
PUCP

Internet Society
Capítulo Perú

# The Third Channel
## Community driven solutions for rural connectivity

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*October, 2025*

PUCP

# CONTENIDO

- The connected the unconnected wicked problem
- The third channel to address it

# WORLD: CONNECTED AND UNCONNECTED


ITU. *Facts and figures* (**2024**)

**People online**

5.5
billions
(68%)

**People offline**

2.6
billions
(32%)

## People not using the Internet

| | 2023 | 2024 |
|---|---|---|
| Urban | 19% | 17% |
| Rural | 50% | 52% |

# PERU: PEOPLE NOT USING THE INTERNET

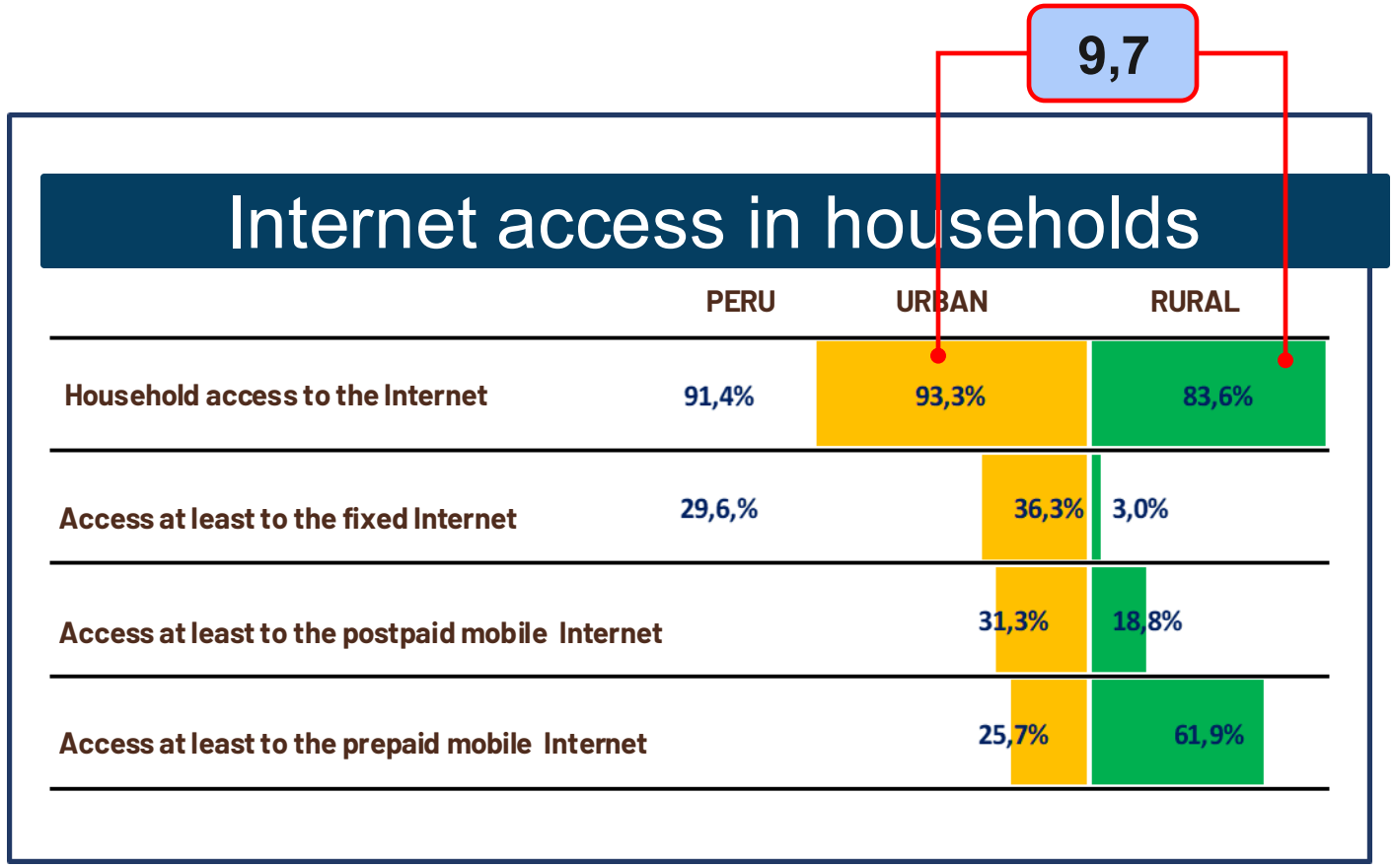
| Area | 2024 |
|---|---|
| Metropolitan Lima | 11,3 % |
| Urban | 18,9 % |
| Rural | 41,6 % |
| **Total** | **20,6 %** |

30

National Institute of Statistics and Informatics - National Household Survey.

- Nearly 2 out of 10 citizens don't use the Internet.
- Significant disparity in rural areas: 30 percentage points, compared to Lima.

