

Network investments sharing models: policy and cost allocation models

In the last years, especially after the start of the pandemic, it has been noticed that few digital platforms (e.g., video streaming, gaming, and social media platforms etc.) are generating over 70 per cent of all traffic running on the telecommunication networks. Trying to ensure the promised Quality of Experience (QoE) and keeping the unrestricted access for their customers, network operators (broadband providers) are facing a major challenge to keep their networks able to support the consistently increasing (without limits) data traffic generated by those platforms. This makes them fear that they cannot make a viable return on their very significant investments, putting further infrastructure development at risk. Given this situation, telecom network operators in Europe are urging EU policy makers to adopt a regulatory framework where the digital platforms/over-the-top service providers have to share proportionately with them the network investments cost. There are signs of change also elsewhere in the world. South Korea is discussing a national law to create regulatory conditions for a more fair contribution to network costs. This follows ongoing litigation after the surge in traffic driven by the Netflix series Squid Game. And in the US, policymakers are moving towards universal service also funded by digital platforms. How realistic is adopting such a framework in Europe given the current regulations? And what would be the possible cost-allocation models that can be applied to share the network investments cost with digital platforms? Can 5G technologies help in adopting suitable cost allocation models?

This thesis aims at studying potential cost-allocation models to share the network investments cost among the involved stakeholders. Therefore, following steps are needed:

- A literature review on current telecom regulations related to network cost sharing.
- Study the possible policy framework that can support investment cost sharing e.g., universal service etc.
- A literature review on basic 5G technologies and fixed broadband networks.
- Understand and investigate different cost allocation models to share the network investments cost given the used mobile or fixed broadband technologies e.g., 5G technologies, fiber to the home or fixed wireless access etc.
- Analyze the identified models qualitatively (advantages versus challenges) and compare between them using evaluation parameters (to be identified as well related to the studied models).
- Apply the identified cost allocation models to the 5G network deployment use case and compare them. This comparison can give insights and recommendations into the best cost allocation models to adopt given certain circumstances e.g., network to be deployed, regulations etc.