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The involvement of utilities in the development of broadband infrastructure: A comparison of EU case studies

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ABSTRACT

Energy companies and other utility providers have been often involved in the provision of telecommunications services. Nevertheless, their contribution to broadband development has varied significantly over time. In the late 1990s, both local and national utilities in the European Union (EU) engaged in the provision of broadband networks, but only few of them managed to establish themselves as major broadband providers. More recently, new projects involving national utilities have been announced in several EU countries, opening new scenarios for utilities' contribution to Next Generation Access (NGA) development. This paper identifies and explores the factors affecting the entry and the success of utilities in the EU broadband market, through the comparison of four case studies from four EU countries (Germany, Italy, Sweden and the UK). The evolution of utility involvement in the EU broadband markets is assessed against the interaction of market, technology and policy factors, focusing on the impact of policy and regulatory measures. As a result, this paper provides fruitful insights into the relevance and effectiveness of public interventions in broadband markets. Across the four case studies, public support and public ownership emerged as the main drivers for the involvement of utilities in EU broadband markets, with regulatory measures and economies of scope exerting a limited and decreasing influence. However, the contribution of utilities has varied significantly across the cases studied, reflecting the different approaches taken at national and local level to support broadband development, in spite of the common regulatory framework.

1. Introduction

Superfast broadband[1] is increasingly perceived as an essential service to foster economic growth and social development (Broadband Commission, 2015). The European Union (EU) committed to achieve universal access of 30 Mbps by 2020 (EC, 2010b) and to 100 Mbps by 2025 (EC, 2016c). However, a large number of European citizens are still unable to access next-generation access (NGA) networks[2], especially in rural areas (EC, 2016a). Ad hoc policies have been, therefore, adopted to address those factors hindering the diffusion of superfast broadband (BEREC, 2016).

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[1] Superfast broadband differs from basic broadband in terms of bandwidth and download speed. Consistent with EC, 2010b), this paper defines superfast broadband as providing a minimum download speed of 30 Mbps.

[2] According to EC, 2010a, NGA networks are fibre-based access networks delivering high-capacity connectivity. They comprise a wide range of technologies, such as a fibre-to-the-cabinet (FTTC), fibre-to-the-building/home (FTTB/H), DOCSIS 3.0.

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Since the late 1990s, ex-ante regulation has promoted competition and investment by granting access to network bottlenecks (Picot & Wernick, 2007). Furthermore, local and central governments have been actively supporting the supply of NGA networks where the market has failed to provide superfast broadband access (Cave & Martin, 2010). Alongside public authorities and broadband companies, alternative infrastructure providers have also contributed to NGA development (Gerli, Wainwright, & Whalley, 2017).

In particular, utilities – such as electricity providers or water companies (see section 2 for a more detailed definition) – have often been involved in the provision of broadband services (Mölleryd, 2015; Troulos & Maglaris, 2011). They either acted as provider of passive infrastructures or retailed broadband in bundle with other utility services (Van der Wee et al., 2011). The actual contribution of utilities to broadband development has varied across the EU. In some countries, such as Sweden, utilities are a key driver of NGA supply, but in other countries, such as the UK, their role has been limited (Ragoobar, Whalley, & Harle, 2011). Nevertheless, the synergies between utilities and telecommunications providers have been frequently emphasised by scholars (Gillett, Lehr, & Osorio, 2006), practitioners (Analysis Mason, 2008) and policymakers (Department for Business Innovation and Skills, 2010).

Over the past few years, a number of new projects involving utilities in the European NGA market have been announced. The Italian incumbent in the electricity distribution market established a new company to roll out fibre-to-the-home (FTTH) in more than 200 cities (EOF, 2016). Similarly, Vodafone and the Irish energy incumbent have partnered with one another since 2015 to provide 500,000 premises with FTTH (TeleGeography, 2015). Furthermore, Orange has signed an agreement with SNCF, the French railway operator, to use and resell the capacity of the latter's fibre network (TeleGeography, 2016b).

To the best of our knowledge, these recent trends have not been thoroughly examined by scholars; previous studies mainly assessed the effects of regulations on broadband investment on a general level or focused on the interplay between the incumbent and the new entrants (Briglauer, Frubing, & Vogelsang, 2014; Cambini & Jiang, 2009). This paper aims to fill this research gap, through a longitudinal case study analysis exploring the role of utilities in EU broadband markets over the past 20 years. The framework developed, based on the market-policy-technology interactions approach of Van der Wee, Beltran, and Verbrugge (2014), is applied to analyse the factors underlying the involvement of utilities in four European broadband markets – Germany, Italy, Sweden and the United Kingdom.

Accordingly, our analysis addresses three research aims. First, it examines the strategies of utilities investing in broadband markets to identify the drivers of their entry. Secondly, it assesses how different policies and regulatory measures have affected the role of utilities over time. Third, it outlines and discusses the evolution of utility involvement in the EU broadband market.

The case study analysis aims to explore the trends observed in the market, in relation to the extant literature on broadband investment. Being an exploratory study, a theoretical contribution is not the primary goal of this paper. Our case studies provide in-depth insights that can help develop and enhance both the conceptualisation and the policymaking of broadband investments.

The cross-country comparison reveals that the relevance of scope economies as a driver of utilities in the broadband market has decreased over time, while public support has become the most influential factor. These findings partially conflict with earlier research emphasising the scope economies in network rollout as a major advantage for utilities investing in broadband markets (Angelou & Economides, 2013; Tadayoni & Sigurðsson, 2007).

We also observe that the intensity of public interventions in support of national and local utilities has varied considerably across the EU, despite the common regulatory framework. Our research sheds light on the interaction between local and central institutions in the development of broadband markets, an aspect that has been generally overlooked in the extant literature about public policy in the ICT ecosystem (Montolio & Trillas, 2013).

In the remainder of this paper, the market structure and the regulatory framework of utilities and telecommunications markets are described in Section 2 and Section 3 respectively. Section 4 reviews the extant literature regarding the contribution of utilities to broadband development, while the methodology and the framework underlying our analysis are explained in Section 5. The case studies are presented in Section 6 and discussed in Section 7. Finally, Section 8 outlines our concluding remarks and policy recommendations.

2. Market structure and public policy in European utilities markets

Prior to start our analysis, it is worth outlining the context and the scope of our research, clarifying the concept of utility adopted in this paper. The term ‘utilities’ generally covers those organisations providing essential services such as energy (gas, electricity and heating), water and sewerage, telecommunications, transportation and waste collection (McNabb, 2016).

Being perceived as public local goods (Pinch, 1985) and natural monopolies[3] (Bös, 2015), these services have historically been provided by public enterprises (Stephen, 1997): municipal utilities have existed since the late Nineteenth century (Wollmann, 2013). After World War II, though, these industries were generally nationalised, resulting into the creation of nation-wide vertically-integrated public monopolies (Pollitt & Steer, 2012).

Market liberalisation, which started in the early 1980s, has radically transformed the structure of utility markets and the role of the public sector in these industries. National monopolies were, at least partially, privatised and markets were opened up to competition (Heddenhausen, 2007). Sectoral authorities have been established to regulate the open market and safeguard public interest in the provision of these essential services – see, for example, Coen and Doyle (2000) and EY (2013) for further details.

[3] Utilities such as electricity and water can be classified as public local goods, being “*freely available at equal costs within particular local government units or administrative areas*” (Pinch, 1985, p. 10). They are also considered natural monopolies, being characterised by high fixed costs and low variable costs (Bös, 2015).