Connectivity Mapping and Visualization
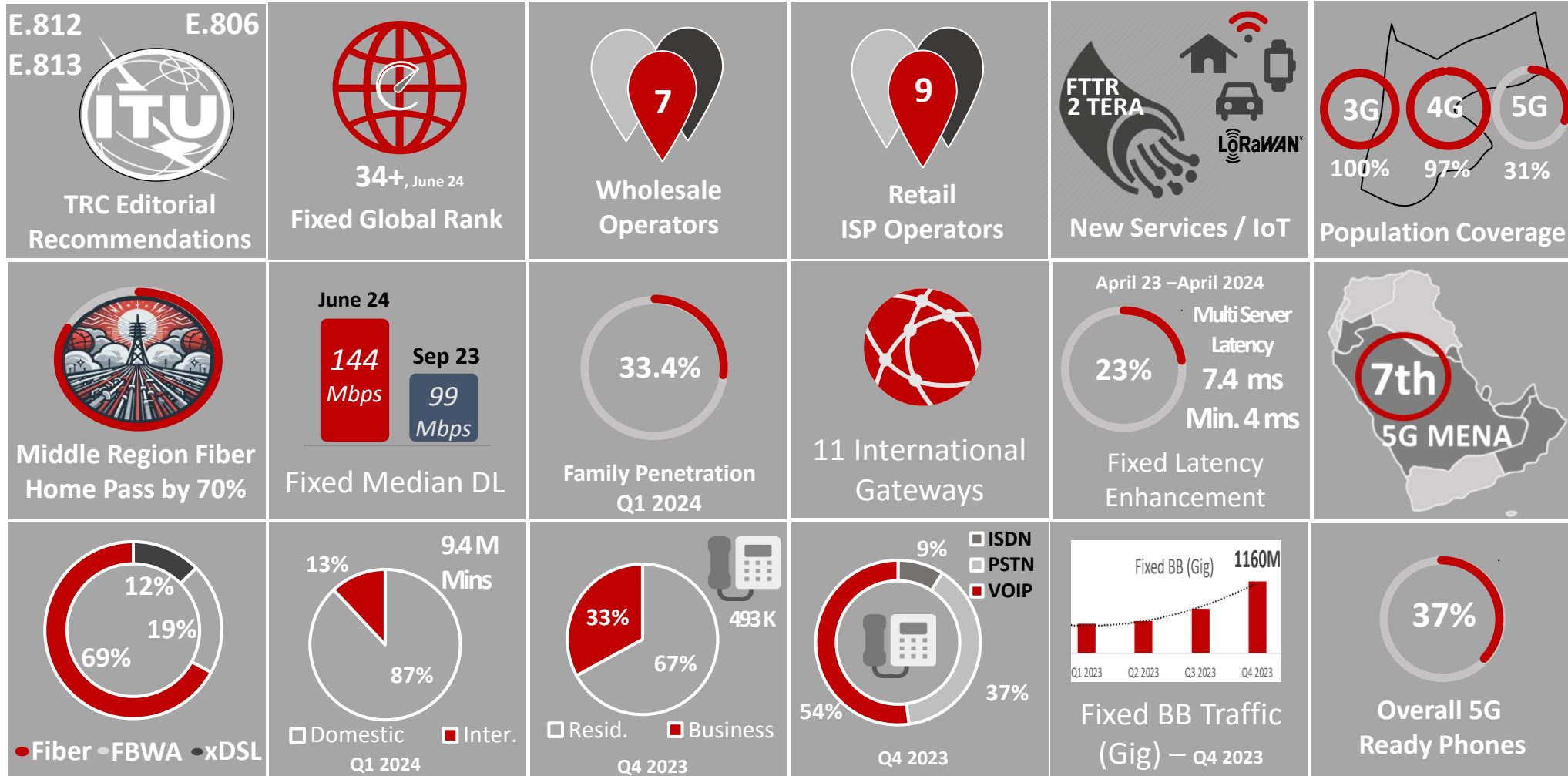
Broadband Infrastructure

