TOWERGROUP

The Power of Knowledge

CRM Case Study: The Analytics That Power CRM at Royal Bank [of Canada]

026:05R
January 2001
Kathleen Khirallah

Highlights

- Royal Bank [formerly Royal Bank of Canada] is committed to a customer relationship management (CRM) business strategy that seeks to maximize the value of its customer base through the strategic use of information. The bank has sought to mine customer information aggressively in an effort to create tailored product and service recommendations while assuring a high-quality customer experience.

- Managing the quality of the customer interaction is no small task. The bank is one of the first financial services institutions (FSIs) that committed itself to a CRM strategy that would give equal emphasis to service and sales. For Royal Bank this means providing customer contact personnel with the information that allows for appropriate decision making. In this case, the bank seeks to ensure that service decisions are standardized.

- Sales and service strategies for individual customers are currently distributed to desktops in the call centers and branches. It was the manned channels that Royal Bank first sought to include in its relationship management capability. As a result, the bank is making strides toward providing individual staff members with the customer knowledge that enables them to provide a tailored, consistent customer experience irrespective of points of contact—in effect creating an enterprise-wide organizational memory.

- Royal Bank demonstrates some of the critical success factors that are often identified in organizations with well-implemented CRM projects. Aside from a multidisciplinary approach to CRM, the bank has: visible and vocal support throughout executive management; a robust data warehousing environment; an evolving corporate culture that shifts focus from business units to customers, and a willingness to take risks to improve its CRM capability.

Introduction

Royal Bank [formerly Royal Bank of Canada] has led an aggressive effort to manage the quality of its interactions with customers. In pursuing a customer relationship management (CRM) business strategy, the stated objective of the bank is "to capture the full potential of our customer base through the use of customer information to deliver the right solutions in a consistent, professional manner at every point of contact."

This TowerGroup Research Note investigates the steps Royal Bank has taken to build and fortify its CRM capabilities within the realm of customer knowledge. This Note also investigates the analytics and customer decisioning capabilities that provide the backbone of the bank's CRM activities.

Royal Bank has embraced CRM as a critical business strategy and has been actively pursuing this mission for approximately three years. While the bank has pursued technologies that enable CRM through both customer interaction and customer knowledge, it has made particular strides in the areas of customer knowledge, decisioning, and the use of advanced analytics. At Royal Bank, gathering and mining customer data to better understand and serve customers is a critical imperative that is yielding success.

Background

Royal Bank's success with CRM can be traced to a number of factors. First, the bank was an early adopter of a client information file (CIF) over 20 years ago. Second, the bank has aggressively used its customer data (a rolling 3 months of detailed transaction data and 18 months of summarized customer data online in its data warehouse) to better understand its customers and create meaningful and actionable segments and customer strategies. Third, the bank's CEO and executive team vocally and visibly support the bank's CRM efforts. Finally, Royal Bank is willing to experiment with CRM and learn from its mistakes.

It should be noted that Royal Bank is cautiously optimistic regarding its CRM efforts. The bank is very clear about the lengths that it still needs to traverse before it can declare victory. While the bank has been an early proponent of technology and advanced analytics to assist in building strong relationships with customers, there is still progress to be made on the people and business issues.
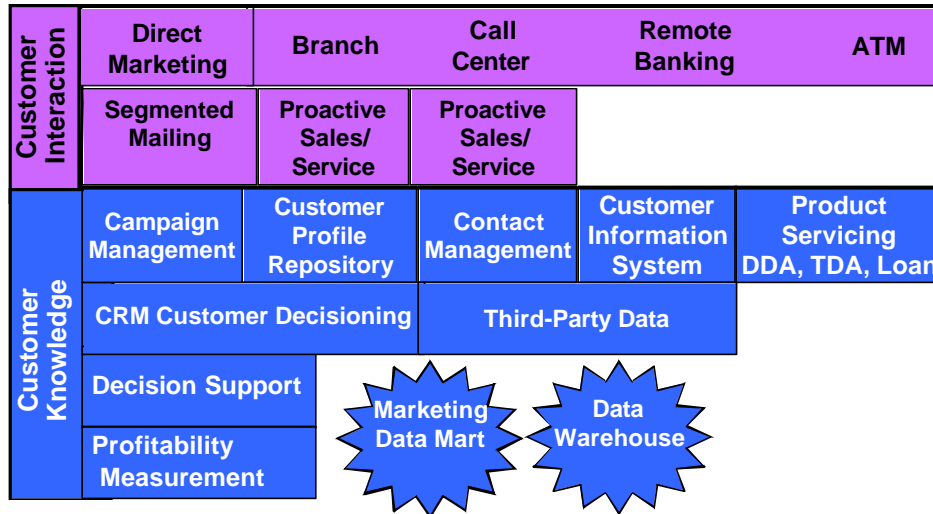
CRM relies heavily upon the integration of many technologies for success. And yet CRM is not wholly and solely reliant upon these technologies—financial services institutions (FSIs) quickly realize that properly trained employees and precisely aligned business processes play an equally important role in CRM. To gain the full value of any investment in a CRM-related technology, FSIs must place proper emphasis upon training the people who will be interacting with customers and upon the reevaluation of existing business processes to assure conformance with CRM.

