

# Connecting the Unconnected: Enabling Rural Connectivity and Empowering Access

- Flash Session 02 2024
  - 18 June 2024
- 11:30 - 12:15 EEST | WS Room 2

# Speakers



**Dr. Irina Soeffky**

Director for National, European, and International Digital Policy, Federal Ministry for Digital and Transport (BMDV) Germany



**Harri Saarnisaari**

represents both his organization (Finland's 6G Flagship project and Oulu University) and IEEE Future Networks Technical Community (FNTC) International Network Generations Roadmap (INGR) work on trends, challenges, and solutions in the current and near-term mobile network landscape.



**Talant Sultanov**

Policy & Advocacy Advisor at the Global Digital Inclusion Partnership ([GDIP](#)) for the Women in Digital Economy Fund ([WinDEF](#)). He is also the Co-Founder of the Internet Society Kyrgyz Chapter ([ISOC.KG](#)) and a member of the UN Secretary General's Multistakeholder Advisory Group for Internet Governance ([UN IGF MAG](#)).

# Agenda

Welcome and Session Introduction - Karen Mulberry, IEEE SA

Dr. Irina Soeffky A government perspective: how Germany contributes to closing digital divide(s), especially on the level of the European Union and domestically

Harri Saarnisaari - Finland's 6G Flagship Project

Talant I. Sultanov - Use cases from Kyrgyzstan

Panel Discussion and Q&A

- Harri Saarnisaari
- Talant I. Sultanov
- Dr. Irina Soeffky
- Moderator, Karen Mulberry, 15 minutes

Key Points and Discussion Summary - Karen Mulberry

**Dr. Irina Soeffky**

A government perspective:  
How Germany contributes to closing digital divide(s)

Harri Saarnisaari

Finland's 6G Flagship Project



# 6G

**FLAGSHIP**

UNIVERSITY  
OF OULU

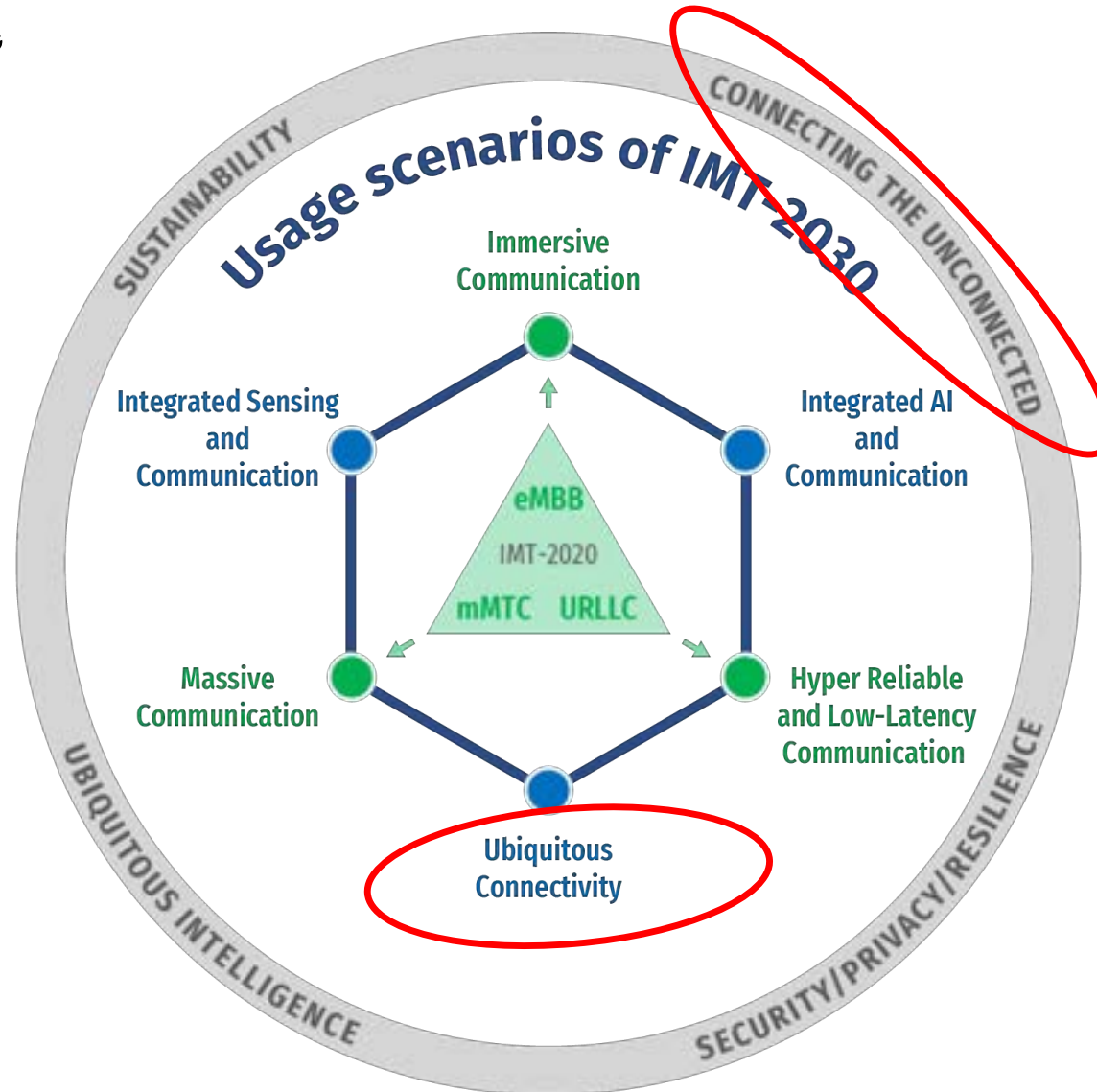
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## 6G & CTU

