

View Point



Technology Trends in Mortgage Lending - Mortgage Marketing

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Mortgage Marketing takes Centre-stage: Introduction

Till a few years ago, one could say that mortgage lenders have never had it so good. With rising home prices, growing refinance volumes and a buoyant buyer base, the challenge shifted from creating growth to managing growth. Attractive markets do have their share of challenges as well, and in this case, increasing competition and consolidation across large mortgage lenders have led to greater competition to acquire the borrower. Mortgage marketers who control the reins of sustained organic growth for large lenders are gaining greater prominence, and the larger organization is watching their moves far more closely.

The 2000's witnessed a great deal of activity among large lenders in sprucing up their core systems for 'next-generation' lending, acquiring for regional presence and customer base, consolidating systems, technologies and joining the bandwagon towards Service Oriented Architectures. While all of this is still relevant, marketing and the front-end is taking centre-stage in driving customer and revenue growth in an increasingly competitive marketplace.

This paper is the first in a series of Infosys' viewpoint on "Technology Trends in Mortgage Lending". In this article, we have highlighted key technology trends in mortgage marketing that are prevalent among lenders, in gaining future competitiveness.

Mortgage Marketing: Strategic Goals

Mortgage marketing plays different roles across the customer acquisition and management lifecycle, from building awareness to managing leads and subsequently customer loyalty. The schema below sums up key processes in mortgage marketing that bear relevance to the technology trends we have outlined in the subsequent sections.

KEY STRATEGIC OBJECTIVES	COMPONENTS OF THE MARKETING PROGRAM		
	Relevant Processes	Sub-Processes	Objectives
Increase market penetration through effective customer acquisition initiatives	Awareness/ Branding	Advertising, Branding, Collateral Creation	Maintain brand consistency, manage branding content, lower cost of routine communication, better collaboration with external partners
	Lead Generation	List Management, Segmentation, Scoring, Campaign Management	Pick the right lists/prospects for the campaign, effectively manage campaign design, execution / results tracking, and respond faster to customer actions
	Lead Management	Qualification, Distribution, Tracking, Follow-up	Manage leads effectively in terms of getting leads to the appropriate sales channel for action, and adequately qualify leads upfront for better distribution and tracking
Increase relationship value of existing customers	Cross-Sell /Up-Sell	Propensity Analysis, Offer Distribution & Effectiveness	Successfully cross-sell and up-sell in other areas through making the right offer to the right customer at the right time across customer touch-points
	Customer Retention	Loyalty, Customer & Retention Management	Proactively manage and measure customer loyalty

Table 1.1

We believe that marketing objectives for any mortgage bank, irrespective of size (though scope of the larger business of the financial institution may have an impact) are 2-fold:

- Increase **market penetration** for customer acquisition
- Increase **relationship value** of existing customers, both within the mortgage line of business and across the larger enterprise

While the degree of importance for the goals stated above may differ from lender to lender, the imperatives for full-service banks versus pure-play originators have an impact in defining the path to competitiveness. It is an established truth that the cost of acquisition of an existing customer is a fraction of either acquiring a new customer or pulling away one from competition. At the same time, realizing the lower costs itself poses a tremendous challenge for large lenders and full service banks, which has led to increasing focus on use of technology.

Mortgage Marketing: Technology Trends

Technology investments in Mortgage marketing have aimed at achieving the stated goals through greater efficiencies in the processes and sub-processes listed in the schema above (Table 1). In our view, there are 5 key technology trends that will drive competitiveness for mortgage lenders, whether they span the full spectrum of banking and lending services, or play in the consumer lending and mortgages space. These trends are:

- **Trend 1:** Leveraging Geo-demographic data, GIS data and segmentation applications for prospect targeting and campaign design
- **Trend 2:** Integrating databases and undertake data-warehousing/ EAI initiatives to create a Holistic Customer View, in order to deepen existing relationships
- **Trend 3:** Deploying Data Mining and Predictive Analytics methodologies and tools to ensure effective prospect targeting, cross-sell and up-sell initiatives and marketing campaigns
- **Trend 4:** Integrating Channels more effectively through integration of data, and deployment of rules and workflow technologies
- **Trend 5:** Automating Marketing through leveraging rules and workflow technologies in campaign execution and management