Technologies Driving CRM

The technologies that can be described as CRM-related fall into two categories: gathering and mining customer data, and the execution of strategies at the customer interface. Exhibit 1 provides an overview of the key technologies within these two key spheres.

Exhibit 1
Customer Interaction and Customer Knowledge Technologies at Royal Bank

Customer Interaction	Direct Marketing	Branch	Call Center	Remote Banking	ATM
	Segmented Mailing	Proactive Sales/ Service	Proactive Sales/ Service		

Customer Knowledge	Campaign Management	Customer Profile Repository	Contact Management	Customer Information System	Product Servicing DDA, TDA, Loan
	CRM Customer Decisioning		Third-Party Data		
	Decision Support		Marketing Data Mart	Data Warehouse	
	Profitability Measurement				

Source: TowerGroup

Although customer interaction technologies are critical to the execution of a CRM business strategy, it is the customer knowledge capability that enables the creation of customer specific strategies for sales and service. Simply put, customer knowledge capability drives the CRM business strategy, and the customer interaction technologies deliver it. It is precisely these capabilities in the lower sphere, labeled customer knowledge, at which Royal Bank excels.

Overview of Royal Bank's Environment

Royal Bank was founded as Merchants Bank in Halifax, Nova Scotia in 1864. In 1901, as the business of the bank expanded across the continent, it chose to rename itself The Royal Bank of Canada. Aside from meeting the challenge of spanning the length and breadth of the country, the growing bank faced the market realities of a strong regulatory environment. As Royal Bank grew and prospered throughout the 20th century, the institution often found itself relying upon technology and innovation to respond to market realities—whether geographic, competitive, or regulatory.

Today Royal Bank is the largest bank in Canada, with assets of CAN$294 billion. The bank serves nearly 10 million individual and business customers worldwide. Within Canada the bank has the leading market share in deposit accounts and both personal and business loans. The breadth of the bank's span is apparent in its 1,300 branch offices, 4,500 automated teller machines (ATMs), and approximately 87,250 proprietary point-of-sale terminals. Given the geographic span of the bank, it's not surprising that it has actively embraced technological solutions for identifying and meeting the needs of its far-flung customer base.

Royal Bank has organized itself into five customer platforms: Personal and Commercial Banking; Wealth Management; Corporate & Investment Bank; Insurance; and Specialized Transaction

Services. Individual customers can turn to Royal Bank for deposit accounts and loans, full service and discount brokerage, mutual funds, asset management, insurance services, mortgages, card services, and small business banking. Within Canada, approximately 10 million Royal Bank customers' accounts are spread over these platforms. And therein lies the crux of Royal Bank's CRM challenge—separate and distinct business units all of which are communicating simultaneously with the same base of customers. If the bank lacks consistency in the messages communicated to these customer, the result is a sense of confusion that places the relationship with the customer at risk.

CRM at Royal Bank

As noted earlier, although Royal Bank has embraced CRM as a business strategy only recently (since 1997), the bank's commitment is anything but lukewarm. If a driving factor in pursuing a CRM business strategy was the need for consistent communications with customers across its consumer lines of business, the key enabling factor for the bank has been the wealth of historical customer data available in Royal Bank's Teradata data warehouse. As the bank sought to address the issue of consistency of approaches, it quickly realized that the challenge would be to parse customer data into its most meaningful aspects and to distribute that data to the consumer touch points.

