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***Reshuffling the connectivity ecosystem:***

***one U.S. economist's views on***

***Digital Infrastructure Policy Reform***



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# Reshuffling the Connectivity Ecosystem

- **EU Proceeding and Survey => justify mandatory CAP payments? *NO....***
  - (1) Video traffic from CAPs *causing* significant growth in access ISP costs?
  - (2) EU2030 *goals at risk* unless access ISPs (Telcos) have additional revenue?
  - (3) CAPS (mostly US) should pay *fair-share* for usage-costs imposed on access ISPs?
  - (4) Mandatory *CAP interconnection payments* best solution to achieve?
- **Axon report prepared for European Telco Network Operators (ETNO, May2022). Stocker & Lehr (Oct2022) explained why logic, theory, and empirical evidence for ETNO report fatally flawed – its noise, not insight.**
- **Agree with Marcus and co-panelists....**
- **Not obvious there is a problem requiring regulatory intervention, and certainly not with sufficient evidence to justify the proposed remedy...**

# Reshuffling the Connectivity Ecosystem

- **The ecosystem has changed and continues to change!**
  - BB is essential, but ISP access is not all that is needed for BB. Lots of other investment needed (upstream & downstream).
  - Most of investment private (market!)
    - Access ISPs, CAPs, CDNs, upstream ISPs, & end-users are *all investing*
    - *Market-friendly* (light-handed, not heavy-handed rate) regulation needed
  - More Resource Sharing – More Network Sharing agreements
    - Architectures/services evolving and cooperation/coordination important
    - Digital Platforms, Edge clouds
    - Active & Passive sharing arrangements → and optimal models evolving...
  - Essential Digital Infrastructure about more than connectivity, more than BB. Digital Economy better be about Smart-X (and not just video) or why invest?
  - Biggest changes in NextGen networks will be shift to edge
    - Fixed->Wireless, Smart edges, Small cells, Local customization....
    - End-users/Edge actors will own, control, be involved more significantly...

# EU2030 Universal Broadband: a real policy challenge...

- **Ensuring high-quality affordable BB for everyone!**
  - NOT about usage costs associated with video traffic from CAPS, whether that growing or not... Not about allocation of surplus...
  - (1) Deploying (upgrading) capacity of BB where it does not exist; and (2) Expanding consumer choices (competition, innovation)
  - What is the right technology? business model?
    - Expand networks of legacy telcos or over-build?
    - FTTH or hybrid, including wireless?
  - Will require public subsidies, but most investment still private....Design of Universal Service program.
    - Source of funds: General tax revenues (poll tax)? Auction proceeds? Usage taxes?
    - Distribution of funds: costs of providing service? affordability for end-users?

## a US economist's perspective on EU reg agenda

- **Ecosystem is evolving and need for regulatory reform real**
  - Better information and measurement/metric capabilities
  - Flexibility → technical, economic, and institutional needed in light of growing complexity and potential asymmetries in capabilities and speed of change .... Markets better than Public Utility Regulation, but markets require information...
- **“Shaping Europe’s Digital Future” a missed opportunity...**
  - If focuses on making case for mandatory CAP payments, rather than getting insight into real problems. That’s noise, not help.
  - Real challenges...
    - Market-based regulation → eliminate barriers to competition
    - Universal Service → meeting needs unserved/underserved
    - Network Sharing → active and passive, open to new business models
    - Measurement ecosystem → markets require data to operate efficiently
- **US looks a lot like EU...but in US, “market-based” often abused as short-hand for “deregulation” ....**

For further information, see:

1. Stocker, V. and W. Lehr (2022), "Regulatory Policy for Broadband: A Response to the 'ETNO Report's' Proposal for Intervention in Europe's Internet Ecosystem," white paper, available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4263096](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4263096).
  - Stocker & Lehr explain what is wrong with report prepared by Axon Partners Group Consulting for the European Telecommunications Network Operators' Association (ETNO) in May 2022. ETNO report attempted to justify mandatory CAP payments to access ISPs (Telcos).
2. Lehr, W. (2023), "Getting to the Broadband Future Efficiently with BEAD funding," white paper prepared with support from WISPA, January 2023, available at [https://www.wispa.org/docs/Lehr\\_White\\_Paper\\_Final.pdf](https://www.wispa.org/docs/Lehr_White_Paper_Final.pdf)
  - Lehr addresses problems with U.S. \$40B universal service subsidy program (BEAD funding) that targets unserved and underserved locations in U.S. for FTTP broadband.
3. Lehr, W. and V. Stocker (2023), "Next-generation Networks: Necessity of Edge Sharing," forthcoming *Frontiers in Computer Science: Networks and Communications*, Summer 2023
  - Lehr & Socker explain why future of network sharing will involve end-users and other novel edge sharing participants in light of technical and market changes.
4. Oughton, E., W. Lehr, K. Katsaros, I. Selinis, D. Bublely, and J. Kusuma (2021), "Revisiting Wireless Internet Connectivity: 5G vs. Wi-Fi 6," *Telecommunications Policy*, 45 (2021) 102127, available at [https://authors.elsevier.com/sd/article/S0308-5961\(21\)00032-X](https://authors.elsevier.com/sd/article/S0308-5961(21)00032-X).
5. Lehr, W., F. Queder, and J. Haucap (2021), "5G: A new future for Mobile Network Operators, or not?," *Telecommunications Policy*, 45(3), 102086. doi:<https://doi.org/10.1016/j.telpol.2020.102086>
  - Lehr et al. explain explain how NextGen networks will differ from legacy and explore the implications for legacy and new providers and the policy challenges those changes will imply.