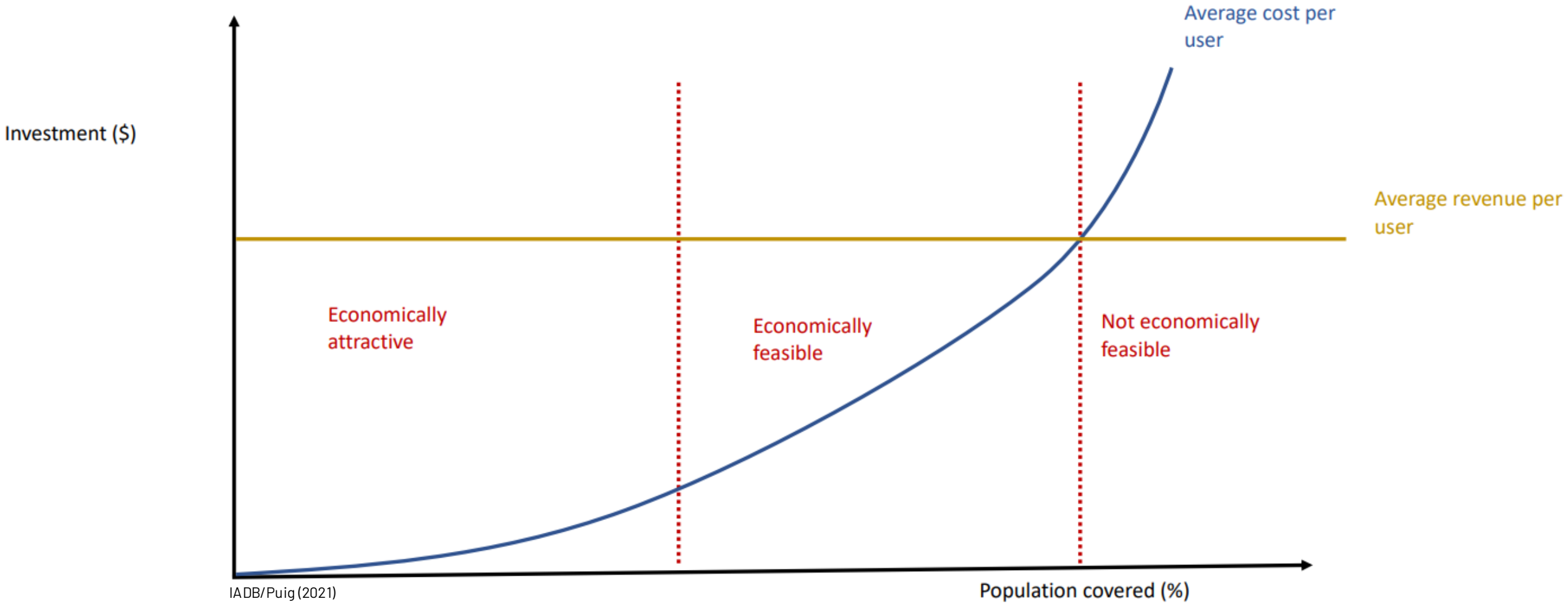
# URBAN AND RURAL CONNECTIVITY DISPARITIES




- Nearly 9 out of 10 households have Internet access.
- Significant disparity in rural areas of 10 percentage points, compared to urban ones.

National Institute of Statistics and Informatics. Peru's Ministry of Transport and Communications

