



# Computers and Banking

Electronic Funds Transfer Systems  
and Public Policy

Edited by

**Kent W. Colton**

Graduate School of Management  
Brigham Young University  
Provo, Utah

and  
Public Systems Evaluation, Inc.  
Cambridge, Massachusetts

and

**Kenneth L. Kraemer**

Graduate School of Administration  
and  
Public Policy Research Organization  
University of California at Irvine  
Irvine, California

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# Computers and Banking

Electronic Funds Transfer Systems  
and Public Policy

## **APPLICATIONS OF MODERN TECHNOLOGY IN BUSINESS**

Series Editor: **Howard L. Morgan**  
University of Pennsylvania

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**COMPUTERS AND BANKING: Electronic Funds Transfer Systems  
and Public Policy**

Edited by Kent W. Colton and Kenneth L. Kraemer

**DATA COMMUNICATIONS: An Introduction to Concepts and Designs**  
Robert Techo

To  
Kathryn, Norine, Kurt, Kim,  
Katie Marie, Bradley, Lynne, and Lauren

# Preface

Electronic funds transfer (EFT) systems include a wide range of computer-based payment systems and sources that substitute electronic and digital transfers for movements of cash and paper checks. A few years ago some people were predicting that EFT would replace paper money and coins entirely and that we would soon be a "checkless" and "cashless" society. Such sweeping changes have not occurred, but a slower evolution is clearly underway. Although checks, currency, and coin are likely to be here for many years to come, EFT is becoming an established part of our worldwide payment transfer system, and the implications and consequences of this technology are real. They include:

- Alterations in personal finance and in the process of purchasing and paying for consumer goods and services.
- Changes in the structure of financial and retail organizations and their mode of interaction in the marketplace.
- Modifications in the flow of funds in our society and in the interactions among economic institutions.
- Alterations in the prospects for invasion of personal privacy, perpetration of fraud and theft, and violation of antitrust regulations.
- Changes in the regulatory and competitive balance among the numerous financial institutions in the United States.

Such alterations foretell important impacts on people and society. Benefits are forthcoming, but the costs will also be real. However, since the development of EFT has been slowed when compared to earlier expectations, the time is appropriate to step back to assess where we are and to begin to grasp some of the implications for the future. Public policy choices must be made concerning the evolution of EFT technology, and we hope that these decisions can be based on present facts and viable estimates for the future. Research is an obvious way to

develop an information base for policy choices, but what research should be conducted and what are the priorities in terms of future needs?

On June 2-3, 1977, the Conference on EFT Research and Public Policy was held in Boston, Massachusetts. The purpose of the session was to begin to define a research agenda concerning the public policy implications of EFT systems. The Conference—supported by a grant from the National Science Foundation to Public Systems Evaluation, Inc. (PSE)—was planned and organized by PSE of Cambridge, Massachusetts and the Public Policy Research Organization (PPRO) of the University of California at Irvine. Building upon the work of the National Commission on Electronic Fund Transfers, which presented their final report to Congress in October, 1977, the Boston session brought together many of the leaders in this field—representing academia, consumers, industry, and government—to discuss a wide range of EFT research issues. A number of papers were presented and far-reaching discussions ensued.

The development of a research agenda involved more than the Boston Conference, though. It also included an explanatory workshop held in Washington, D.C. in close cooperation with the National Commission on EFT, the administration of a questionnaire to assist in the ranking of research priorities, and the analysis and synthesis of a broad range of EFT-related materials.

This book is the result of the multiple efforts described above. Not only does it include an agenda for research related to the implications and impacts of EFT, it also contains a number of articles by the most prominent experts in the field concerning the current status of EFT technology, the potential impacts of EFT on society and our economy, the issues surrounding the regulation and control of EFT, and the challenge of monitoring and evaluating the evolution of EFT systems.

Part I contains an introduction to the subject and describes the methodology for the project. Part II focuses on the present state of and the outlook for EFT technology and an assessment of EFT services in the United States. Part III discusses the impact of EFT on people in our society, addressing itself to such issues as consumer impact, influence of EFT on the equality of the less advantaged, information- and privacy-related concerns, and the vulnerability of EFT to intentionally caused losses.

The economic impact of EFT is the subject of Part IV. It includes a review of the costs of our current payment system, an overview of the economic characteristics of EFT, and a summary of a panel discussion on the national economic and monetary impacts of EFT. Part V focuses on EFT regulation and control by reviewing the regulatory and operational issues of EFT along with some of the problems and policies in making EFT available to the public and in educating the public concerning EFT and protecting it against possible abuses.

Part VI is intended to step back and take a broader view of the potential impacts of EFT and of the prospects for monitoring and evaluating EFT systems.



It includes chapters on the social and institutional meanings of EFT, using micromodels in EFT analysis, EFT and the process of change, and EFT as a subject of study in the overall area of technology, society, and public policy. Part VI concludes with a fascinating panel discussion on monitoring the evolution and impact of EFT.

