



Application of actor-network theory to network neutrality in Korea: Socio-ecological understanding of network dynamics



Dong-hee Shin

Sungkyunkwan University, 90327 International Hall, 25-2 Sungkyunkwan-ro, Jongro-gu, Seoul 110-745, South Korea

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ABSTRACT

This research analyzes the debate surrounding network neutrality (NN) in Korea from the perspective of actor-network theory (ANT) with the goal of mapping the socio-political network that has formed around the issue. It intends to reassemble the heterogeneous elements involved in this network and analyze its structure by identifying, describing, and characterizing the different positions of the actors involved in the public debate. Through an interpretative case study, it seeks to reveal some of the contradictions present in this process and discuss them within the ANT framework. It can be argued that public debate concerning NN has revealed acute internal contradictions between interest groups and created disputes between actors from different levels of this network, which requires a constant rearrangement of positions. The findings of this study suggest the need of socio-ecological transition by fostering social consensus but also dialogue and competition while actively taking economic and industrial constraints and opportunities simultaneously into account. A coherent approach to socio-ecological understanding is an effective means of governing neutrality.

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1. Introduction

For a considerable period, South Korea has been praised as a broadband paradise, consistently appearing at the top of lists of countries with fast, cheap, and high-quality broadband access. Competitive Internet markets and high-quality infrastructure have removed issues regarding capacity constraints; however, with the appearance of convergence services, changes are beginning to occur. Bandwidth-intensive over-the-top (OTT) and peer-to-peer services have gained enormous popularity in Korea. The drastic diffusion of voice over IP (VoIP) services has created network capacity challenges and, concurrently, reduced telecom operators' revenues. The emergence of convergence networks creates a risk of a rebundling of local loops, which would threaten content providers and independent Internet service providers (ISP) (Shin, 2014). As this issue involves network sharing, NN has already become a political, economic, and social concern in Korea.

This study deploys ANT as a theoretical lens through which the relationship between the technical and social understandings of NN can be elucidated. This relationship between technology and society, and between a technical object and the discourse that surrounds it, offers a key insight into the methods by which telecom governances have been designed, deployed, and developed (Santos and Monteiro, 2013). This study selects Korea for an in-depth case study because this nation is at the forefront of information and communications technology (ICT) development. Additionally, it has also been uniquely involved in the issue of NN. As NN is a concept that is embedded contextually, analyses through ANT frames can produce heuristic insights. This study examines the current translation processes actors undertake with one another when making regulations

E-mail address: dshin@skku.edu

and adopting rules. This is achieved by focusing on how actors (both human and technological) formulate specific rules and strategies in order to pursue their own interests and on how they relate to other actors to realize these interests. The decisions taken by actors in relation to NN policy and its developmental processes shed light on the mechanisms of the Korean government's overall telecom policy. This study suggests an improved model for future telecommunication-governing policies.

As a number of technical, social, and business challenges will be faced on the pursuit of NN, it is necessary to understand the myriad of issues that will determine the success of Internet governance. The most effective method of discussing these issues is from an ecological perspective, thereby acquiring a holistic understanding of the new and complicated ICT environment. ANT seeks to understand why and how a technological solution was created as a network carrier of technical and social relations (Latour, 1987). In this paper, an actor-network-based view is used to describe the formation and discussion of NN concepts that may govern future networks. The following research questions form the basis of this study:

RQ1: How has NN in Korea has been debated, discussed, and deliberated?

RQ2: What are the key NN issues facing each actor in Korea?

RQ3: What are the dynamics and consequences of NN development in Korea? What are the reasons for such consequences?

This study's findings imply that NN has been developed in such a unique way that the concept has been loosely defined through a jumble of confusing policies and inconsistent regulations. Frequent government reorganizations also have added to this confusion. Thus, the NN concept has been used as a vessel with which to capture concerns ranging from competitive measures to regulatory controls. This lack of clarity has rendered the sustainable stabilization of NN difficult and affords the government arbitrary control over neutrality.

NN has potentially profound consequences that cannot be left entirely under the control of market stakeholders. This raises the need for a new approach, namely, a people-centered policy analysis that is focused on individuals or users in terms of policy preparation, development, and evaluation (Shin, 2014; Shin and Han, 2012). This idea directs governments toward questions regarding legitimacy, governance, and human rights, thereby leading to more interesting conversations than those afforded by a simple binary choice of no regulations versus state regulations. Beyond the dichotomy of self- or co-regulation (Marsden, 2010), governance reform is required to address the increasing gap between constitutional legitimacy and people's perceptions, highlighting the process by which states, firms, and citizens are developing the power to negotiate regulatory issues.

It can be observed that many telecom regulators focus on achieving market- or industry-related results, not necessarily consumer results. Consumer welfare has largely been the domain of consumer authorities, and given the consumer nature of NN, it is odd that the NN issue has been handled exclusively by telecom regulators with an industry-oriented mindset. With a user-centered focus, this study argues that the NN regulation and its regulators should be guided by consumer interests and individual well-being in society.

2. Literature review

In this section, ANT is explained as a theoretical framework; then, a brief overview of NN and user-centered policy follows.

2.1. Socio-ecological view of actor-network relations

Understanding complex policy issues such as NN requires a thorough socio-ecological approach beyond socio-political consideration.

An actor network refers to a heterogeneous network of aligned interests, including people, organizations, and standards. Latour (1987) argues that the actor-network-based perception of the spread of innovation applies to anything from goods and artifacts to declarations and ideas. The core aim of ANT analysis is to examine the process of *translation* (Callon, 1986; Latour, 1987), where actors align others' interests with their own. The *translation* process has three phases. During the first phase, *problematization*, a focal actor frames the problem and defines the identities and interests of other actors consistent with its own interests. The focal actor renders itself indispensable by requiring that a process under its control must occur in order for all actors to achieve their aims. Callon (1986) calls this process an *obligatory passage point* (OPP). The OPP is typically in the direct path of the focal actor as regards pursuit of its interests. Other actors may be required to overcome certain obstacles to pass through the OPP. During the second phase, the focal actor executes these strategies to convince other actors to accept its definition of their respective interests (*interesement*). The final phase of *translation*, *enrollment*, is the moment when another actor accepts the interests that have been defined by the focal actor. *Enrollment* also includes a definition of each actor's role in the newly created actor-network. *Inscription* occurs in conjunction with *enrollment* when actors within a network embed scripts for future actions and behavior in that network. *Mobilization* is the final aspect of *translation*, which relates to a set of manners utilized by a focal actor to ensure that all actors have legitimate speakers to represent them in the groups and avoid betrayal by various collectives from the latter (Callon, 1986; Shim and Shin, 2015). In mobilization, primary actors borrow the force of their passive actor allies and turn themselves into their representatives or spokespeople.

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