# INVESTMENT NEEDED TO REACH POPULATION (%)



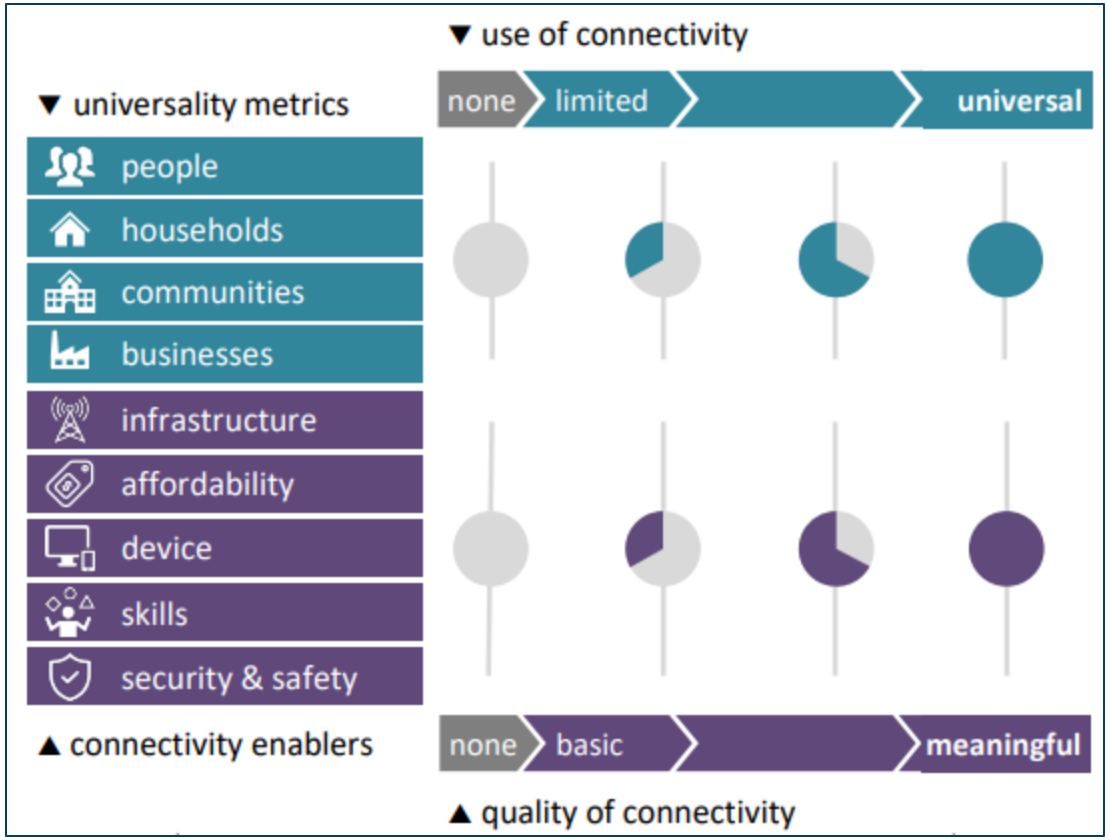

IADB/Puig (2021)

# UNIVERSAL AND MEANINGFUL CONNECTIVITY PERSPECTIVE

## ITU's UMC concept

The possibility for everyone to enjoy a safe, satisfying, enriching, productive, and affordable online experience.

## UMC framework




ITU. Achieving universal and meaningful digital connectivity Setting a baseline and targets for 2030

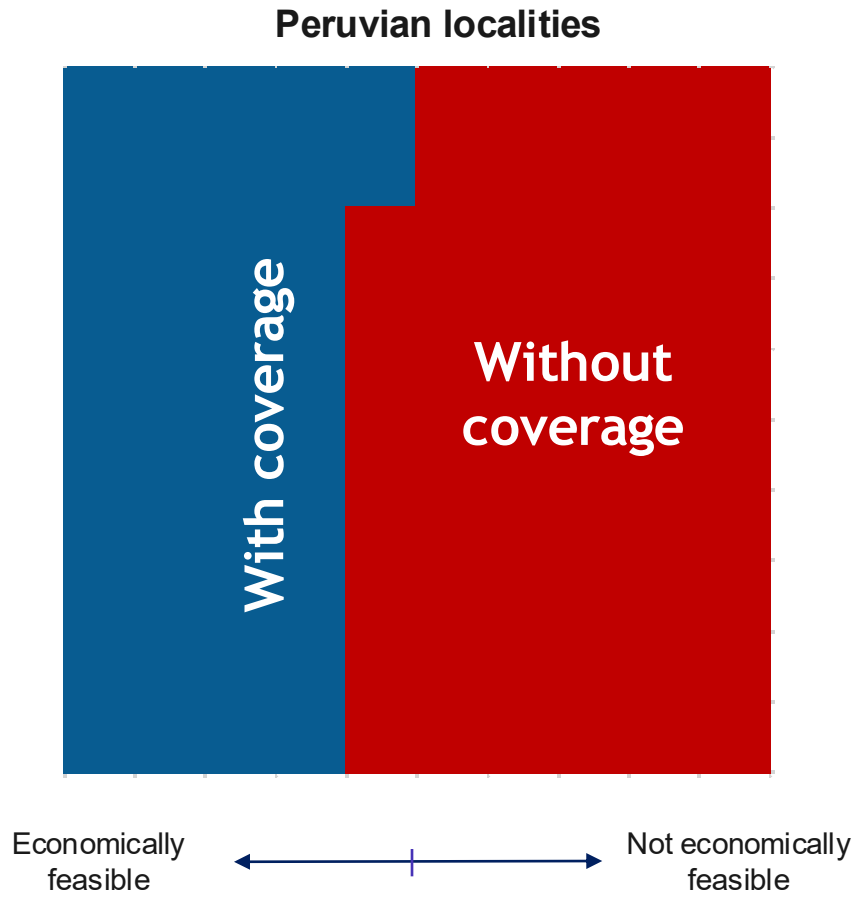
# PERU: LOCALITIES WITH AND WITHOUT UMC

**99,104**

out of 108,000 locations have no reported coverage for 4G, 5G or FTTH telecommunications service.

(91,7%)

(MTC, 2025).




