Chapter I
Introduction to Banking Technology and Management

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ABSTRACT

This chapter introduces banking technology as a confluence of several disparate disciplines such as finance (including risk management), information technology, computer science, communication technology, and marketing science. It presents the evolution of banking, the tremendous influence of information and communication technologies on banking and its products, the quintessential role played by computer science in fulfilling banks’ marketing objective of servicing customers better at less cost and thereby reaping more profits. It also highlights the use of advanced statistics and computer science to measure, mitigate, and manage various risks associated with banks’ business with its customers and other banks. The growing influence of customer relationship management and data mining in tackling various marketing-related problems and fraud detection problems in the banking industry is well documented. The chapter concludes by saying that the banking technology discipline is all set for rapid growth in the future.

INTRODUCTION

The term “banking technology” refers to the use of sophisticated information and communication technologies together with computer science to enable banks to offer better services to its customers in a secure, reliable, and affordable manner, and sustain competitive advantage over other banks. Banking technology also subsumes the activity of using advanced computer algorithms in unraveling the patterns of customer behavior by sifting through customer details such as demographic, psychographic, and transactional data. This activity, also known as data mining, helps banks achieve their business objectives by solving various marketing problems such as
customer segmentation, customer scoring, target marketing, market-basket analysis, cross-sell, up-sell, customer retention by modeling churn, and so forth. Successful use of data mining helps banks achieve significant increase in profits and thereby retain sustainable advantage over their competitors. From a theoretical perspective, banking technology is not a single, stand-alone discipline, but a confluence of several disparate fields such as finance (subsuming risk management), information technology, communication technology, computer science, and marketing science.

Figure 1 depicts the constituents of banking technology. From the functional perspective, banking technology has three important dimensions, as follows:

1. The use of appropriate hardware for conducting business and servicing the customers through various delivery channels and payment systems and the associated software constitutes one dimension of banking technology. The use of computer networks, security algorithms in its transactions, ATM and credit cards, Internet banking, telebanking, and mobile banking are all covered by this dimension. The advances made in information and communication technologies take care of this dimension.

2. On the other hand, the use of advanced computer science algorithms to solve several interesting marketing-related problems such as customer segmentation, customer scoring, target marketing, market-basket analysis, cross-sell, up-sell, and customer retention faced by the banks to reap profits and outperform their competitors constitutes the second dimension of banking technology. This dimension covers the implementation of a data warehouse for banks and conducting data mining studies on customer data.

Figure 1. Different constituents of banking technology