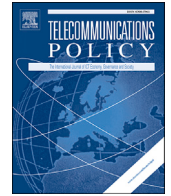


Contents lists available at [ScienceDirect](#)

## Telecommunications Policy

journal homepage: [www.elsevier.com/locate/telpol](http://www.elsevier.com/locate/telpol)

## The European Electronic Communications Code: A critical appraisal with a focus on incentivizing investment in next generation broadband networks

Wolfgang Briglauer<sup>a,\*</sup>, Carlo Cambini<sup>b,c,1</sup>, Thomas Fetzer<sup>d</sup>, Kai Hüschelrath<sup>a,e</sup>

<sup>a</sup>ZEW Centre for European Economic Research and MaCCI Mannheim Centre for Competition and Innovation, P.O. Box 10 34 43, D-68034 Mannheim, Germany

<sup>b</sup>Politecnico di Torino, Corso Duca degli Abruzzi, 24, 10129 Torino, Italy

<sup>c</sup>Florence School of Regulation – European University Institute, Italy

<sup>d</sup>University of Mannheim and MaCCI Mannheim Centre for Competition and Innovation, Schloss Westflügel, D-68161 Mannheim, Germany

<sup>e</sup>University of Mannheim, L7, 3-5, 68131 Mannheim, Germany

## ARTICLE INFO

## Keywords:

Telecoms' review  
Regulatory framework  
European Union  
Investment  
Infrastructure  
Next generation networks  
Broadband  
Access regulation  
Co-investment

## ABSTRACT

In September 2016, the European Commission (EC) published its proposal for a directive establishing the European Electronic Communications Code (EECC) – with one key aim being the provision of sufficient incentives for infrastructure investments into high-speed communication networks. Based on a detailed review of the theoretical and empirical literature of the most relevant regulatory measures – that is, co-investment models as well as different types of access regulation – we provide a critical appraisal of the respective provisions in the EECC. We find that, although the EECC can generally be seen as a step into the right direction, the expected effects on investment incentives as well as substantial implementation challenges in combination with a high degree of complexity of the envisaged measures contain substantial potential for improvement.

### 1. Introduction

One of the most important aspects of the EU regulatory framework for electronic communications is the regulation of broadband access infrastructures – which form the basis for the entire digital economy and are therefore of particular technical and economic importance. In recent years, in a time of increasing digitalization, operators of first-generation broadband networks have been facing the need to upgrade their networks due to an overwhelming increase in demand for bandwidth and real time criteria. ‘Next Generation Access’ (NGA) broadband networks based on fiber-optic technology enable a massive increase in bandwidth capacity and the adoption of completely new services and applications on the demand side. Given sufficient availability and adoption, many consider this to be a promising way to increase long-term productivity and prosperity.

One fundamental goal of the European Commission (EC) and national regulatory authorities (NRAs) therefore is to accelerate the

\* Corresponding author.

E-mail addresses: [briglauer@zew.de](mailto:briglauer@zew.de) (W. Briglauer), [carlo.cambini@polito.it](mailto:carlo.cambini@polito.it) (C. Cambini), [fetzer@jura.uni-mannheim.de](mailto:fetzer@jura.uni-mannheim.de) (T. Fetzer), [hueschelrath@zew.de](mailto:hueschelrath@zew.de) (K. Hüschelrath).

<sup>1</sup> Briglauer and Cambini (2017) are the authors of a study entitled “The Role of Regulation in Incentivizing Investment in New Communications Infrastructure” which was financially supported by Deutsche Telekom AG, Bonn, Germany. The present paper builds in parts on this study but represents independent research and the opinions of the authors only.

<http://dx.doi.org/10.1016/j.telpol.2017.07.011>

Received 26 June 2017; Accepted 22 July 2017

Available online xxx

0308-5961/© 2017 Elsevier Ltd. All rights reserved.

deployment of innovative and high-performance broadband infrastructures. However, given the high levels of investment that a comprehensive NGA deployment requires, providing sufficient investment incentives remain essential. Furthermore, if we take into account all the market developments to date related to actual NGA coverage and adoption patterns in most EU member states, it cannot be assumed that the existing market and competition conditions will result in broad-scale coverage – including rural areas – with NGA infrastructures and high take-up of NGA services in the foreseeable future. Assuming that NGA deployment indeed goes hand in hand with substantial welfare gains, the question thus arises as to which regulatory policies enhance (or diminish) investment incentives.