**99.7%**

of localities without coverage belongs to the rural area

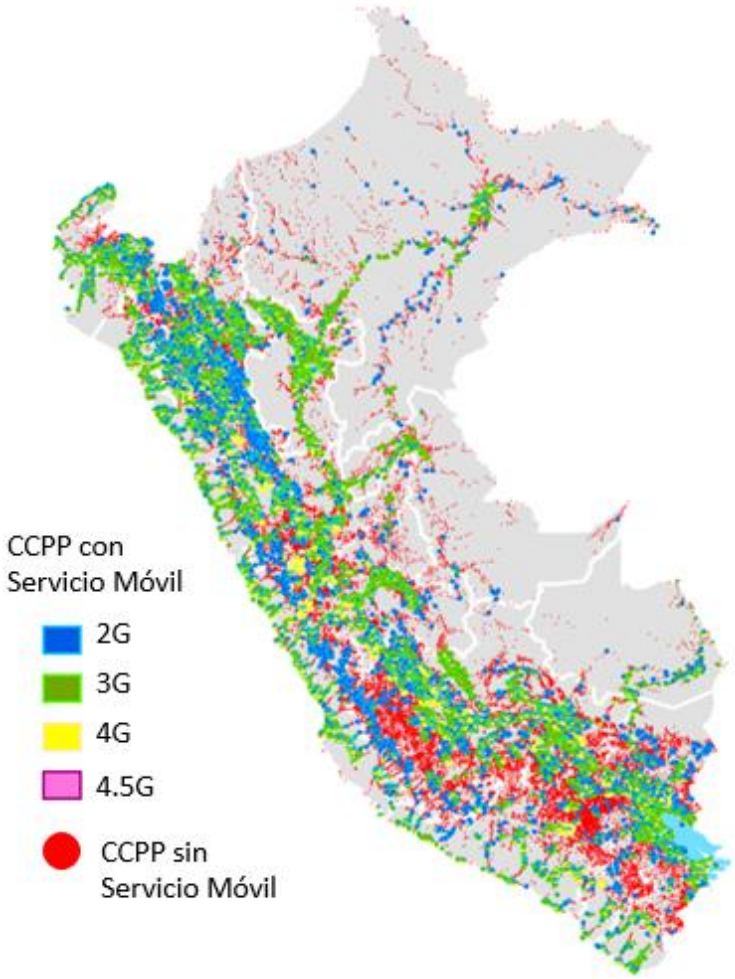
(MTC, 2023).

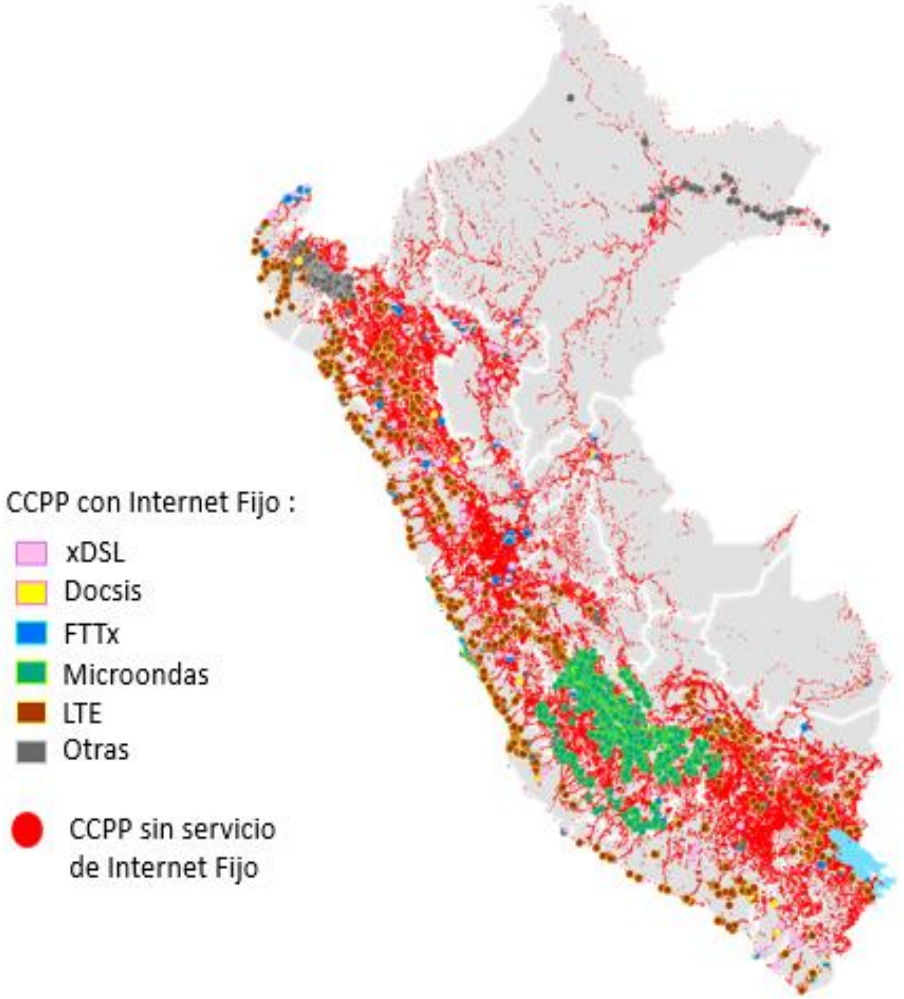
**20,6%**

people did not use the Internet.

