

**Explanatory Memorandum**  
**to the Decision of the Board of Regulators of the Body of European**  
**Regulators for Electronic Communications (BEREC) on the**  
**purchase of a study on a study on “The Determinants of Investment**  
**in Very High Capacity Networks – A System Dynamics Approach”**  
**(BoR/2018/08)**

14 September 2018

Enhancing the conditions for investment is a key activity for national telecommunications regulatory authorities seeking to promote competition and optimise end-user welfare. This project requires the development of system dynamics model<sup>1</sup> to provide insight into the complex interplay of factors which impact investment in network infrastructure. This project has a particular focus on regulatory measures imposed within the EU, and how they can influence the level of investment in very high capacity fixed networks (VHCN)<sup>2</sup>.

The key research question to be addressed is “What are the factors, including regulatory factors, which influence the level, nature and timing of investment in very high capacity telecommunication networks in BEREC member states?”

The key objectives of this project are:

- to generate a **conceptual system dynamics model** which captures and illustrates the complex interplay and feedback loops of factors which influence the timing, level and nature of investment in very high capacity digital infrastructure in countries in Europe, and
- to use this model to **simulate the effects of different regulatory choices** and the interaction between investment and competition.

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<sup>1</sup> System Dynamics is a method to investigate and model complex dynamic systems in terms of stocks (the accumulation of things), flows (the motion of things) and feedback loops. It was developed by Jay Forrester during the mid-1950s.

<sup>2</sup> 'Very high capacity network' means an electronic communications network which either consists wholly of optical fibre elements at least up to the distribution point at the serving location, or any other type of network 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.