Harri Saarnisaari  
6G Flagship  
[harri.saarnisaari@oulu.fi](mailto:harri.saarnisaari@oulu.fi)

# ITU-R Draft Proposal for 6G (IMT-2030) Usage Scenarios

6G visions culminate here

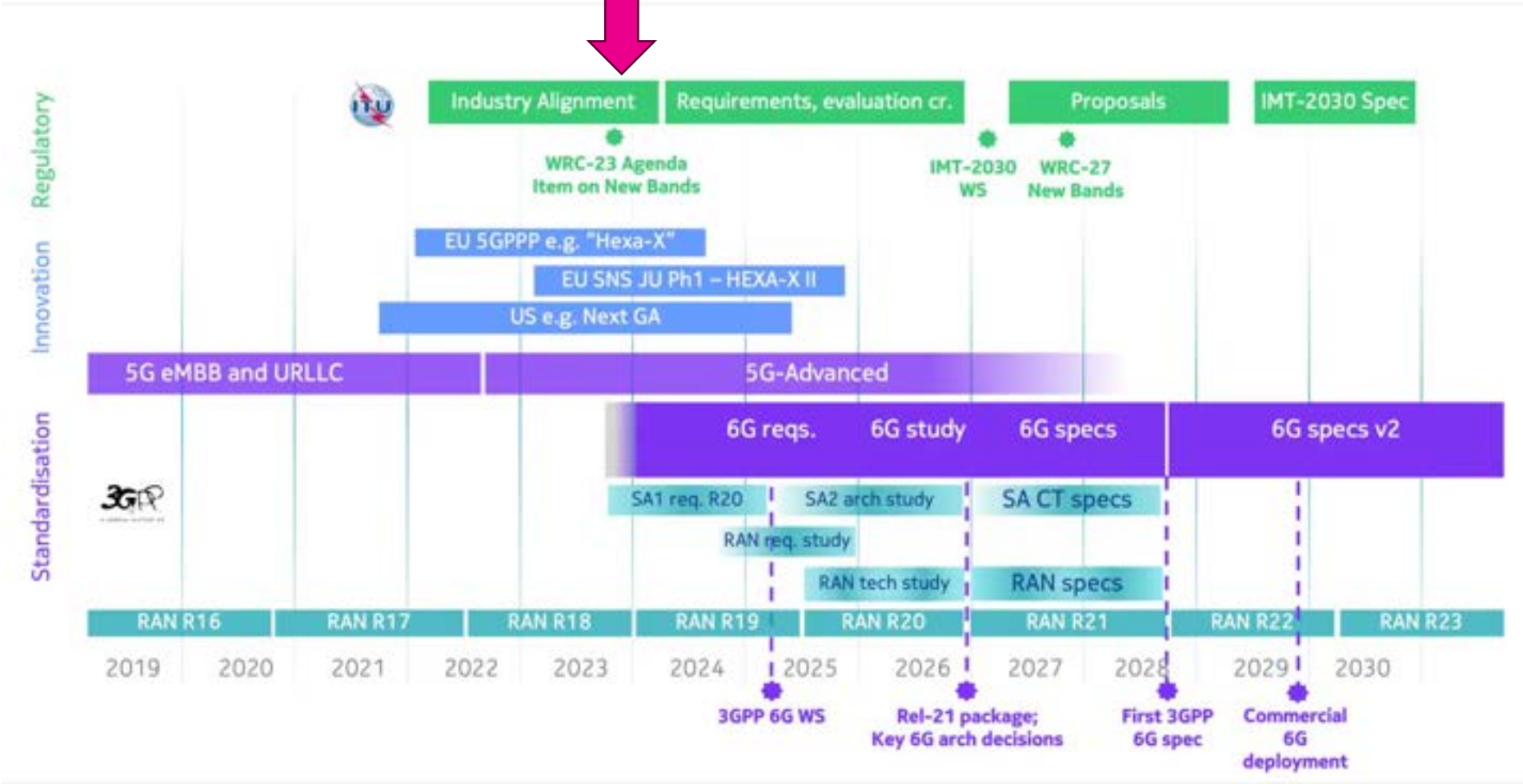


- Enhanced 5G (green)
- Some new things (blue)
- CTU as one target
  - What it means here?