As the bank has experimented and worked to deploy CRM strategies within its banking network, the concept of CRM divided into two areas. CRM was viewed as integral to the marketing of products and services within the bank, but it was also seen as a discipline for managing customer interactions. The quality of customer interactions was believed to be integral to the customers' expectations and loyalty with the bank. CRM was soon viewed as a discipline that not only could help Royal Bank offer the most appropriate products and services to customers but also could ensure that the customers' interactions are customized based on the individual's current and potential value as a client.

Addressing Cultural Issues

It is important to understand that the Canadian banking environment is unique and reflects the nuances of the larger social fabric. Canadians revere equality among citizens. Social norms dictate a classlessness that espouses the value of all. In banking, this translates into a sense that all customers are important to the bank and that products and services should be designed and priced accordingly. If a customer relationship is viewed as unprofitable, popular belief is that the fault lies with the bank rather than the customer.

In Canada, the onus for meaningful, profitable customer relationships rests clearly upon the banks. Royal Bank embodies this philosophy and strives to tailor its products and services accordingly. Following is a brief overview of how Royal Bank has adjusted key banking initiatives to its social environment.

Sales Culture. Royal Bank has been a long-term proponent of proactively selling its products and services to customers. Following the methodologies espoused in Managing Local Markets from Xchange, the bank has developed a sales infrastructure that includes weekly sales goals, regular sales meetings, and a system of sales incentive compensation.

What makes Royal Bank different from other organizations is that it takes these very straightforward disciplines of a sales culture and wraps around them an imperative always to match the appropriate product and service to the customer. Selling for the sake of selling is not tolerated. Rather, the bank strives to ensure that sales discussions are solidly based upon an understanding of the customer's financial needs and goals.

Service Culture. As is the case with any very large organization, Royal Bank receives it share of complaints and accolades about its service. It is particularly difficult to provide consistently good service when the breadth of the banking network spans a continent. Royal Bank's service orientation is to provide critical customer information to the points of customer contact. In essence, the bank is attempting to use technology as a distributed platform for institutional memory. The key elements that allow customers to receive excellent service in their home branches are captured and distributed across the touch points. Customer contact people still deliver "service," but they do so with an enhanced knowledge of who the customer is as well as their preferences.

Training. A critical aspect of Royal Bank's CRM initiative lies in its commitment to training staff. Unlike some other aspects of the banking business, implementing a CRM strategy requires constant reinforcement. Embracing a CRM business strategy requires more than the development of a mission statement—it requires employees to acknowledge it, believe it, and understand how the strategy will change the way they do their jobs. Within Royal Bank, the training of employees to deliver a true customer-focused business strategy is acknowledged to be the most critical aspect of the CRM implementation.
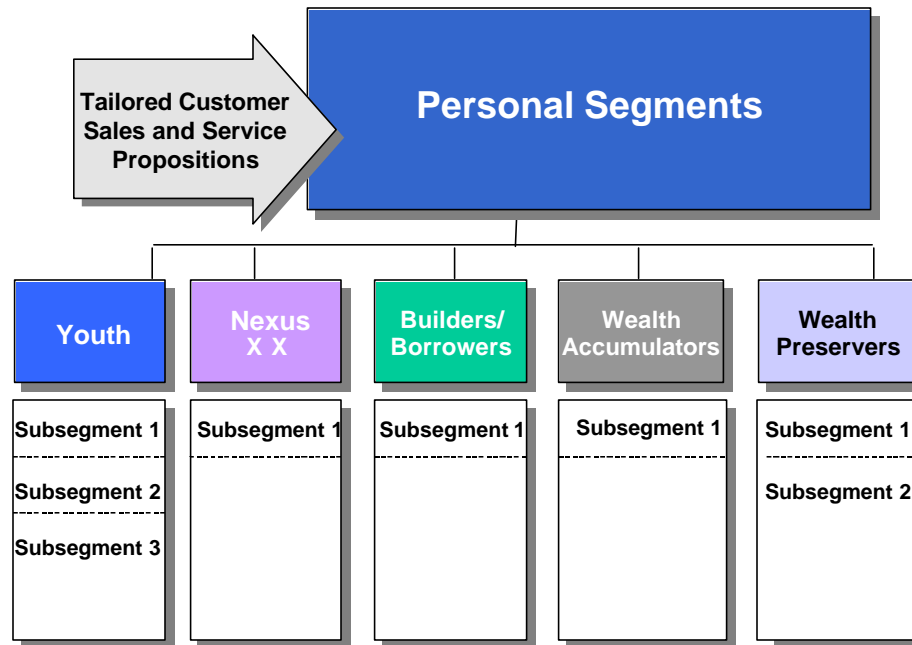
Aligning Business Processes for CRM

