

# networkindustries

## policy briefs

### THE INFRASTRUCTURE DILEMMA: WHAT HAPPENS WHEN PLATFORMS AND NETWORK INDUSTRIES COLLIDE?

Policy Brief No. 1

In recent years online platforms such as Amazon, Google, and Facebook, have become significant players in a number of markets, from retail to entertainment. Now, often aided by a favorable regulatory environment, platforms are encroaching on network industries, such as communications, transportation and energy. However, in addition to offering consumers considerable benefits, the platforms may be undermining the financial model which ensures that the network infrastructure they use, and that benefits society generally, receives adequate investment in the future. In their research paper *Platformed! Network Industries and the New Digital Paradigm* academics Juan J. Montero and Matthias Finger, consider some of the issues raised by the involvement of online platforms in networked industries.

In just under a decade Uber, the San Francisco headquartered transport services platform, has grown from a small start-up to a global firm with over 12000 employees, operating in over 600 cities, and a valuation estimated at more than \$50 billion. Yet the growth of the ride-hailing service has not been without its problems, a good example being its conflict with city regulators and licensed taxi firms across the world.

Uber's story highlights the challenges associated with the emergence of a new form of industrial organization pioneered by "platforms" – digital entities that facilitate and mediate the interactions between a number of different parties in a value ecosystem. These online platforms use new technologies to meet unserved needs, create value for consumers, and offer innovative services. However, in doing so they raise a number of important issues for policymakers, business leaders, and society in general.

#### Pervasive platforms

Having initially disrupted areas such as content provision and retail, platforms are now beginning to disrupt network industries such as communications, transport, and energy. These are industries typified by heavy investment in infrastructure and often vital for the wellbeing of society.

The difficulty here is that, in disrupting these industries, the platform's business model often relies on access to existing industry infrastructure, such as pipes, cables, rail track, pylons, databases and much more. Infrastructure created and sustained through investments made by incumbent traditional network operators

and recouped from the revenues they receive for services supplied using the infrastructure. Now those revenues are under threat from the platforms. This is particularly a problem for policymakers when the infrastructure, whether it is a telecoms network or power grid, plays an important role in national economic growth.

Another important and linked issue concerns the regulatory approach to platforms, as the success of online platforms is often achieved, in part, by exploiting regulatory environments that place incumbent firms at a disadvantage.

In a new research paper, "Platformed! Network Industries and the New Digital Paradigm", Juan J. Montero and Matthias Finger illustrate some of the specific issues raised by platform involvement in networked industries, by considering the situation in three industries: communications, transport, and energy.

The three industries share features common to many other networked industries, that make them susceptible to disruption by online platforms. For example, fragmentation within the market creates opportunities for online platforms to gain market access and exercise a coordinating function, bringing together elements of the ecosystem to create new value.

The fragmentation may be the product of liberalization and deregulation of markets; often markets once dominated by national monopolies. Liberalization may have initially been exploited by traditional non-digital competitors, but then online platforms moved in. In telecommunications, for example, incumbents have been forced to share infrastructure with

#### In brief

- The involvement of online platforms in network industries benefits consumers by fulfilling unmet needs, often efficiently, at low cost.
- The platforms do this partly by exploiting access to existing network infrastructures that are often vital for national economic growth and wellbeing.
- However, if online platforms are allowed to sideline traditional network operators, it may mean that vital investment in building and maintaining the infrastructures on which these markets are founded becomes unsustainable in the long-term.

newcomers and to unbundle vertically integrated systems and services. Similarly, the liberalization of electricity markets is enabling the separation of power generation, transmission and distribution, and supply.

Technological innovation also facilitates fragmentation, such as new technologies that enable users to become producer-consumers, whether that involves uploading user created content or selling surplus energy generated by solar panels.