# 6G Schedule



6G is in the study and definition phase

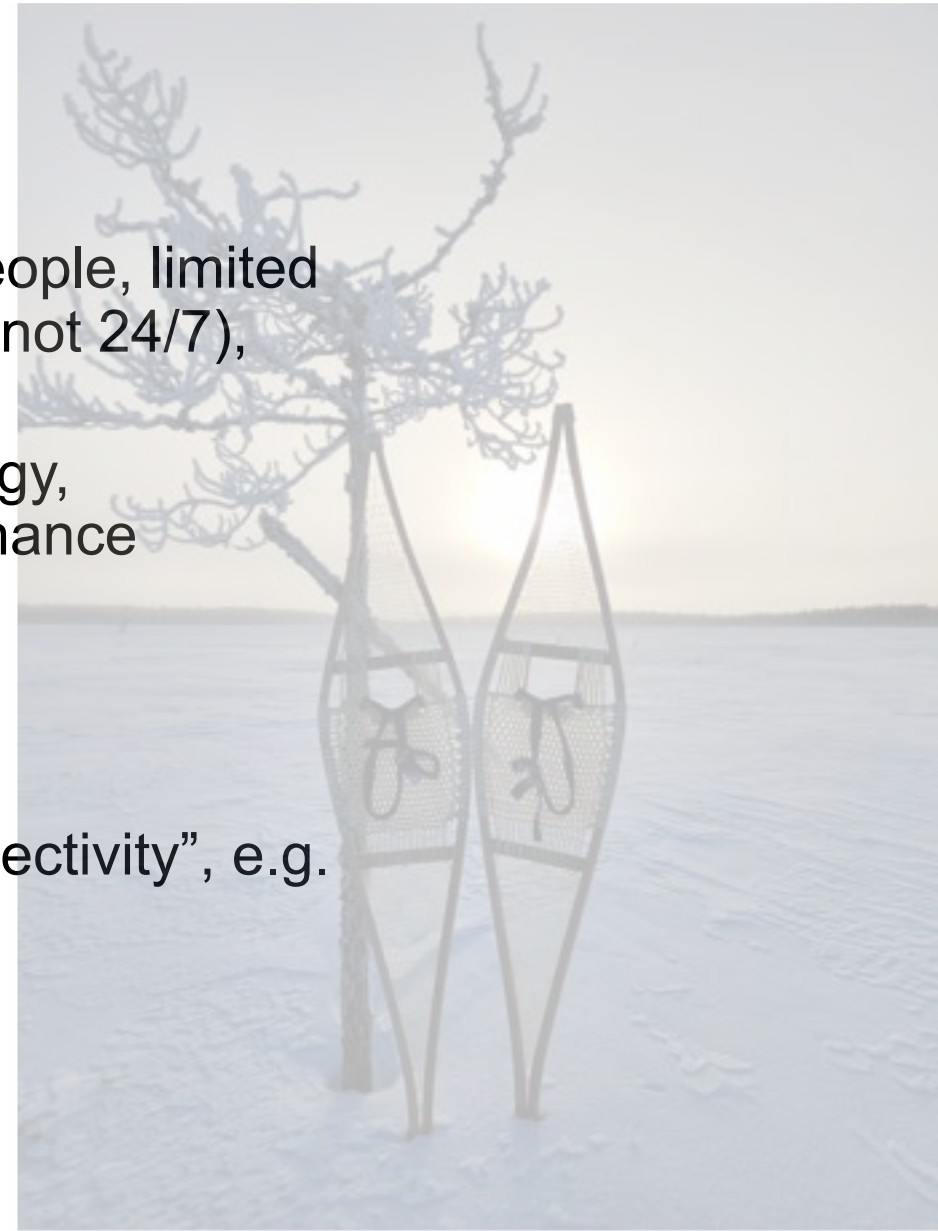


<https://www.nokia.com/about-us/newsroom/articles/spectrum-for-6G-explained/>

# Ubiquitous connectivity



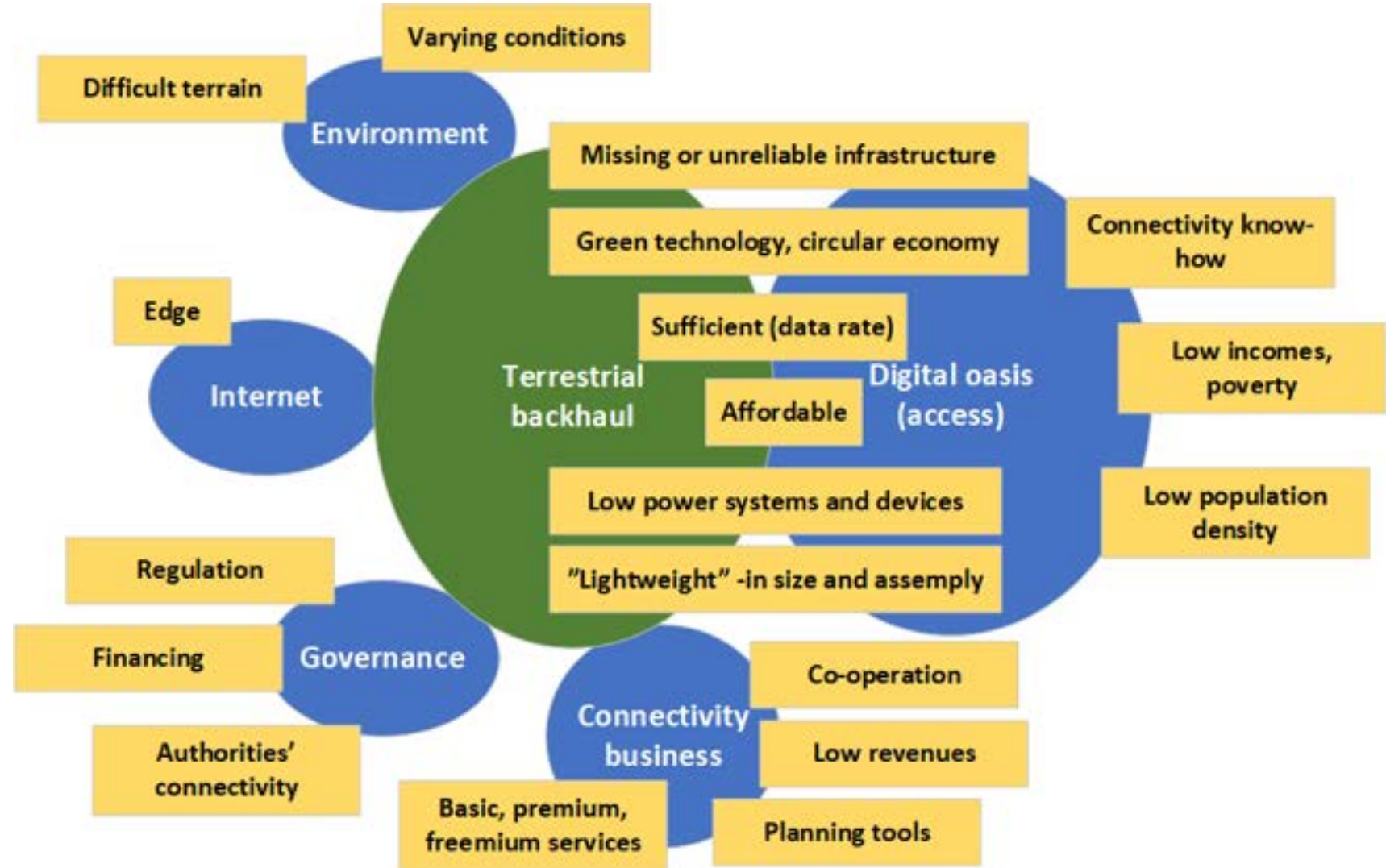
- Connect the unconnected
  - 3 billions still without internet connectivity
  - Many live in rural/remote areas with scarcity of people, limited infrastructure (no power grid or power availability not 24/7), etc challenges
  - This calls for access points using renewable energy, automated plug-and-play operation, easy maintenance
  - Access and backhaul
    - Not just people, but also devices (eg smart farming)
- Some have mentioned that this means “institutional connectivity”, e.g. schools since global may be too much