25/7/2024

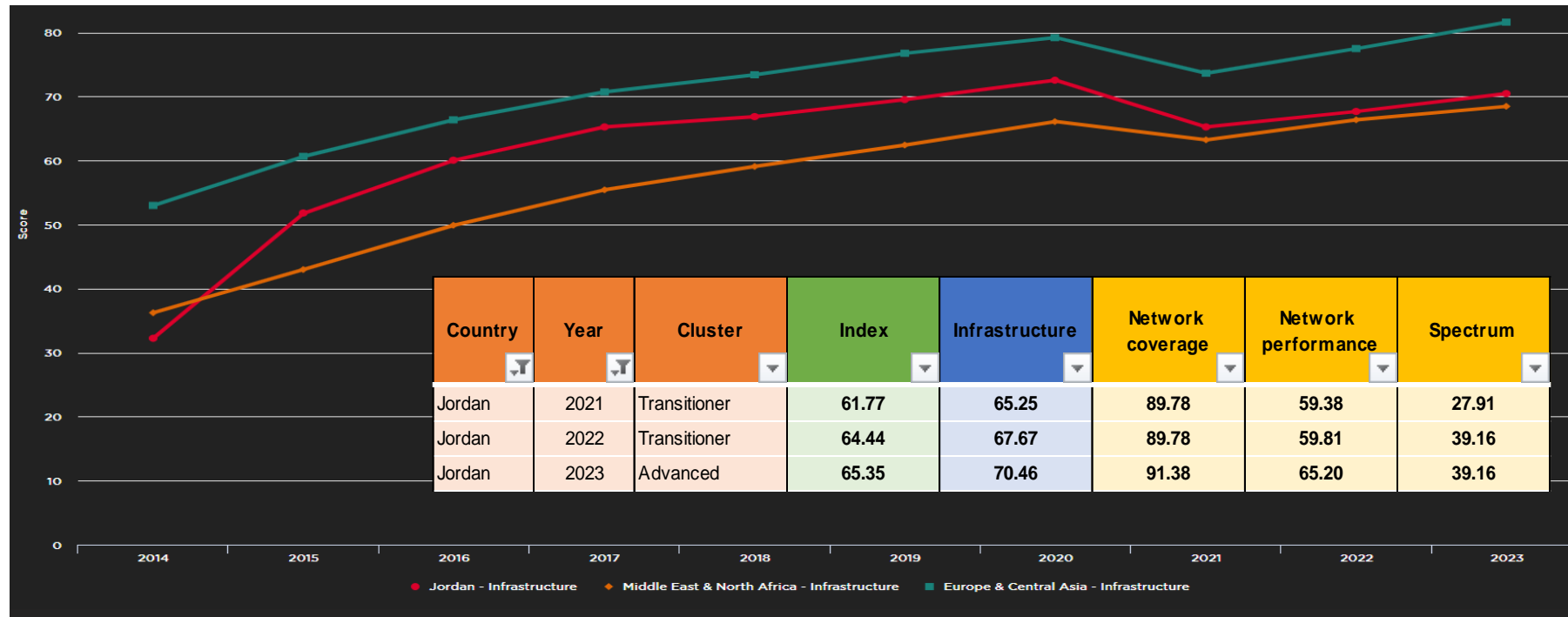**Eng. Zeid Al-Kadi**

Director of Licensees and Consumer Affairs, TRC Jordan

Jordan Connectivity Status

E.812 **E.806** **E.813** — ITU — **TRC Editorial Recommendations**	**34+**, June 24 — **Fixed Global Rank**	**7** — **Wholesale Operators**	**9** — **Retail ISP Operators**	**FTTR 2 TERA** LoRaWAN — **New Services / IoT**	**3G** 100% **4G** 97% **5G** 31% — **Population Coverage**
Middle Region Fiber Home Pass by 70%	**June 24** 144 Mbps **Sep 23** 99 Mbps — **Fixed Median DL**	**33.4%** — **Family Penetration Q1 2024**	**11 International Gateways**	April 23 –April 2024 **23%** Multi Server Latency **7.4 ms** Min. **4 ms** — **Fixed Latency Enhancement**	**7th** **5G MENA**
12% 19% 69% — ● **Fiber** ● **FBWA** ● **xDSL**	13% **9.4 M Mins** 87% — □ **Domestic** ■ **Inter.** Q1 2024	33% 67% **493 K** — □ **Resid.** ■ **Business** Q4 2023	9% 54% 37% □ **ISDN** □ **PSTN** ■ **VOIP** — Q4 2023	Fixed BB (Gig) **1160M** Q1 2023 Q2 2023 Q3 2023 Q4 2023 — **Fixed BB Traffic (Gig) — Q4 2023**	**37%** — **Overall 5G Ready Phones**