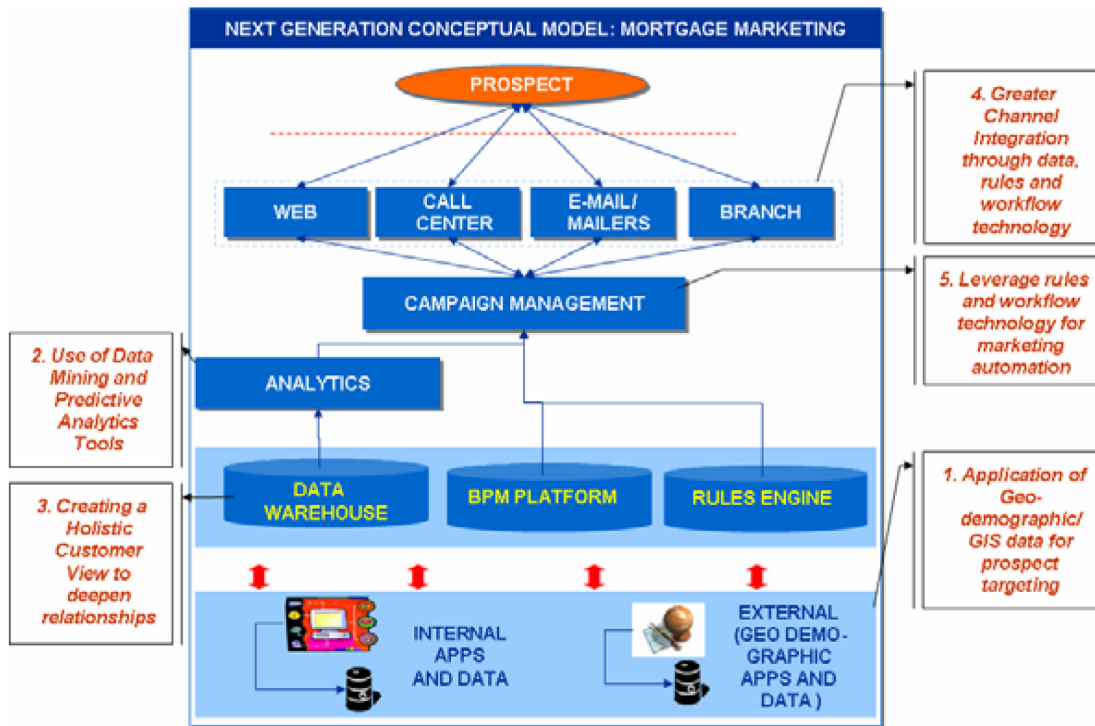


Figure 1.1

A closer look at these trends reveals that they correspond to 3 key themes. One of them is [the growing integration of channels to provide similar customer experience](#). The other is [leveraging certain infrastructure components like workflow and rules technology](#) to automate marketing decision-making and execution as much as possible. The third is the [emergence of 2 key data streams, and greater sophistication in their usage](#) through analytical tools and techniques to not only target but to also 'predict' potential buyer behavior and action. The schematic depicted below summarizes the themes that drive the technology trends listed.

The above trends vary in the degree of maturity and adoption among mortgage industry players. To better understand the level of sophistication of these trends, we mapped the above trends along an adoption-maturity matrix. While some trends like data mining and predictive analytics score high in terms of both adoption and maturity, certain other trends like application of geo-demographic and GIS data have yet to be adopted in a large scale by the industry.

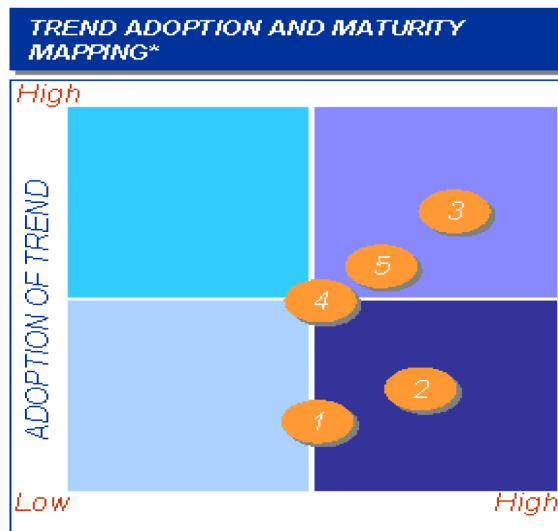


Figure 1.2

Trend 1: Application of Geo-demographic/ GIS data for prospect targeting

One of the objectives of the Mortgage Marketing function is optimizing marketing spend through targeted campaigns, both in terms of content and coverage. The enabler -- understanding existent customer segments in the areas served by mortgage lenders either through direct or indirect channels.