# CTU Challenges

Challenges vary depending on place and country



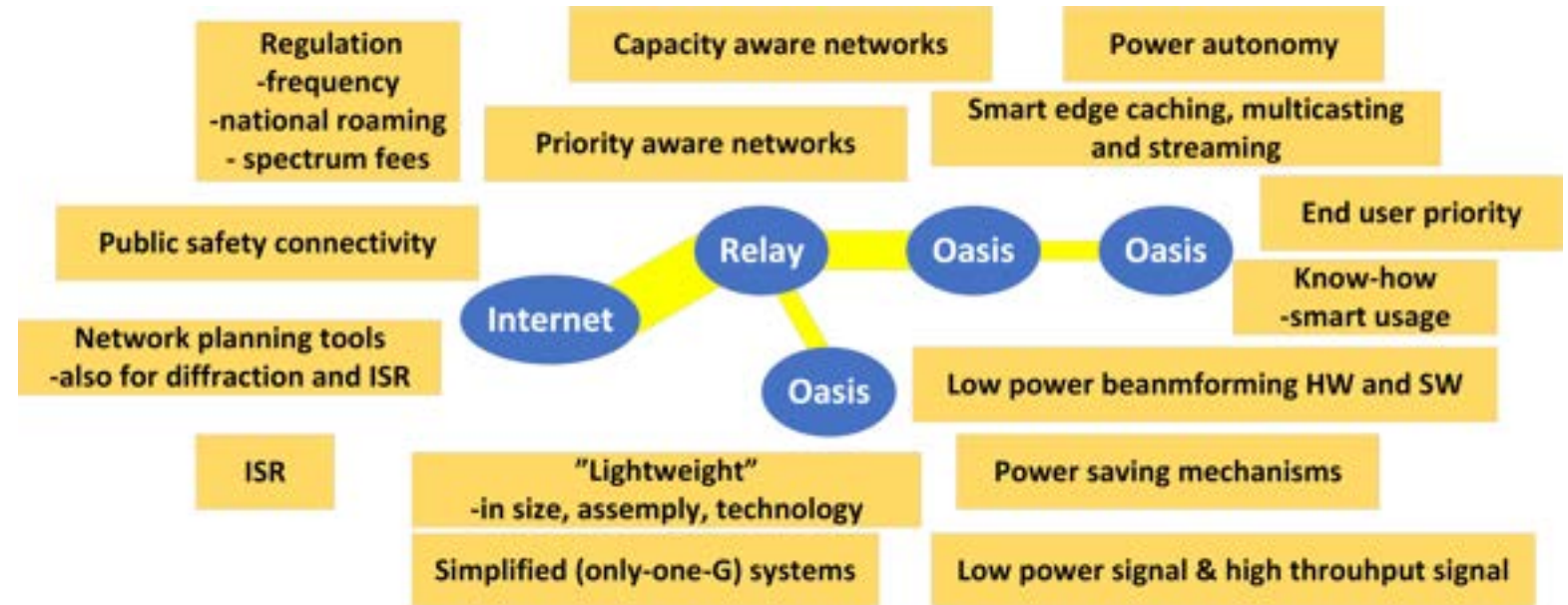
# CTU Solution Enablers

Needed:

- Backhaul
- Local access

Not only technology but local people

- Indigenous people's rights to land etc
- Local culture



# Some examples

- Starlink measurements in the northern Finland
  - Working well, NTN has great potential
  - But requires large, dedicated receiver
  - direct UE data rates?