The final part of the book, Part VII, presents an agenda for EFT research. Interestingly, the research issues which were highlighted as the most important items received similar rankings by the participants in all of the vehicles used to develop an agenda—the exploratory workshop, the larger conference, and the survey questionnaire. These rankings were therefore used to structure a research agenda. There seemed to be an emerging consensus that the major research issues—from both a national and an institutional perspective—revolve around EFT impact on people, the economic impact of EFT, EFT regulation, and evaluating and monitoring EFT in evolution. Twelve research topics are identified as warranting first priority attention, with consumer and economic issues comprising the majority of the agenda.

**Kent W. Colton**

Graduate School of Management  
Brigham Young University

**Kenneth L. Kraemer**

Public Policy Research Organization  
Graduate School of Administration  
University of California, Irvine

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We particularly wish to thank the contributors to this volume. The work of these experts constitutes the first major review of the issues and existing research knowledge surrounding EFT. We also appreciate all of the people who participated in the research conference and the exploratory workshop.

The work of others at Public Systems Evaluation, Inc. and the Public Policy Research Organization has been essential to this book. John King provided important written and substantive contributions; Debbie Silverman played an important role in editing and organizing the manuscript; and Miyo Tatsumi served as the manager for the research conference. Richard Larson, Rob Kling, Gilbert Larson, Jim Tien, and Jim Simon provided intellectual assistance and useful critique. Editing and typing support were provided by Joyce Painter, Constance Tooth, and Joan Kanavich at PSE; Doris McBride, Nancy Brock, Helen Sandoz, Betty Kelly, Georgine Webster, and Sherry Merryman at PPRO; and Virginia Fry, Mary Lynn Perry, Burke Jolley, Richard Warne, and the South Word Processing Center at Brigham Young University.

Finally, we wish to thank Fred Weingarten at the National Science Foundation. Fred is an expert in the area of technology and public policy and has provided important substantive and administrative support throughout the effort.

Although we appreciate the assistance of others, naturally the final responsibility for the contents of the book rests with the editors and the authors.

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Part I

# Introduction



# EFT as a Case of Technology and Public Policy

KENT W. COLTON and KENNETH L. KRAEMER

It is increasingly recognized that large-scale technology is a two-edged sword: it has the potential for creating new opportunities and solutions to current problems, yet, left unattended, it may create new problems. As a result, public policy is being directed toward issues surrounding the development, diffusion, and impact of specific technologies as they evolve within society. These issues generally relate to an area of fact or policy of substantial concern, either because the potential impacts of the technology are unknown or because actions must be taken which will harm some and benefit others. Given this situation, research is becoming increasingly important for developing inputs for public policy regarding the current and potential impacts of proposed actions. The need for such research is especially felt with large-scale technologies which involve sophisticated equipment, require substantial investment, evoke broad application, and generate complex societal impacts.

Electronic funds transfer (EFT) systems present one of the most prominent cases of such technological innovation. During the last decade it has become

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KENT W. COLTON • Brigham Young University, 210 JKB, Provo, Utah 84602 (on leave from M.I.T.), and KENNETH L. KRAEMER • University of California at Irvine, Irvine, California 92717



clear that the development of such systems has laid the foundation for major changes in the payment and funds transfer system in American society. Preauthorization techniques, automated banking terminals, point-of-sale devices, and automated clearing house facilities are already in use in a number of areas of the country. With the continuing achievement of technological advances, the entire payment system could eventually be based on digital impulses rather than cash or checks. How likely is such a major alteration in the funds transfer system, and what are the consequences of the changes that will occur over the next several decades?

Some have heralded EFT as a promising innovation for the future, the key to eliminating much of the paperwork in the financial industry, and an important means of attracting potential customers and increasing market share in the financial and retail industries. Only a few short years ago visions of a "checkless, cashless society" filled the papers and received increasing publicity.

However, the results of the past few years have not met initial expectations. Consumers have been wary of the modifications that have been tried and proposed, some systems have failed to obtain the volume sufficient to achieve reasonable profits for either bankers or retailers, and the earlier enthusiasm of a number of policy makers has been dampened. The financial community has proved reluctant to change. Financial institutions have been sheltered from vigorous competition through regulation and legislation since the bank failures of the Great Depression. As a consequence, regulatory, legislative, and even technological changes have been resisted by those who are opposed to expanded competition in the financial industry. Revolutionary movement toward a checkless, cashless society has been thwarted. Instead, EFT technologies have been focused on evolutionary modifications in the existing financial system such as automated bank tellers and incremental improvements in the technology of processing and clearing checks.\* The future of cash and checks seem assured, at least for the next few years, but major changes are still underway which will bring significant modification to the flow of funds in our society.

## 1.1. THE NEED FOR EFT-RELATED RESEARCH

With the evolution of EFT, concern about the need for research into the nature, impact, and control of EFT has been increasingly voiced by social critics, consumer advocates, and policy makers. First, the scale and complexity of EFT systems support the need for national assessment. In the past we, as a society, have often acted as if we were unaware that such high technologies would have

\*For a further discussion of some of the factors that have slowed down the evolution of our funds transfer system, see Humes.<sup>(1)</sup>