(INEI, 2025)

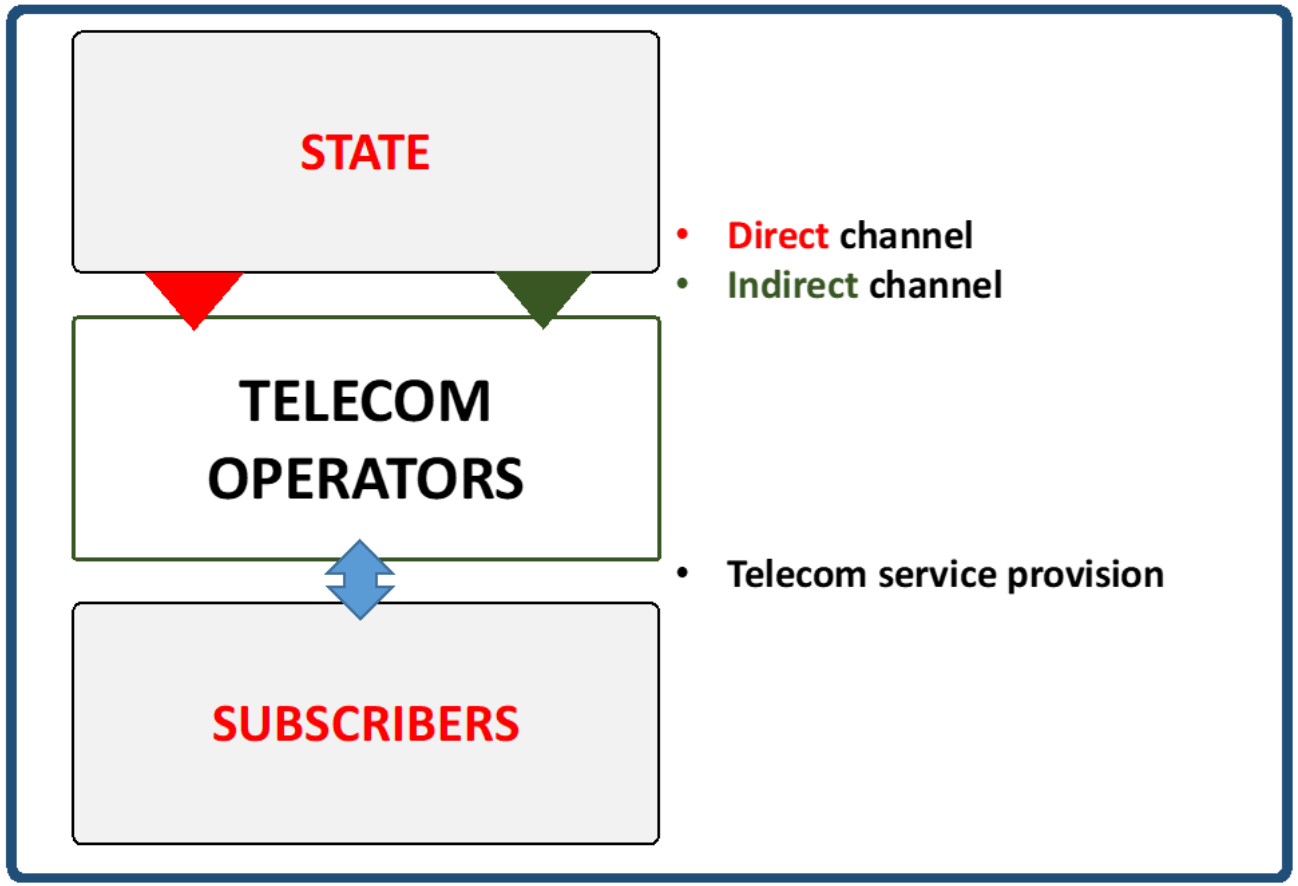
# PERU: COVERAGE AND INFRASTRUCTURE




Peru's Ministry of Transport and Communications

# PERU: INSTITUTIONAL DESING




Ramírez & Blanco (2021). RLESD

Addressing the gap in Peru has two top-down channels:

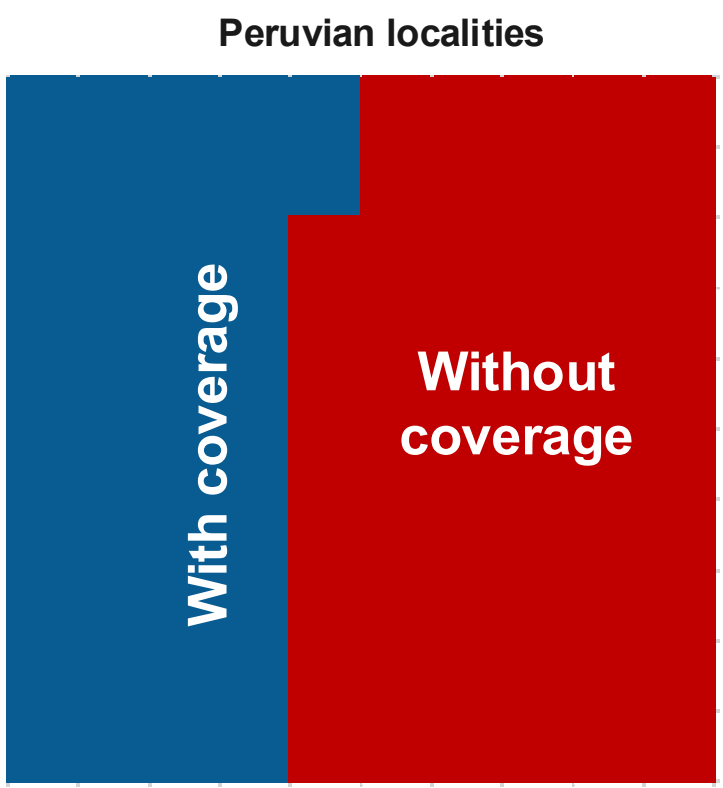
- **Direct**
- **Indirect**

The direct channel uses public funding into projects

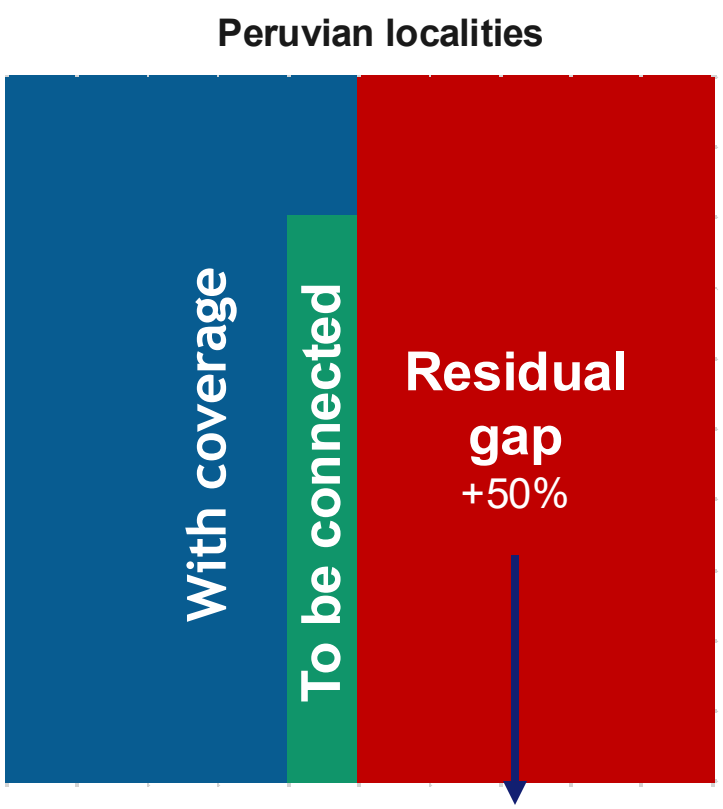
The indirect channel promotes mandatory and incentive policies

Both channels have the operating company as their central player

# PERU: RESIDUAL GAP




Ramírez & Blanco (2021). RLESD




Predictable gap for the following five years
(despite all the public and private traditional efforts projected)

To be connected

**Examples:**

Commitments for spectrum auctions

Incentive mechanisms (including OIMR)

Coverage fees

Broadband projects

# CONTENT

- The connected the unconnected wicked problem

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# PREMISES

The residual gap is seriously wide.

The current institutional design is limited in scope and time.

Evaluation and monitoring systems are necessary.

There is no one-size-fits-all solution.

Different operating and technological models must be promoted (neutral).

New paradigms must be promoted (new roles for the State and others) in pursuit of:

- Opportunity
- Sustainability
- Scalability

# NEW PARADIGMS

New paradigms must consider:

Bottom-up policy approach

Multi-stakeholder participation

Institutional redesign (more than two channels)

Collaboration and innovation

Involvement of civil society

**Proposal:**

- Foster **community networks** as a public policy to address the residual gap

# COMMUNITY NETWORKS AS A BOTTOM-UP MODEL

- Bottom-up model
  - Current institutional design is top-down
  - Technologically neutral
- Multi-stakeholder participation system with a citizen focus
- Taking advantage of rural conditions and avoiding public management problems.

## Community networks

- Self-managed by the community
- That overcome the challenge of sustainability over time
- That incorporate an intercultural and rights-based approach

