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ITU-D Study Group 1 Question 4/1

SESSION 1: GENERAL ECONOMIC ISSUES OF MODERN
TELECOMMUNICATION/ICT MARKETS

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ICT Platforms and infrastructure sharing: focusing on the new economic challenges linked to externalities and switching costs

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Outline

- Natural monopolies, new technologies and infrastructure sharing
- Regulating infrastructure access and shared infrastructures (IXPs, Rural access)
- ICT platforms as new (virtual) monopolies
- Strategic sources of platforms monopolization
- Algorithmic regulation vs Algorithmic practices
- Shared platform ownerships
- Conclusions

Natural vs innovation monopolies

- **Natural Monopolies** (initial insights from J.S Mill, 1848) arise when
 - **high infrastructural costs** (or barriers to entry) relative to **the size of the market**, give an incumbent, the ability to prevent competition.
 - It is important to always focus on the **size of the market** to determine the efficient production scale with more than one producer
- Standard Antitrust solutions: Nationalisation/Regulation
- **Monopolies due to innovations** &/or investment: “good Monopolies but monitor for potential abuse of monopoly power”
- **Trade-offs between dynamic and static efficiency.**

New technologies and infrastructure sharing

- Digital technologies (packet and IP-based fibre and wireless technologies) allow the **decomposition of some parts of the pre-existing networks** and the **introduction of competition** over segments of the network.
- These technologies make possible to operate a **single network capable of, delivering services from multiple, competing providers**, (local loop unbundling)
- **Technology**, however, **is not in itself a solution**, Infrastructure access provides both:
 - Incentives **to the Entrants** to free ride on infrastructures built by incumbent and
 - Incentives **to the Incumbent** to discriminate entrants, for example through quality degradation, price discrimination, foreclosure..

Competition within Networks

- Competition between **vertically integrated** providers and **single segment entrants** is not simple, and it might lead again to **monopolization through the interplay of entrants and incumbent's incentives** (Rey and Tirole 2007)
- Regulatory reviews about vertical divestment are long, interesting but difficult: (See OFCOM Openreach review in the UK, or the debate on Net neutrality policies in the US.)
- Difficult as they need to take into account all these conflicting incentives

Some viable alternatives: shared governance and/or costs for infrastructures

- **Sharing physical infrastructure costs** allows competitors to **co-finance** investment into key infrastructures
- Examples of cooperation among competitors that are providing complementary services:
 - IXPs, where competitors and **complementors** jointly build shared infrastructures to exchange traffic for free, often bypassing monopoly bottlenecks.
 - Coverage to economically unviable areas, encouraging **infrastructure sharing agreements** by existing Mobile Network operators (MNO), with public subsidies to achieve profitability in rural areas with very low economic potential **against** licensing **Single Wholesale Networks (SWN)** (GSMA, 2018)
- Key elements are the economies of scale required, particularly **challenging for landlocked countries**.
- Also possibility of collusion. (**One more trade off**).

ICT platforms as new potential virtual two-sided monopolies?

- By August 2018 there were two *trillion-companies* (Apple and Amazon), a signal of emerging monopolies through digital platforms?
 - Amazon accounts for 49% of e-commerce in the United States
 - These platforms benefited from the original public open source Internet
 - They mix elements open and closed source software, internal and external applications. Many apps are compatible on different platforms.
- Individual sellers can use Amazon for its market place, they are customers and competitors.
- **Same problem**, as in telecommunication networks, of asymmetric power between platform owners and users competing with the downstream retail branches of the platform.
- Can we apply same regulatory tools for infrastructure sharing to these ICT platforms?

What are the key elements driving two-sided Platform monopolisation?

- Platform grow because of :
 - Innovation, R&D, absorptive capacity of public knowledge, but also:
 - Dynamic pricing, better ability to gain competitive advantages through algorithmic data analysis.
- These two (or multi)-sided platforms serving different groups generate **cross-side externalities** and **switching costs**.
- **Rational Platforms** use **algorithmic pricing strategies** to affect these **two key elements** that **drive demand and hence market shares**
- Both **cross-side externalities** and **switching costs**, can be used **strategically** to **create barriers to entry** and prevent competition, at least in key components of the ICT-platform ecosystem.