Centralizing Operations. In the late 1990s, Royal Bank recognized the presence of in-branch activities that were operational in nature that acted as barrier to the execution of a CRM business strategy. Since these activities were often repetitive and time consuming, the bank embarked upon a project to move routine paperwork out of the branches into centralized sites. The effort to centralize operations out of the branches took four years and was completed in early 2000. The direct impact of the transition is an increase in the time available for sales and services activity. Royal Bank estimates that the amount of time branch employees can spend on sales and service activities went from an average of 40% to 70% of their time.

Organizing Around Customers. Within the core retail bank, nine customer segments have been identified. Of the nine, five have been carved out with a purely consumer focus, as is shown in Exhibit 2. The four business segments at Royal Bank are (1) small business, (2) business, (3) farming, lifestyle agriculture, and agribusiness, and (4) commercial clients (the latter are not part of CRM activities).

Exhibit 2
Royal Bank's Five Major Consumer Customer Segments

```
                    ┌─────────────────────────────────────┐
   ╔═══════════╗    │                                     │
   ║ Tailored  ║    │      Personal Segments              │
   ║ Customer  ║════▶│                                     │
   ║ Sales and ║    │                                     │
   ║ Service   ║    └─────────────────────────────────────┘
   ║Propositions║
   ╚═══════════╝
```

Youth	Nexus X X	Builders/ Borrowers	Wealth Accumulators	Wealth Preservers
Subsegment 1	Subsegment 1	Subsegment 1	Subsegment 1	Subsegment 1
Subsegment 2				Subsegment 2
Subsegment 3				

Source: TowerGroup

While there are nine clearly delineated customer segments (5 personal, 4 business), Royal Bank currently identifies hundreds of subsegments through the combination of other indicators. Thus, the customer segment labeled as Wealth Accumulators can be subsegmented to refine strategies and tactics further. Wealth Accumulators may have a common desire to create wealth, but the means of doing so (i.e., attitudes toward investment and tolerance of risk) varies across the segment. Royal Bank has found that creating subsegments allows more precision in the sales/marketing arena and in the effort to customize interactions with customers.

This segmentation has served as the foundation for reorganizing the Personal and Commercial platform, which occurred in November 1999. This does not mean, however, that the individual lines of business have disappeared. In this new organizational plan the bank strives for a multidisciplinary approach to marketing and sales. Cross-functional teams work together to understand the segments and subsegments, and how best to approach customers with sales/marketing opportunities. Synergies are built through the fact that both customer segment managers and product managers have joint responsibilities for profit and loss.

Implementing CRM-related Technologies

As was shown in Exhibit 1, CRM-related technologies fall into two distinct realms, those that drive strategy and those that enable execution. Royal Bank has sought to implement technologies from

both areas but has enjoyed a distinct advantage in its customer knowledge infrastructure. A fuller description of the bank's analytical and data mining strengths is presented in the next section.

As the bank looked to provide consistency in interactions through the touch points, it became clear that the "manned" channels would represent more of a challenge than those that are purely automated. Royal Bank concentrated its early CRM efforts in three critical areas—direct mail; call centers, and branches. Although absolute consistency across a vast branch network is not feasible, the bank sought to provide contact personnel with actionable information to make consistent decisions.

Given the thousands of customer contact employees at the bank, it would be naïve to expect or believe that interactions with customers can be completely consistent. Royal Bank has taken a pragmatic approach that provides actionable uniform customer information to the touch points, acknowledging that bank staff will then use that knowledge as appropriate during contacts with clients.

CRM Analytics at Royal Bank

Clearly, the backbone of the CRM efforts at Royal Bank has been in the customer knowledge realm. The bank has had an unusual advantage in this regard as a result of its well-established client information file. Recognizing the value of this corporate asset to its CRM efforts, the bank has embraced a maxim of making the analysis of customer information as sophisticated as possible in a centralized back-office function so that the execution of customer strategies is facilitated for customer contact personnel. And over the years, the bank has actively sought to improve its ability to mine, analyze, and understand the data that resides in its warehouse. At present, the core responsibilities of the Strategic Marketing Research and Analytics (SMR&A) group are: (1) customer profitability measurement, (2) customer decisioning, (3) segmentation, modeling, and other advanced analytics, and (4) primary marketing research.