Jordan Status: GSMA MCI, Infrastructure Ranking:

- GSMA classifies Jordan infrastructure as Advanced with a score of 70.5
- 2023 GSMA MCI Rank, Jordan Cluster advancement from Transitioning to Advanced.
- The score enhancement to Infrastructure as enabler was mainly due to better network coverage and performance.
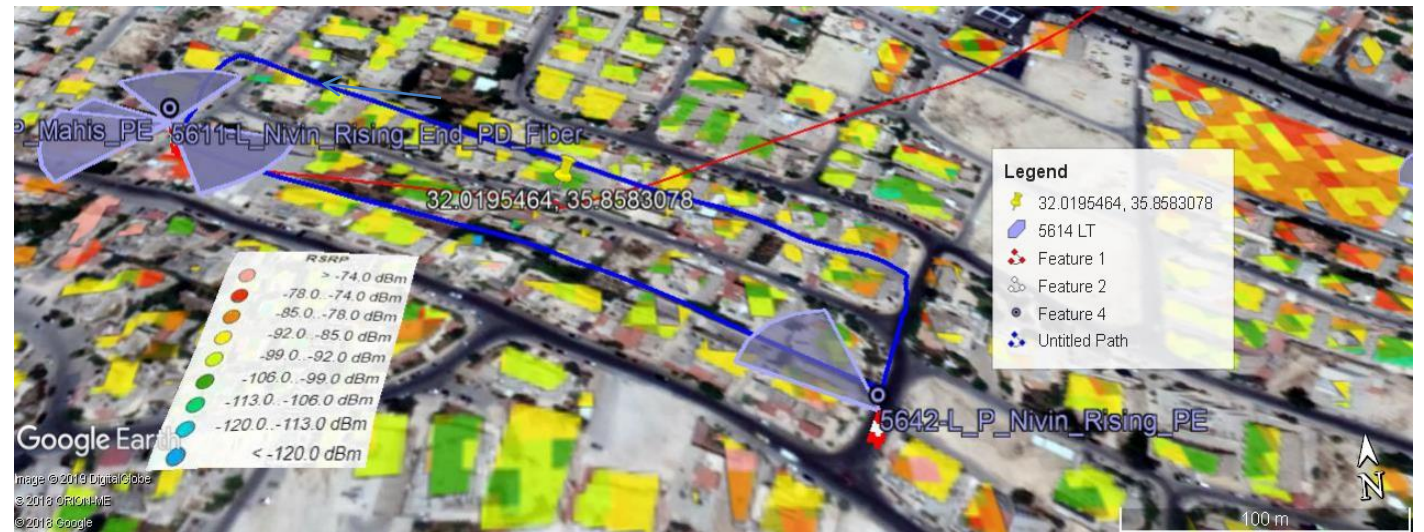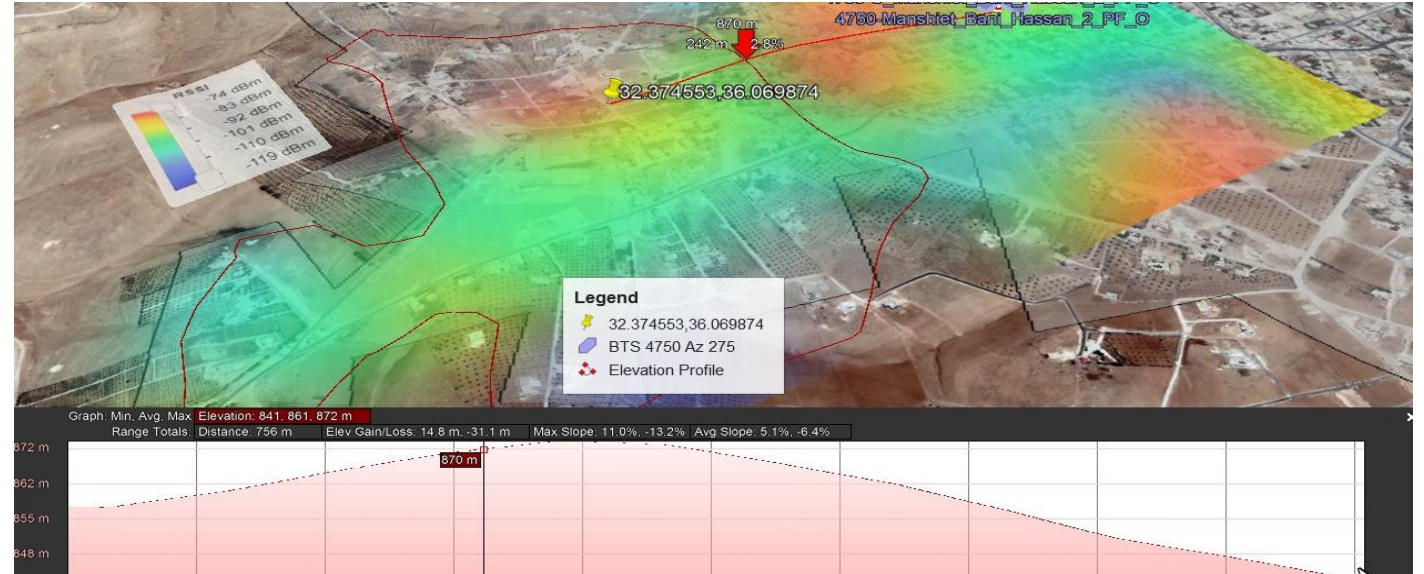