- Autonomous solar fueled access points in a Sweden mountain area to provide coverage for indigenous summer village in a valley
  - Diesel for the dark winter period



Source: Jaap van de Beek. Luleå Technical University, Swedish project outcomes.

# More Information

- 6G Flagship (<https://www.6gflagship.com/>) white papers
  - Especially "6G White Paper on Connectivity for Remote Areas" <https://www.6gflagship.com/6g-white-paper-on-connectivity-for-remote-areas/>
- Journal articles
  - Saarnisaari et al "Wireless Terrestrial Backhaul for 6G Remote Access: Challenges and Low Power Solutions" <https://www.frontiersin.org/articles/10.3389/frcmn.2021.710781/full>
  - Chaoub et al "6G for Bridging the Digital Divide: Wireless Connectivity to Remote Areas" DOI: [10.1109/MWC.001.2100137](https://doi.org/10.1109/MWC.001.2100137)
- Arctic 6G project (<https://arctic6g.eu/>)



**Talant Sultanov**

Use Cases from Kyrghystan – Connecting the Unconnected

A high-angle photograph of a rugged, rocky mountain landscape. The terrain is steep and composed of dark, layered rock formations and large, light-colored boulders. A dirt path winds through the rocks. Several people are visible: one person stands on the left side of the path, another further down, and two people on the right are looking at a large map or document. The overall scene suggests a remote, mountainous region.

# Connecting the Unconnected in Central Asia: Closing the digital divide through meaningful and affordable connectivity

Talant Sultanov

Global Digital Inclusion Partnership (GDIP/WIDER)

# Quiz

Who has 2x more YouTube views than BTS (and more than Taylor Swift)?



## BTS v DBILLIONS

23 billion views v 39 billion views





# Complex Region for Connectivity

- Landlocked
- Complex Terrain
- Harsh Climate
- “Sanctions-locked”
- “Brain-drained”





**Build Infrastructure and Set-up  
Connectivity  
ISOC & GIGA (ITU/UNICEF Initiative)**

# Build Infrastructure and Provide Connectivity (cont'd)





## Provide Devices

IlimBox Offline Digital Library – Internet in a Box



# Educational platform for schoolchildren

## Develop Relevant Content: IlimBox.kg

- 1st grade
- 2nd grade
- 3rd grade
- 4th grade
- 5th grade
- 6th grade
- 7th grade
- 8th grade
- 9th grade
- 10th grade
- 11th grade

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The new epoch is a historical epoch that occupies the most

in the first quarter, we will look at squares and their types. We

Get acquainted with the geographical location,

# Increase Digital Literacy and Skills: Sanarip Insan Project supported by EU



# Increase Digital Literacy and Skills (cont'd)

## Materials for digital skills: e-tourism, e-commerce, e-agro

Created playlists

Sort by



Цифровой туризм | Санарип Инсан

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# Protect Privacy & Personal Data: Tech4Society

TECH  
4 Society

Internet Society  
Kyrgyzstan Chapter

soros.kg



ЮРИДИЧЕСКИЕ ВОПРОСЫ ИНТЕГРАЦИИ  
ЦИФРОВЫХ ДОКАЗАТЕЛЬСТВ В УГОЛОВНО-  
ПРОЦЕССУАЛЬНОЕ ЗАКОНОДАТЕЛЬСТВО  
КЫРГЫЗСКОЙ РЕСПУБЛИКИ





# Protect Environment and Mitigate Disaster Risk: ISOC-KG & ICTP IoT/LoRaWan Research funded by ISOC- Foundation





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# **Panel Discussion**

## **Q & A**

# Thank You

Dr. Irina Soeffky

Harri Saarnisaari

Talant Sultanov

Karen Mulberry