Staffing of Strategic Marketing Research and Analytics

The SMR&A department at Royal Bank got started in 1995 with one senior manager on staff. Since that time the staff has increased to approximately 25. At present, the staff is a diverse group with varying fields of expertise and educational background (statistics, economics, MBAs) contributing a wide range of skills and experience. The unifying factor among staff members is proven business experience and acumen.

Given the experience and diversity in the staff, the bank has consciously chosen to deploy leading-edge technologies available in financial services. The bank recognizes that an important motivation for the staff is getting the chance to use sophisticated tools in the pursuit of what are often intractable business problems. The challenge of difficult business problems and the quality of tools available are critical motivators for these highly specialized staff members.

Furthermore, at Royal Bank, there is a strong integration of market research and analytics, which is an uncommon model. Market research, analytics, and CRM client decisioning are on the same team. In many organizations, these groups compete for resources and rarely work together, missing the opportunity of leveraging each other's insights regarding customers.

Early Analytical Efforts

Although the SMR&A group began their mission in 1995, the bank has long had an interest in analyzing customer data. As an example, the bank has measured customer profitability across the retail customer base since 1992. In its current environment, Royal Bank uses the Value Analyzer profitability system from NCR to create a comprehensive view of customer contribution. Profitability measurement and the refinement of such provides a clear illustration of the bank's longstanding commitment to refining its capability to capture and mine its customer data to improve its relationships with customers. Profitability measurement is complemented by a number of other strategic client models, such as credit risk; potential; lifetime value; vulnerability; commitment; consolidation; channel preferences, etc.

An interesting aspect of Royal Bank's approach to the use of advanced analytics is the bank's fervent desire for success. As the bank addressed a variety of business problems, it understood that the analytics involved would be considered "suspect" unless superior results could be demonstrated. As an example, as the SMR&A group began providing sales leads to branches in a pilot program, it knew that strong sales results would foster confidence within the pilot branches and would help the rollout of a centralized sales leads program. In the early days, lists provided to the sales staff comprised only the top 10% prospects to ensure successful calls. Initially, it was difficult to convince sales people that they could meet their sales targets from a smaller universe of names. The increased quality of the sales lead more than compensated for the decrease in volume of leads.

Customer attrition provides an example of a business problem that Royal Bank recognizes as difficult to address, especially partial attrition. Although the bank had access to volumes of customer history, the required time series and individual client's patterns make this task difficult. Since customers tend to close accounts over time, the bank finds it difficult to identify the early warning signals when a customer relationship is just starting to deteriorate. By comparison, it could predict the likelihood of a customer terminating his or her entire relationship with Royal Bank very effectively. As a result, product attrition rather than customer partial attrition became an early focus of the SMR&A group.

Current Business Challenges

While the early efforts of the analytical group were often product focused, the purview of the group has widened significantly to include the optimization of the customer experience. Besides developing product campaigns that are accurately targeted to customers, the SMR&A group has now expanded to include two key customer-oriented strategies:

Marketing & Sales emphasizes predicting the products and services that individual customers are likely to purchase in the near future. Rather than starting with a product or service, the group analyzes the needs of high-value potential customer segments and determines the products and services with high propensities for purchase in the customer segment or subsegment. The specific product and service recommendations are appended to a customer profile database that is displayed on the desktop of contact personnel across the organization. With the application of advanced analytics to the marketing and sales process, Royal Bank routinely achieves marketing response rates of 15–20%, and rates of 30–40% are not uncommon for high-performing cells.

Customer Experience emphasizes ensuring the customer interaction is appropriate and consistent for the customer regardless of the channel being used. Within Royal Bank the imperative to

manage the customer experience is the realization that every interaction can enhance or damage a relationship. Since the vast majority of interactions with customers involve a request for service and are not clear sales opportunities, the bank has put a heavy emphasis on standardizing the decision making related to customer service. As an example, proactively setting a courtesy overdraft (OD) limit for every customer and ensuring that these decisions are managed centrally allows Royal Bank to standardize interactions.