# TECHNICAL CHARACTERISTICS OF C.N.

**PtP radio links**
**most used as a transport network**

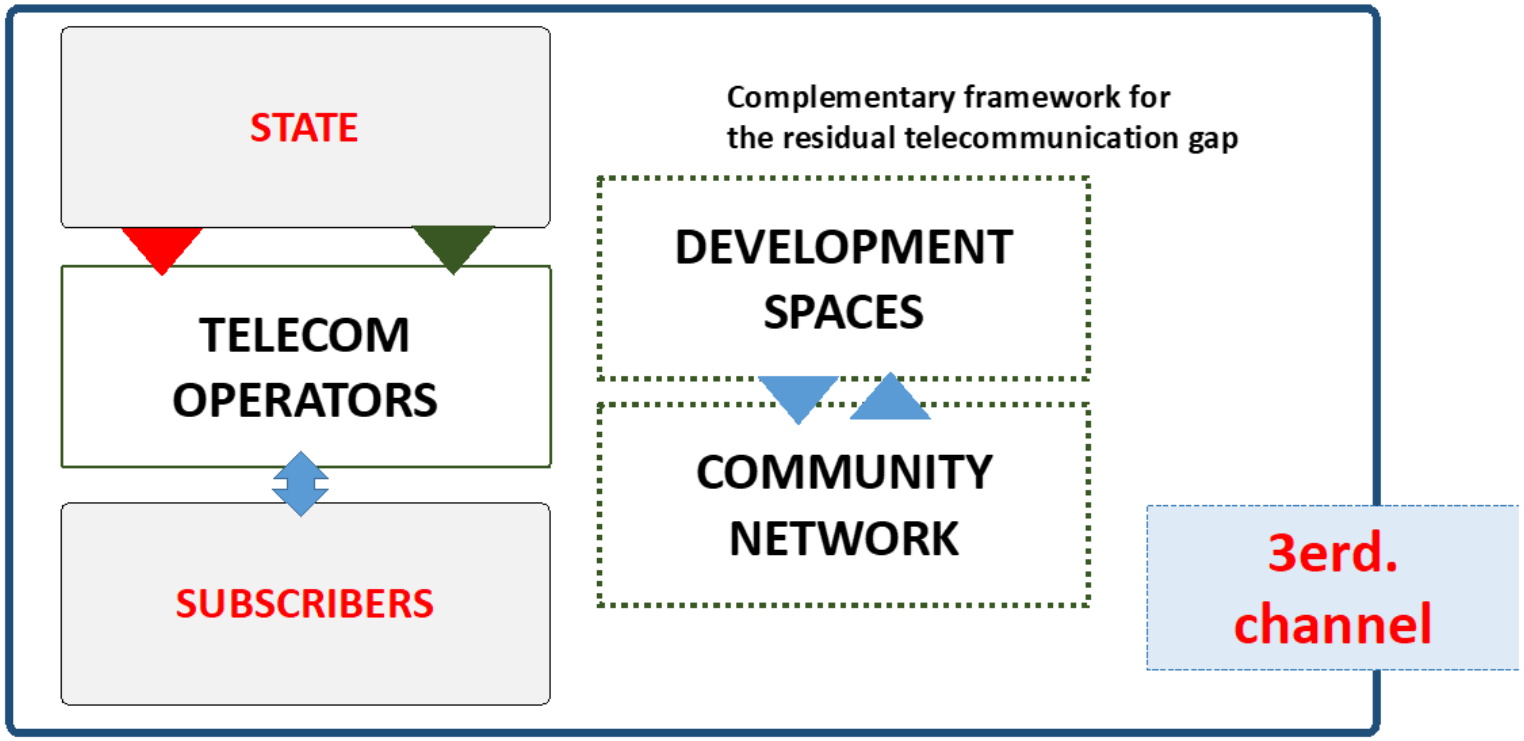
**3 types**
**of transmission media as a transport network: radio, satellite, and fiber optic**

| Red Comunitaria | Ancho de banda | Tipo de red de transporte | Backhaul | Tipo de red de acceso | Ubicación servdiores locales | Energía | Frecuencias |
|---|---|---|---|---|---|---|---|
| RedINC (Colombia) | 10 Mbps | Radioenlace PtP | Radioenlace mesh | Wifi | Nodo central | Eléctrica, paneles solares | Frecuencias libres |
| Quintana Libre (Argentina) | 3 a 9 Mbps | Radioenlace PtP | Radioenlace mesh | Wifi | Universidad | Eléctrica, paneles solares | Frecuencias libres |
| El cuy (Argentina) | 10 Mbps | Radioenlace PtP | Radioenlace PtP | Wifi | Sin servidor local | Eléctrica, paneles solares | Frecuencias libres |
| Maní - Casanare (Colombia) | Sin información | Radioenlace PtP | Radioenlace PtMP | WiFi | Nodo central | Eléctrica, paneles solares | Frecuencias libres |
| San Pablo Libre (Colombia) | 150 Mbps compartido con la UC | Radioenlace PtP | Radioenlace PtMP | Wifi | Nodo cliente | Eléctrica, paneles solares | Frecuencias libres |
| Pifeiros (Brasil) | Sin información | Enlace satelital | Radioenlace PtP | Wifi | Nodo central | Eléctrica, paneles solares | Frecuencias libres |
| Penalva (Brasil) | 25 Mbps / 80 Gb | Enlace satelital | Radioenlaces mesh | Wifi | Nodo central | Eléctrica, paneles solares | Frecuencias libres |
| Terra do Meio (Brasil) | 3 Mbps | - | Radio HF | Wifi | Nodo central | paneles solares | Frecuencias libres |
| Castilla y León (España) | 1Gbps | Fibra óptica por resdes eléctricas | Fibra óptica, Radioenlace PtP | Wifi | Sin servidor local | Eléctrica | Frecuencias libres |
| Murambinda (Zimbabue) | 25 Mbps | Fibra óptica de proveedor | Radioenlace PtP | Wifi | Nodo central | Eléctrica, biogás | Frecuencias libres |

