

Paying the Piper: Absorbing the Costs of Digital Television Switchover

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This paper considers how costs in the switchover from analog to digital television are being absorbed by broadcasters, consumers, and society. It considers the implications of those cost issues on the extent and pace of switchover and analyses the efficacy of existing public policies regarding switchover funding.

Digital technology is fundamentally transforming communication systems, making content independent of the distribution medium, and providing the capability for it to be distributed using multiple platforms. This progression has made possible the introduction of digital television which includes distribution of television and related programming on digitalized cable systems, digitalized satellite systems, and digital terrestrial television. All three have traditionally employed analog technology and are now in the early stages of switching to digital technologies across Europe. The primary benefits of digital operation are reduced operating costs, improved picture quality, reduced radio spectrum requirements, increased channel capacity, and interactivity capabilities. Digital technology simplifies, streamlines, and reduces the costs involved with the production, editing, storage, and transmission of television programmes and services.

Of all contemporary areas of broadcast regulation, digital television has been the subject about which the least coordination of policy has emerged and the least guidance been promulgated at the European level. Policy involving digital television has been relatively uncoordinated because of the different regulatory bases of the three forms of television, because of different regulatory interests at the European and domestic levels, and because different levels of market forces affected developments in satellite, cable, and terrestrial broadcasting. Concurrently, digital television developments became entangled in the policies surrounding information and communications technologies and the changing competition policies and regulations in the European Union. The results have been widespread differences in the types of services available to European viewers and the mid-term prospects for various forms of digital television.

Digital distribution technologies require users to receive the signals with a satellite receiver, via cable service, or by a digital antenna and then require a set-top box to translate the digital signals into viewable video. The digital video - like analog video - is then displayed on a television screen. However, it can also be displayed on computer monitors and other digital display screens.

Digital systems allow distribution of different levels of broadcast quality at the expense of channel capacity, so determinations must be made about the number of channels and level of quality that will be provided by policy or market choice. Across Europe national regulators have selected the lower quality 'standard definition' image rather 'high definition' image choice. The decision means that image quality will not increase significantly from the existing analog PAL but that more channels will be available. This decision is different from that in

leading digital television nations such as Australia, Japan, and the United States, in which the high definition choice is being pursued.

Because of the lack of coordinated policy, the pace of transformation to the three forms of digital television is varying depending upon who is funding investments in necessary production equipment and facilities, distribution infrastructure, and reception equipment. Developments in satellite and cable development have largely been left to market forces within the basic regulatory framework of telecommunications services and the weak policy on advanced television.

Conversion to digital satellite has occurred at a pace convenient to the primary direct broadcast satellite operators, with UK operators leading the way and most significant availability in other populous countries such as France, Germany, Italy, and Spain. Switchover speed is dependent upon replacement of existing analogue satellites -whose lifespan is less than a decade - and selection, manufacturing, and distribution of necessary set-top boxes and interactivity interfaces.

The transition to digital cable faces greater financial challenges than satellite conversion because it is hampered by pre-existing investments in analog distribution systems. Unlike satellite and over-the-air broadcasting, cable systems require high levels of investment in a physical fixed distribution network. The financing of that system is based on highly rationalized profit engineering based on investment and financing costs, operating costs and revenues, and depreciation of the capital assets. Consequently, replacement of existing lines and transmission equipment with apparatus for digital distribution proceeds more slowly to permit firms to first recoup their initial investment or to subsume it - if possible - into the financing of the transition to digital.

Conversion to digital terrestrial television involves broadcast infrastructure and both public service and commercial broadcasters. As a whole, terrestrial broadcasters have not been strongly supportive of digital television because it entails significant expenses in studio technology and expenses for broadcasting in both analog and digital broadcasts until consumers nearly universally acquire digital equipment. One of the problematic elements of the conversion is that viewers will bear significant switching costs in acquiring new equipment needed to receive digital broadcasts. This is problematic because the driver of change has not been the market demanding better television technology, but policy makers' desires. Because of the costs and because consumers were not the impetus for establishing digital terrestrial television, relatively strong consumer resistance has appeared in locations where switchover has begun. Manufacturers have been reticent to provide necessary equipment because standard debates are still underway in some nations, because demand for set-top boxes is uncertain, and because it is unclear what features consumers would like to have included in the equipment.

This paper explores the differing economic environments in which the three forms of digital television are being established, the implications of those environments on allocating costs for the switchover, and ways in which issues of cost allocation are and have yet to be addressed. It then considers the public policies of the switchover from the incentive effectiveness, welfare distributional effectiveness, and cost-benefit analysis perspectives.