Chapter XXVIII
Adoption of VoIP Applications in Public and Private Organizations

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ABSTRACT

We provide evidence on the determinants of diffusion of Voice over IP (VoIP) applications in a sample of public and private organizations in Italy. We first review the recent developments in the technology in order to identify the current trends and the costs and benefits of VoIP adoption. Second, we discuss the recent policy efforts at the European level toward the implementation of the technology. Third, we present an empirical investigation. Our results suggest that organizations become more likely to adopt as time goes by, and that the decision to adopt is mostly affected by size and availability of financial resources. Organizations can benefit from IP communications systems, because they offer cost savings and enhanced applications facilitating network management and on-line transactions. However, technical shortcomings, established habits and practices, and legacy network investments can inhibit adoption. This explains why firms are more likely to adopt as time passes and why small organizations are more inclined to adopt than larger ones.

INTRODUCTION

The growth of the Internet Protocol (IP) has raised the issue of a possible migration from traditional circuit-switched networks designed for basic voice communication towards shared packet transport handling a mix of applications. A substantial number of different services and solutions are currently available for businesses, such as advanced IP telephony calling and management, Web, audio and videoconferencing, instant messaging, calendar and other PIM functions, email, fax, and voicemail. IP Communication lowers costs of network management, since it eliminates the need for different infrastructures. It simplifies maintenance and allows quickly reactions to the changing needs of businesses. However, cost reductions are just one part of the story. Indeed, IP-based networks enhance business communications by providing a flexible foundation upon which all types of new applications and services can be deployed, quickly and easily. Solutions like IP telephony, unified messaging, and IP contact centre have been designed to support increasingly mobile workforce. For instance, unified messaging solutions deliver any message into a single inbox, allowing employees to access and manage their communications with any device. These applications improve communications by facilitating increased mobility, delivering advanced functionality, and streamlining administrative tasks. As a result, employees are able to communicate more effectively and can focus on activities that create new revenue streams or generate cost savings. However, although the technology has been constantly improved, there remain some technical problems for the provision of IP Communications, which are related to the characteristics of the IP network, such as voice quality and network reliability, legacy investments, and regulation.

This chapter has three aims. First it will provide a review of the recent developments in the technology in order to identify the current trends and their impact on the costs and benefits of Voice over IP (VoIP) adoption. Second, it will briefly discuss the recent policy efforts, especially at the European Union level, toward the implementation of the general framework approved in 2003. Third, on the basis of these premises, it will present an empirical investigation of the determinants of the adoption of VoIP Communication by public (i.e. Universities, Hospital, Public Administration offices) and private organisations (i.e. Banks and other types of enterprises), in order to identify drivers and obstacles of the diffusion of this technology. In particular, we intend to understand what firm-specific and market-specific variables drive individual adoption. The empirical contribution of the chapter relies upon an original dataset including 123 Italian organisations that have adopted VoIP Communication solutions since from 2001 (when VoIP Communication was first introduced in Italy) until 2007.

BACKGROUND: THE CHARACTERISTICS OF VOIP TECHNOLOGY

Voice over IP services refer to the transmission of voice and data over the IP network. This application may be also implemented over any form of the IP network, including Local Area Networks and corporate Intranets. VoIP converts the voice from analogue signals to a series of digits, bundles the data into packets and transmits these packets over the network. Early Internet phones evolved either as by-products from the videoconference industry or from companies like VocalTec, the first firm to use Internet telephony in a computer application in 1995. This service was initially available only to users with a computer connected to the Internet. However, following the continuous technological evolution, the cost saving benefits of Internet telephony have become available to any user with a telephone connected to the public switched telephone network (PSTN) (Babbage et al., 1997; Ono and Aoki, 1998).