Country	Year	Cluster	Index	Infrastructure	Network coverage	Network performance	Spectrum
Jordan	2021	Transitioner	61.77	65.25	89.78	59.38	27.91
Jordan	2022	Transitioner	64.44	67.67	89.78	59.81	39.16
Jordan	2023	Advanced	65.35	70.46	91.38	65.20	39.16

Data Collection and Visual Data Representation:

Combining multiple data layers such as Traditional drive test data, Crowdsourced data, demographic and socio-economic data enhances BB mapping and knowledge of unserved and under served areas.

Building Layer

Base Station Layer

Drive test samples

Terrain Layer

Crowd sourced data

Population Layer

Socio-economic

Administrative Layer

Currently TRC, uses built-in GIS tools in Cell Analytics, STI Platforms from Ookla in addition to Google earth.
A more sophisticated tool project using ESRI Platforms is planned this year.

Examples: Deploying Data Layers in GIS systems

Mapping and Visualization Strategies,

E.813 ITU Recommendation Scope:

- To construct a composite connectivity index (CI) based on different toolboxes
- To geographically map and visualize (CI) index or any underlying relevant parameter.
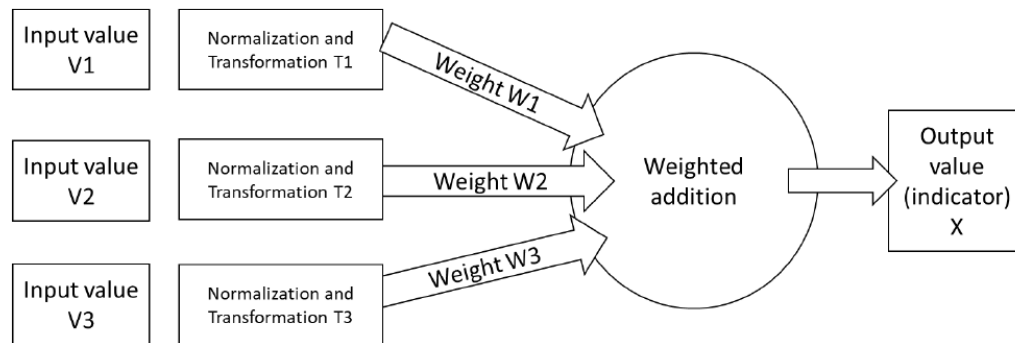

Figure 1 – Example of the construction of a composite index

Recommendation

ITU-T E.813 (05/2024)

SERIES E: Overall network operation, telephone service, service operation and human factors

Quality of telecommunication services: concepts, models, objectives and dependability planning – Models for telecommunication services

Mapping and visualization strategies for the assessment of connectivity

E.813 New Definitions

Connectivity: Two-way access to telecommunication services related to performance and usability.

Connectivity index: A scalar level that represents the overall degree of connectivity, evaluated at a particular time and applicable for a specific duration and geographical area.

Mapping: The process of illustrating values or parameters in a geographic information system (GIS).

Data Tools