Economics Literature on these drives / reference only

- A new platform trying to enter a market dominated by an incumbent platform must overcome the competitive disadvantage in terms of **expected network size** (Caillaud and Jullien, 2001, 2003; Hagiu 2006; and Jullien, 2011).
- The presence of **strong cross-side network effects can reinforce the incumbency advantage** (Halaburda and Yehenzkel, 2016), even to the extent that a superior new platform might fail to enter the market (Halaburda et al., 2016).
- The presence of **switching costs** can be another source of incumbency advantage among competing platforms (OECD, 2018, pp. 77-78).

ICT platforms as new potential (artificial) monopolies

- **Dynamic** and algorithmic **customer profiling and pricing** are used to directly **affect, the preferences** of the consumers, **their reluctance to change provider**, captured by the **switching costs**.
- These can be easily **manipulated by algorithms based on detailed knowledge to lock their customer base**.
- AI can also be used for the analysis of big data and to **produce bandwagon effects**, that generate **cross-site externalities**, entrenching competitive advantages and **monopolist positions**.
- These forces call for different policy & regulatory approaches

Just in time regulation

- **Algorithmic regulation** to contrast **Algorithmic practices**, based on public access to data
- **Monitoring** the emergence of market power by exploring **bottlenecks**, nodes within a complex network that become **unavoidable** (D'Ignazio and Giovannetti 2006)
- Policies requires implementation of algorithmic monitoring of interconnection sharing practices
- Neither ex ante non ex post but **Just in time regulations**

Cases and Policies to study these trade-offs

- Extending market power across markets, EU recent Copyright directive
- Self-regulation enough? Crowtangle
- Unique broad-band provider? Pros and cons OFCOM study
- Net-neutrality debate?
- Facebook Free Basics initiative? increasing platform dominance with zero pricing entry strategy?

From Platform sharing to Platform cooperativism?

- **Platform cooperativism**: aims to create a **cooperative platform governance**, alternative to the dominant sharing economy.
 - Aim is to allow households with low and volatile incomes to benefit from the shift of labour markets to the Internet whilst fostering **decentralised innovation ecosystems**.
- Some examples:
 - *Up & Go offers professional home services from local worker-owned cooperatives charging only the 5% to maintain the platform.*
 - Cotabo (Bologna, Italy), ATX Coop Taxi (Austin, TX), Green Taxi Cooperative (Denver, CO), The People's Ride (Grand Rapids, MI), and Yellow Cab Cooperative (San Francisco, CA), among others, are cooperative platforms providing their worker-owners living wages and innovations by developing their own taxi apps.

Conclusions/1

- ICT platforms provide new large economic opportunities and drive innovations **changing lives whilst generating new dominance risks** across many markets.
- Some of these risks are in the **monopsony/monopoly power** they can exert against **any of the sides of customers** they connect.
- For platforms, **infrastructure sharing** is to **provide one side of the market with access to the other side of the market** across its platform.
- However, **as both sides are platform customers**, platforms can use their **dynamic price strategies**, based on AI analysis of large data, to **extract monopoly/monopsony-like rents from their customers**, with whom they also may compete.

Conclusions-2

- For these platforms **the key sources of network power are also of a virtual & psychological nature**, based on shaping the **preferences of their customers**, generating **cross-side externalities and switching costs**.
 - **Need to get data on this: Survey and focus groups in addition to monitoring bottlenecks expansion.**
- Study the effectiveness of alternative **cooperative platforms**, whereby the **governance of the network element is owned by its users**,
 - **How can we cope/ deal with smart dynamic pricing?**
- The economic analysis of Question 4 SG1 will hopefully focus on these trade-offs to derive, by the end of the study period:
 - appropriate data,
 - possible answers and
 - reasoned and data based recommendations.



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Thank you!

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