### Substitution and commoditization

Fragmentation of networked markets creates a fertile environment for online platforms to develop new services, explain the authors, replacing traditional services provided by the network industries in a process of substitution. In doing so, the platforms use alternative infrastructure in addition to, or instead of, the infrastructure of the affected network industry. A good example is the way email services became a substitute for traditional postal mail. Online platforms also provide the coordination and driver-passenger matching efficiency necessary for non-professional service providers to offer carpooling, as with BlaBlaCar, or to operate ride-hailing ventures, such as Ola, Uber and Lyft.

As user numbers rise, network effects grow. Eventually an online platform may become powerful enough to sideline incumbent network operators. A previously dominant service provider may become just another participant in a value ecosystem where the platform mediates relationships, transactions and value creation between the participants. This is the process of commoditization, note the authors.

Telecoms carriers that owned network infrastructure, such as national carrier France Telecom or private entity Verizon, risked becoming “dumb pipes”. As a result these companies tried to resist commoditization by adding content and other services, usually by buying online media firms. But even these strategies have struggled to compete against online platforms offering Over The Top (OTT) services, such as Skype’s phone calls, Netflix’s movies, or WhatsApp’s text messaging, which are delivered via the carrier’s infrastructure but without the carrier having any control and little revenue.

A similar situation is emerging in transport. Through coordination and cost advantage the Mobility-as-a-Service (MaaS) platform concept threatens to displace traditional travel services in parts of Europe. Theoretically, MaaS offers a more integrated door-to-door travel experience than any single travel provider can, but to achieve this platforms need access to and use of third party owned, maintained, and invested in infrastructure.

In the electricity market, the need for security of supply means the industry is heavily regulated and difficult to access. Yet, development of demand side management, using smart metering and short-term storage technologies, as well as home generation technologies, is likely to encourage the eventual interjection of platforms managing demand between supplier and consumer. After which, commoditization of electricity generation and transport over the grid seems inevitable.

### Regulatory restraint?

As the authors point out, though, traditional network operators are not being sidelined without a fight. Much of the contested ground concerns two different aspects of regulation.

One area of regulatory debate concerns calls to extend existing regulations to cover the online platforms and create a more level playing field. But this is not straightforward. Regulations designed for traditional network operators with physical assets, possibly in a pre-internet era, may not be obviously or easily applied to online platforms. Platforms argue that their business models and services are so different that it makes no sense to extend existing regulations. Should YouTube be classified as broadcaster? They may also suggest that a lack of physical presence in many of the countries they operate in, means that they should not be subject to national industry regulations or national taxation rules.

A second area of contention concerns the degree of access that platforms have to the network infrastructure, whether that is telecoms cabling, existing transport services, or electricity distribution grids. Naturally, the online platforms argue for regulation that ensures full, open and non-discriminatory access (“net neutrality”), citing the preservation of consumer choice as justification. For their part, network providers argue that they should be able to control and manage their assets and charge as they see fit.

Although the skirmishes between online platforms and traditional network firms may be seen by some as natural creative destruction from competitive forces, the authors highlight crucial implications for the long term sustainability of network infrastructure, platforms and markets. In creating efficiency and flexibility for consumers in the network industries, the platforms also disrupt traditional funding mechanisms that enable the investment necessary to install and maintain infrastructure. Unless stakeholders, including regulatory bodies and legislators, can balance the interests of online platforms and traditional infrastructure services providers, the infrastructure on which these network markets are built may not be sustainable. Ultimately, it may be the tax paying consumer that loses out.

## Credits

### Authors details

Juan J. Montero,  
Professor, UNED, Spain

Matthias Finger,  
Professor, EPFL,  
Switzerland

### Research resources

Montero, J.J. and M. Finger (2018). Platformed! Network Industries and the New Digital Paradigm. Competition and Regulation in Network Industries, Vol.19, Issue 1-2, first published June 25, 2018



<http://journals.sagepub.com/doi/full/10.1177/1783591718782310>

## Written by

Steve Coomber

# networkindustries

Odyssea, 1015 Ecublens, Switzerland

T +41 (0)21 6930003 F +41 (0)21 6930080 E FSR.Transport@eui.eu W www.network-industries.org