Building Individualized Customer Relationships

It is important to recognize that relationships with customers vary significantly. Every Royal Bank customer has a relationship with the bank, but the nature and definition of the relationship vary according to the needs and requirements of the customer. As an example, some customers have no interest in being recognized by bank personnel when they contact the institution—for these customers low price or speed of service are the dominant properties of the relationship. For other customers, highly personalized interactions are the most important aspect of their relationship with the bank.

The critical challenge for Royal Bank is to recognize that it must act in accordance with the wishes of its customers while still trying to achieve its own strategic objectives. If customers do not emphatically make known their expectations of the organization, the bank attempts to predict what the customers' expectations are based upon prior observed behavior. This complex effort is essential to managing the customer experience effectively. However, strong customer relationships are not built as a one-way street. Royal Bank believes that its competitive advantage lies in its ability to optimize between the client's needs and the bank's objectives.

To facilitate that optimization, SMR&A at Royal Bank has grouped customers into four categories according to its strategic objectives:

1. Retain existing profitable customers
2. Grow and strengthen customer relationships
3. Manage and control customer credit risk
4. Optimize costs

Customers are scored according to their profitability, credit risk profile, vulnerability to attrition, and projected lifetime value. Then they are placed in one of 14 categories depending on their scores across the bank's four strategic objectives. Essentially, the scores assigned to customers drive the CRM strategy creation within the bank, whereas the segment code serves as a proxy for the client needs.

Analytical Techniques for CRM

The SMR&A group at Royal Bank is committed to using a variety of analytical techniques. From experience the bank has learned that no one technique can support all of its business requirements. Typically the SMR&A group will try several techniques concurrently and then select the most appropriate approach for the business problem to be solved. Exhibit 3 lists some of the techniques commonly in use at Royal Bank, albeit the nonparametric approaches are used to a lesser degree.

Exhibit 3
Parametric and Nonparametric Modeling Techniques

| Parametric Models	Analysis Techniques (The user selects an appropriate model for the data to be analyzed and then estimates the parameters of the model.)
Genetic Algorithms	A computer-based method of generating and testing combinations of possible input parameters to find the optimal output. Uses processes based on natural evolution concepts such as genetic combination, mutation, and natural selection.
Neural Networks	A complex nonlinear modeling technique used to predict outputs (dependent variables) from a set of inputs (independent variables) by using an activation function to make nonlinear transformations of linear combinations. Neural nets are often applied to predict future outcome based on prior experience. Example: A neural net application could be used to predict who will respond to a direct mailing.
Factor Analysis	A statistical technique for uncovering common sources of variability in data. Example: Used to uncover the underlying factors in investment returns. Limitation is that the factors are statistical constructs and are not easily associated with economic or financial variables.
Cluster Analysis	Algorithms for finding groups of items that are similar. Example: An insurance company could cluster customers according to income, age, types of policies purchased, and prior claims experience. Divides a data set so that records with similar content are in the same group, and groups are as different as possible from each other.
CHAID	A statistic that assesses how well a model fits the data. In data mining, it is most commonly used to find homogeneous subsets for fitting categorical trees as in CHAID. It relies on the chi-squared statistic to split the data into small, connected data sets.
Statistical Regression	Equation that allows algebraic expression of the relationship between two (or more) variables. In particular, indicates the extent to which one can predict some variables by knowing others, or the extent to which some are associated with others.
Logistic Regression	A generalization of linear regression. Used for predicting a binary variable (with values such as yes/no or 0/1). Example: Modeling the odds that a borrower will default on a loan based on the borrower's income, debt, and age.
Non-parametric Models	Used when certain assumptions about the underlying population are unknown. Often more powerful than parametric tests for detecting population differences when certain assumptions are not satisfied.
Bayes Theorem	A technique for estimating the conditional probability of a cause given that a particular event has occurred.

Source: TowerGroup

Today, the SMR&A group at Royal Bank runs 35 separate models on a monthly basis. These models can be broken into two primary groupings—those that solve strategic business problems and those developed for tactical issues. The models categorized as strategic are related to value propositions and tailoring the client experience, and the tactical models typically have a product or revenue focus.

Decisioning Capabilities

While the advanced analytical techniques described above allow Royal Bank to mine customer data, it is the rules-based decisioning engine that moves the bank closer to putting the data into action. Each model is run on a monthly basis to produce scores and statistical evaluations of customer behavior. The decisioning engine incorporates these scores so that decisive action can be taken when interacting with customers. As shown in Exhibit 4, Royal Bank takes the output of the modeling process along with other selected internal and external data to provide input to the decision engine. These data points combined with defined business rules in the decision engine, create actionable customer strategies.

