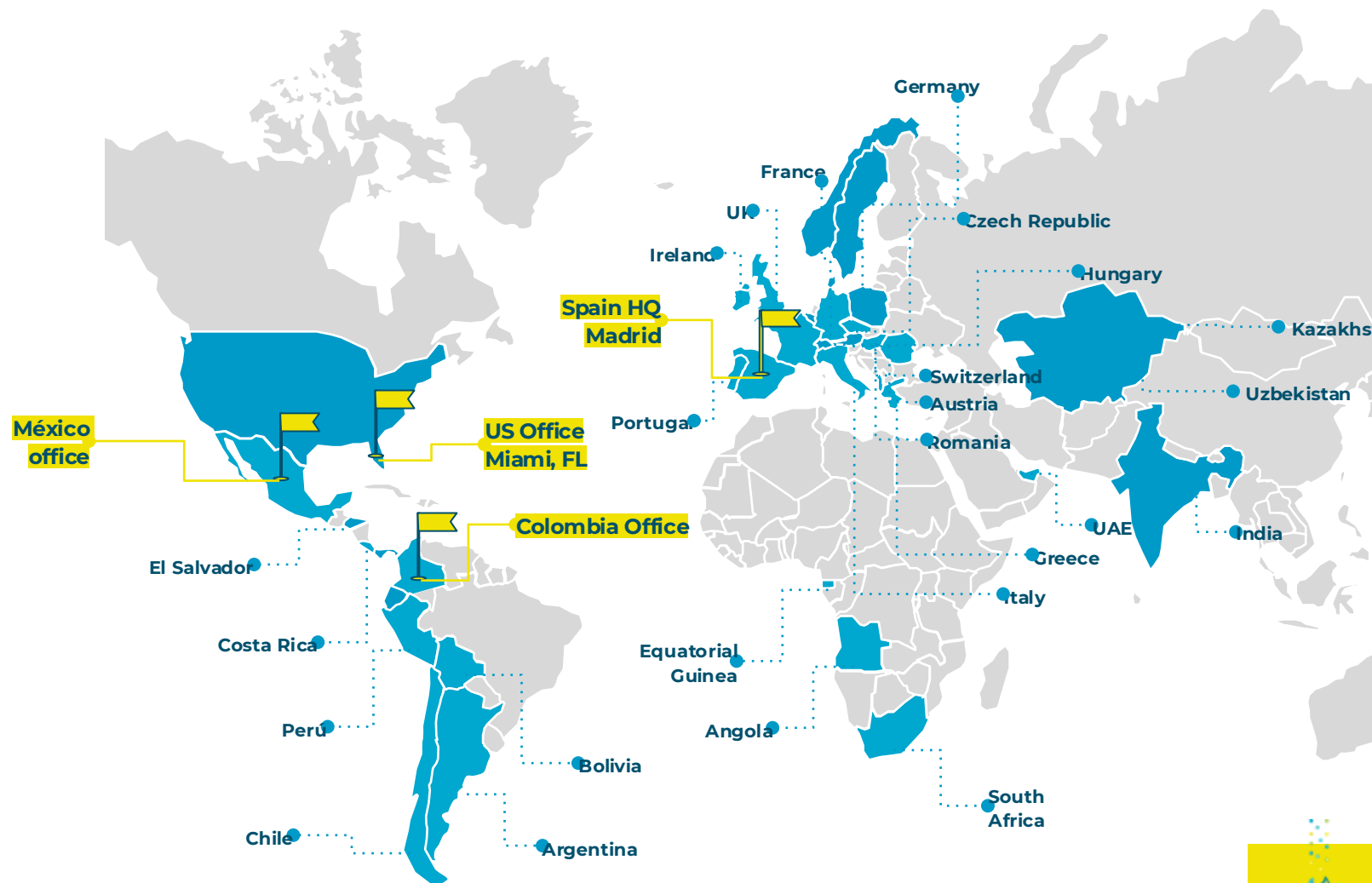
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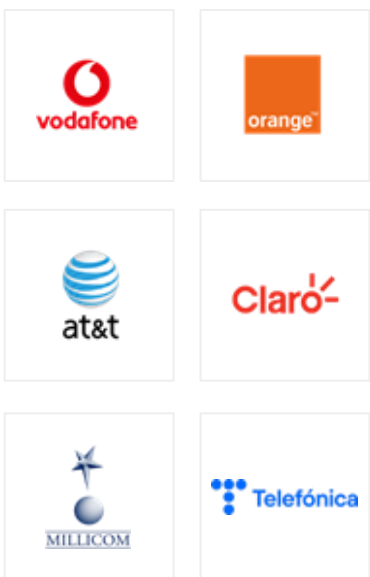
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