In its Digital Agenda for Europe (DAE)<sup>2</sup> – in combination with recently announced plans for an European Gigabit Society<sup>3</sup> (European Commission, 2016a) – the EC not only fortifies its belief in the strategic importance of broadband infrastructures and services for economic development, but especially set ambitious coverage and adoption goals. In working towards the envisaged goals, the EC first and foremost aims at strengthening the incentives of private companies to invest in both the deployment of high-capacity broadband infrastructures and to enhance adoption on the demand side through the design and implementation of appropriate regulatory frameworks. In line with the visions developed in its DAE and Gigabit Society targets, in September 2016, the EC published a detailed proposal for a directive establishing the European Electronic Communications Code (European Commission, 2016b), which will substantially revise the existing regulatory framework for communications markets (hereinafter referred to as ‘EECC’). With the directive, the EC is pursuing three core objectives: (1) equal baseline conditions for all market participants, (2) uniform application of the legal regulations and (3) the provision of sufficient incentives for investment in high-capacity NGA networks.<sup>4</sup>

In this context, we aim at providing a critical appraisal of the EECC with a particular focus on the expected impacts of the proposed regulatory measures on the incentives to invest in high-capacity NGA networks, i.e. the third core objective.<sup>5</sup> Although there already exist numerous theoretical and empirical contributions that address the relationship between investment and regulation – both in general and with respect to electronic communications markets – the topic gains new significance in the context of the current review of the EU regulatory framework. Accordingly, our aim is to provide a critical appraisal of the EECC’s envisaged measures to enhance infrastructure investment against the background of the existing academic literature and relevant structural characteristics and developments in broadband markets. In reviewing the academic literature we will only focus on the most relevant and recent contributions from both theoretical and empirical perspectives. For comprehensive surveys, the reader is referred to Balmer (2013) who reviews the literature focusing on geographic (de-) regulation and cooperative NGA investment as well as Briglauer, Fröbbing, and Vogelsang (2015) who provide an overview of the existing academic literature on the impact of old and new broadband infrastructure access regulation on NGA investment and adoption of new broadband services. HSBC Global Research (2016) represents a policy-oriented review of a broad range of regulatory measures foreseen in the EECC proposal from an institutional investor’s point of view.

The remainder of the paper is structured as follows. Sections 2 and 3 provide an assessment of the role of relevant regulatory schemes in incentivizing infrastructure investment. While Section 2 concentrates on the relevance of co-investments models, Section 3 focuses on the role of access regulation (subdivided further into asymmetric ‘significant market power’ (SMP) access regulation and symmetric non-SMP access regulation). In both sections, we first introduce into the respective regulatory concepts followed by detailed reviews of the most related theoretical and/or empirical research and finally making use of the gained insights as part of our critical assessment of the measures envisaged in the EECC. Section 4 concludes the paper with a summary of the main insights from economic research as well as the derived implications for amendments of the EECC.

## 2. The role of co-investment models

Competition intensity in electronic communications markets may vary significantly across regions. In competitive (‘black’) areas, there is no need for sector-specific ex ante access regulations on the basis of the essential facility doctrine or the concept of market dominance. In ‘white’ areas, where network deployment would not be profitable even for a monopolist, it is not possible to incentivize network deployment through sector-specific access regulation; public policies based on subsidies would be a considerably more effective instrument in these circumstances.

In ‘grey’ areas, where only one infrastructure provider is active, it is much more difficult to determine the best policy as a range of trade-offs must be taken into account. In grey (or otherwise white) areas, co-operation (or: co-investment) models appear as an effective measure, in principle, for sharing risks related to future demand and market exposure as well as capital formation in case of capital market imperfections (Nett & Stumpf, 2011) and thus for generating additional investment incentives. Investment sharing might also come hand in hand with cost reductions, e.g., in case of traditional and non-traditional telecommunications operators due to the sharing

<sup>2</sup> See <https://ec.europa.eu/digital-agenda/en> (last accessed on 22 June 2017) for further information.

<sup>3</sup> See <https://ec.europa.eu/digital-single-market/en/connectivity-european-gigabit-society> (last accessed on 22 June 2017) for further information.

<sup>4</sup> The EECC refers to ‘very high capacity networks’ which are defined as follows (Art. 2 (2)): “[V]ery high capacity network means an electronic communications network which either consists wholly of optical fiber elements at least up to the distribution point at the serving location or which is capable of delivering under usual peak-time conditions similar network performance in terms of available down- and uplink bandwidth, resilience, error-related parameters, and latency and its variation.” Although the EECC does not explicitly refer to certain NGA technologies as being particularly desirable – and explicitly emphasizes the importance of technological neutrality (Art. 3 (3) lit. (c), recital 24) – it remains unclear whether the term ‘very-high capacity networks’ used on several occasions in the EECC (e.g. recital 13 and Art. 2 (2)) only refers to Fiber to the Home (FTTH) and Fiber to the Building (FTTB) networks in a narrower sense. In this paper we apply a broader definition and refer to all high-speed wireline deployment scenarios including hybrid-fiber or ‘second-life copper/coax’ technologies as NGA scenarios.

<sup>5</sup> Please note that we will limit our analysis to fixed (or wireline) communications networks, although mobile (or wireless) networks and mobile broadband services are playing an increasingly important competitive role. In particular, the 4th generation (4G) mobile communications technology already offers bandwidths that are increasingly comparable with some NGA network architectures and the importance of mobile broadband may even increase with the deployment of 5G technologies. Yet, we focus on wireline broadband only as access and co-investment remedies are expected to be imposed on wireline NGA infrastructures only.

Download English Version:

<https://daneshyari.com/en/article/6950327>

Download Persian Version:

<https://daneshyari.com/article/6950327>

[Daneshyari.com](https://daneshyari.com)