Exhibit 4
Overview of the Modeling and Decisioning Process at Royal Bank
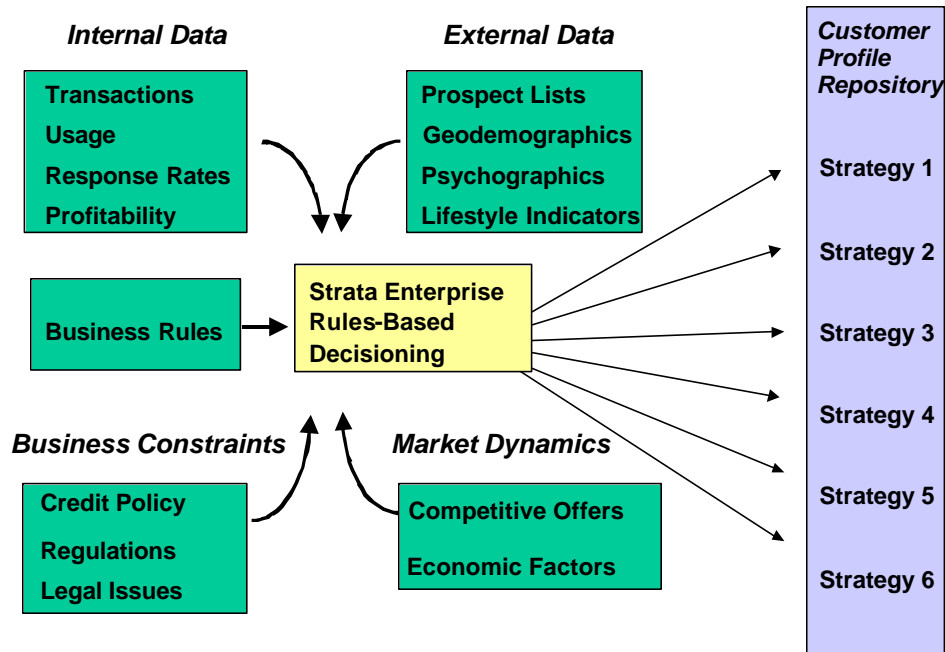
Source: TowerGroup

Actions resulting from the customer strategies are stored in a Customer Profile database that is displayed to call center and branch personnel on their desktops. Royal Bank plans to display these actions to other channels such as the Internet in subsequent phases of its project.

Royal Bank's capability for creating these customer-specific strategies and profiles involves the use of an advanced decision engine. For a number of years the bank has been using the Strata Enterprise

rules-based decision engine from American Management Systems (AMS) to make consumer decisions.

Conclusion

Serving the consumer market in Canada for financial services is an enormous undertaking. The geographic span of the country is huge, and the needs of consumers are varied and complex. These realities have forced Royal Bank to rely upon technology to meet the requirements of the consumer financial services market. And as the bank has sought to refine its business strategies to include a relationship management component, the need for technology has become even more critical. Yet the bank recognizes that technology alone will not provide it with a comprehensive CRM business strategy.

An interesting aspect of Royal Bank's approach to CRM is that it does reflect a balance among technology, people, and business processes. While technology powers the advanced analytics that allow the bank to create meaningful and appropriate sales and service strategies, it must also rely upon well-trained personnel and CRM-based business processes if it is to be successful in building relationships with clients. The acknowledgment of this reality and the willingness to allocate resources accordingly separates Royal Bank from most other FSIs.

Within Royal Bank, the goal of CRM is to ensure that interactions with customers are consistent and appropriate across all the delivery channels. The bank has developed this goal out of the realization that its separate platforms serving diverse markets could easily develop conflicting customer messages if coordination efforts were not initiated. Consistency and appropriateness in customer messages can only be achieved if critical customer information is widely distributed among all points of customer contact.

At present, Royal Bank is storing customer sales and service strategies in a centralized profile repository. Branches and call centers are supported by these actions contained in the repository and are the two primary channels involved in the bank's CRM implementation. The bank's unmanned channels, such as the Internet, have not yet been incorporated into the project but have been identified for inclusion in later phases.