Rodríguez-Huamaní (2023)

**All of them use Wi-Fi networks and licence-free spectrum bands as access networks.**

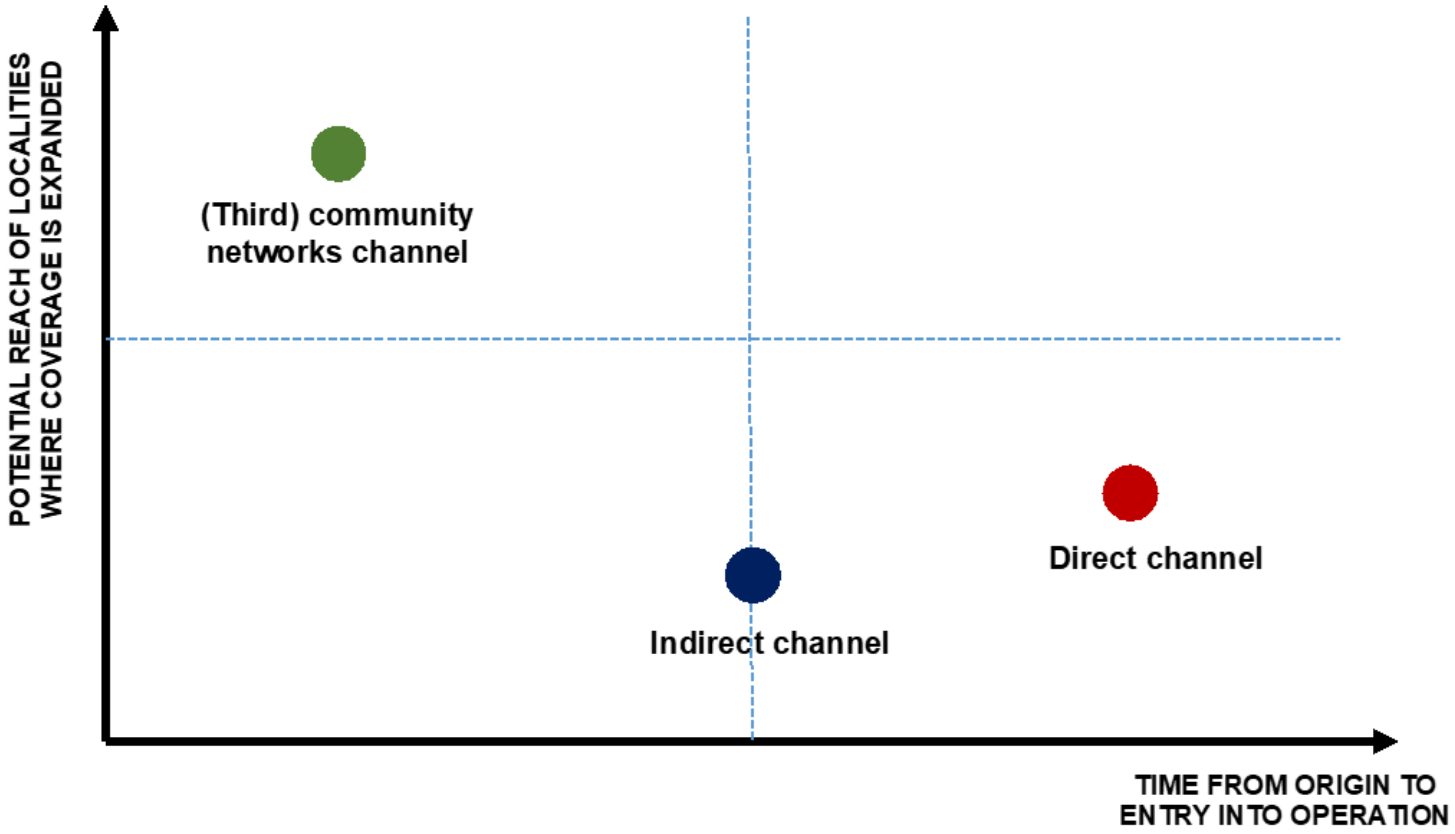
# INSTITUTIONAL REDESIGN: A THIRD CHANNEL




Ramírez & Blanco (2021)

- It shifts the traditional paradigm from "profitability" to "sustainability.“
- It reconfigures the role of stakeholders and gives the organized rural community the primary role.
- It applies a bottom-up approach.

# COMMUNITY NETWORKS AS A PUBLIC POLICY




Ramírez & Blanco

- Peru has a **vast rural** community fabric with a viable **governance model** that can serve as the basis for UMC community networks.

- Tens of thousands of rural communities, **cooperatives**, water and irrigation networks, etc.

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