



**Chapter XIV**

**Diffusion of Information  
Technology Innovations  
within Retail Banking:  
An Historical Review**

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**ABSTRACT**

*Technological innovation in general and information technology (IT) applications in particular have had a major effect in banking and finance. Following Garbade and Silber (1978), this research reviews the effects on banking organisations with reference to front office or external changes as described by the nature of product and service offerings. Following Morris (1986), Quintás (1991) and Fincham et al. (1994), the research also considers innovations in the back office or internal (operational function) changes brought about to banking organisations. Outstanding IT-based innovations are considered and grouped into four distinct periods: early adoption (1864-1945), specific application (1945-1965), emergence (1965-1980) and diffusion (1980-1995). The research then discusses the potential impact of more recent innovations (i.e., electronic purses, digital cash and Internet banking). As a result, the research provides an historical perspective on the main drivers determining the adoption of technological innovation in retail banking.*

## INTRODUCTION

Table 1 summarises two dimensions of technological progress. These dimensions describe the nature of change brought about by technological innovation externally (product or service offerings) and internally (operational function) to banking organisations. Other dimensions might offer a more comprehensive treatment of innovation in financial services. However, the dimensions portrayed here suffice to provide an historical perspective on the adoption of technological innovation in retail bank markets. Initially, change induced by innovations in information and communications technologies (IT) reduced price differentials in geographically distant markets. The next stage saw the emergence of specific IT markets and then specific IT applications modifying the relations between previously isolated departments of banking organisations. Over time, IT applications produced alterations throughout the whole organisational structure in terms of internal operations and with respect to bank-client relationships. In brief, Table 1 outlines key technological innovations in retail finance as grouped into four distinct periods: early adoptions, specific application, emergence and diffusion.

The dimensions of technological innovation in retail banking portray the internal structure of banks as being determined by a combination of changes in banks' external environment and advances in information technology. Pugh (1973, p. 28) was one of the first contributions to document widespread empirical support on the effect the external environment had on individual organisations, relative to competitors' size and technology. According to this view, managers are passive in the adoption of the boundaries drawn around their organisation, while the rate of adoption of new technology is contingent on the organisation's circumstances. However, empirical studies suggested that despite the limitations imposed by the context in which organisations perform, managers have plenty of leeway to make their influence felt in the pursuit of competitive advantage (Pugh, 1973). Based on these

Table 1: Dimensions of IT innovation in retail banking

Impact on the Provision of Retail Finance	Use of Technology in the Organisation			
	Early Adoption (1846-1945)	Specific Application (1945-1968)	Emergence (1968-1980)	Diffusion (1980-1998)
Innovation in Service Offering	<ul style="list-style-type: none"> <li>Reduce inter-market price differentials.</li> </ul>	<ul style="list-style-type: none"> <li>Conversion from branch to bank relationships.</li> <li>Automated bank statements.</li> <li>Cheque guaranty cards.</li> </ul>	<ul style="list-style-type: none"> <li>Growth of cross-border payment.</li> <li>ATM introduced.</li> </ul>	<ul style="list-style-type: none"> <li>Supply of non-payment products like insurance, mortgages and pensions.</li> </ul>
Operational Function Innovation	<ul style="list-style-type: none"> <li>Increased co-ordination between head office and branches.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce cost of labour-intensive activities (i.e. clearing system).</li> </ul>	<ul style="list-style-type: none"> <li>Automation of branch accounting.</li> <li>Real-time control begins.</li> </ul>	<ul style="list-style-type: none"> <li>Growth of alternative distribution channels, such as phone banking and EFTPOS.</li> </ul>

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