



# Wholesale unbundling and intermodal competition

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## ARTICLE INFO

### Keywords:

Telecommunications  
Competition  
Unbundling  
Essential facilities  
Convergence  
Regulation  
Intermodal competition

## ABSTRACT

This paper explores the effects of network unbundling in telecommunications. It includes discussions of the basic economics of unbundling; the competitive effects of unbundling on voice services in the US and broadband in the US and the European Union; and unbundling policy in a world of convergence. Mandatory unbundling can delay facilities-based entry and reduce network investment, particularly if unbundled input prices are set too low. Excessive prices for essential network elements could hamper competitive entry. Some argue that mandatory unbundling has stimulated competition; however, the results suggest that when relevant demand and supply determinants are included in the analysis, the association between mandatory unbundling and increased broadband penetration is *not* statistically significant. Assessing the costs and benefits of unbundling is more difficult because of convergence and intermodal competition among the video, wireless and telephone providers. Thus, the dynamic nature of the sector and the costs of implementing mandatory unbundling imply that policy makers should carefully examine the costs and benefits of regulatory intervention.

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## 1. Overview

This paper explores whether network unbundling leads to increased competition in the communications industry by assessing US experience with wireline voice, EU and US experience with broadband, and experience with wireless resale in different countries. It includes a summary of the economic arguments for and against mandatory network unbundling; an evaluation of the effects of mandatory unbundling efforts; and perspectives on how the concepts and the experience with network unbundling apply in a world of convergence and portfolio competition.

The primary findings are: mandatory unbundling carries with it significant risks—that is, if prices for unbundled network elements (UNEs) are set too high, UNEs will not be used by entrants; if they are set too low, then investment incentives are distorted for both the facilities provider and the entrant. Wholesale unbundling in some instances may have contributed to increased competition. However, the analysis suggests that the apparent association between unbundling and increased broadband penetration is not statistically significant when relevant economic, demographic, and supply determinants are included in the analysis. As communications networks converge and the demand for wireline services decreases globally, intermodal competition is more prevalent and the benefits of unbundling are more difficult to assess, and unbundling arguably becomes a regulatory tool of the past. Given the dynamic nature of the communications industry, the costs and the risks of implementing mandatory unbundling, and the international differences in geographic,

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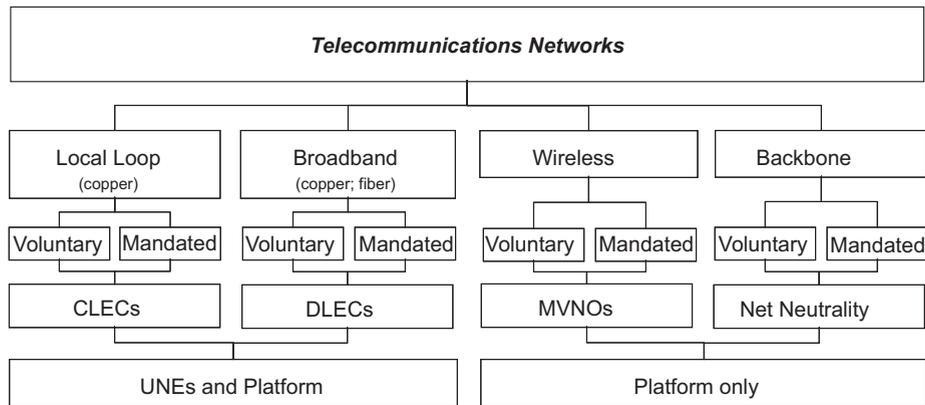


Fig. 1. Telecommunications network unbundling.

demographic, and market conditions, policy makers should use a case-by-case approach that carefully examines the contours of the relevant market(s) at issue as well as the costs and benefits of any regulatory intervention.

## 2. Forms of network unbundling

Communications networks are subject to unbundling at different levels for different services. The most familiar forms of unbundling are for the local loops of incumbent local exchange carriers (ILECs) and wired broadband facilities. Local (typically copper) loop unbundling generally is imposed by regulators, although in principle it can be implemented under commercial terms and pricing without regulatory intervention. Unbundling is also an issue with respect to wired copper and fiber broadband facilities. As shown in the left half of Fig. 1, competitive local exchange carriers (CLECs) may utilize unbundled right loops, and data local exchange carriers may use unbundled local broadband facilities. In each case, they purchase either individual network elements or an entire platform. In the latter case, the practice is more like resale than unbundling.

The right side of Fig. 1 illustrates that voluntary and mandatory mobile virtual networks (MVNOs) wholesale access and Internet backbone network neutrality are conceptually similar to traditional unbundling. MVNOs purchase wholesale wireless services and resell them at the retail level. MVNOs are relevant because, as discussed below, policy makers in some countries have required mandatory access to and resale of wireless services in order to further competition for retail mobile services. The term “wireless unbundling” refers to mandatory resale. Net neutrality for backbone access shares some characteristics with unbundling. Definitions of net neutrality vary, but its advocates argue that “certain users or applications should not be favored over others,” and that providers should not charge for different service priorities (CBC News Canada, 2009). Thus, net neutrality, like mandatory unbundling, may require Internet network operators to allow use of their networks subject to regulatory control.

### 2.1. Examples of unbundling in the United States

A key provision (§ 251 (c)(3)) of the [United States Telecommunications Act of 1996](#) requires mandatory unbundling of facilities needed by entrants to compete with ILECs.<sup>1</sup> Congress evidently believed that requiring ILECs to share essential facilities would serve as the catalyst for competition by allowing entrants to begin competing as non-facilities-based carriers and build their networks in the long-run. When the Federal Communications Commission (FCC) implemented the policy, it unbundled specific network components including local loops, and initially DSL and 10 other elements. The FCC also found that UNE prices should be set based on forward-looking total element long-run incremental cost or TELRIC-based rates, and the ILECs had to meet certain performance metrics to prevent discrimination against the CLECs. Importantly, the FCC included a platform offering, called UNE-P, which included all elements needed to provide local exchange service, including local switching as well as the local loop facility. This extreme form of mandatory unbundling essentially enabled CLECs to enter the market without any telecommunications facilities. The FCC eliminated this requirement after the ILECs challenged UNE-P in court. Similarly, to comply with court orders, the FCC in 2003 phased out

<sup>1</sup> “(c) ADDITIONAL OBLIGATIONS OF INCUMBENT LOCAL EXCHANGE CARRIERS—In addition to the duties contained in subsection (b), each incumbent local exchange carrier has the following duties: ... (3) UNBUNDLED ACCESS—The duty to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory in accordance with the terms and conditions of the agreement and the requirements of this section and section 252. An incumbent local exchange carrier shall provide such unbundled network elements in a manner that allows requesting carriers to combine such elements in order to provide such telecommunications service.”

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