Mortgage Lenders are attempting at building a better understanding of target market potential and buyer propensity across locations to help them better focus their targeting efforts. Traditionally, the following external data types (listed on the following page) have been used by Lenders to conduct customer segmentation and analysis.

Data Type	Description
Demographic	Describes the age, income, educational level, and occupation of the customer and the members of the household
Psychographic	Describes the attitudes of the customer toward critical financial concepts such as risk, liquidity, and security
Geo-demographic	Describes the attitudes of the customer based on lifestyle indicators, such as where the customer lives (urban vs. rural) and the customer's socioeconomic strata. Geo-demographic data is important in segmentation analyses, since wealth is a relative concept in the various geographies of the US
Geo-spatial / GIS*	Digitized Maps of territories, counties and neighborhoods, with overlying data like population, geo-demographics, affluence of neighborhoods, presence of stores, outlets, etc.

Table 1.2

Mortgage lenders are increasingly using these data types in conjunction with each other to gain deeper insight into target market potential and buyer propensity. Since one of the key variables of targeting marketing campaigns is geographic coverage, Geo-demographic and Geo-spatial data is becoming important in terms of sourcing and analysis. Geo-demographic and Geo-spatial data are being used for activities pertaining to marketing analysis, penetration, campaign execution etc.

Table 1.3 summarizes the various analyses that can be carried out through these data series:

Data Type	Analysis Areas	Description
Geo-spatial/ GIS Data	Market Analysis and Strategy	Market area delineation and mapping, potential and market share analysis, identification of underserved markets, identification of elasticity of demand etc.
	Target Marketing	Area, customer-based market segmentation, Automated Direct Mail Marketing, GIS-based Multiple Listing Services
	Delivery Network Planning	Branch and marketing office location and target allocation , identification of branch overlaps and underserved markets
Geo-demographic Data	Underserved Area Penetration	Lenders analyze addresses and appended demographics to determine the institution's lending practices and penetration into underserved areas
	Product Creation	Geo-coded data is accessed to analyze associated demographics for areas to which it is lending. This aids in customized loan programs and products for targeted lending
	Loan Portfolio Valuation	The secondary marketing unit analyzes geo-demographic data to determine the value of a loan portfolio for loans that the institution sells on the secondary market

Table 1.3

As illustrated in the table, we envisage GIS and Geo-demographic data and applications to play a greater role in mortgage marketing as programs become more integrated across lines of lending and retail banking businesses and leveraging customer relationships gains prominence. For example, Geo-demographic analyses can play a major part in improving the cost effectiveness of direct mail. By undertaking a customer profile exercise through geo-demographic analysis, a lender could easily target key neighborhoods for direct mail as opposed to the random mailing that often takes place. Suppose,

for example, that a lender identifies that 30 percent of its customers for high value mortgage fall into “Affluent suburban housing”. Focusing the marketing campaign on neighborhoods of this group will likely produce a much higher chance of reaching potential customers than a campaign aimed at the population at random. Similarly, Geo-demographics could be used to identify credit risk of specific market areas, thus reducing exposure to segments with potential credit recovery issues.

The deployment of [Geo-demographic systems and Geo-Spatial tools](#) (or Geographic Information System Applications) [to analyze and target customer segments or “clusters”](#) has given rise to several offerings in the supplier market: (a) Geo-demographic/ Geo-Spatial data & (b) Geo-demographic systems and Geo-spatial models.

Table 1.4 describes these 2 concepts as well as their application in mortgage marketing efforts:

Trend	Description	Service Offerings (Illustrative)
Geo-Demographic and Geo-Spatial Data	<ul style="list-style-type: none"> The market for Geo-demographic data is characterized by off-the-shelf products that give a snapshot of the important population types within a locality. These are based on the single most important population group and are given labels that try to summarize this key population group. Traditionally, geo-demographic data was based on census data only, but of late, other data sources are also being used for analysis (for example, credit activity, retail accessibility, unemployment rates etc.). This also incorporates “lifestyle databases”, which include Demographics, Socioeconomics and Consumer lifestyles (including hobbies & expenditure). Geo-spatial data includes data pertaining to neighborhood types, presence of schools, retail stores, hospitals etc. 	<ul style="list-style-type: none"> Providers of digitized maps include new entrants like “Google Earth” Data base distributors provide geo-demographic data as well as indices/ segmentation based on analysis of data sets Marketing Indices are provided by Experian. (E.g. MOSAIC - a geo-demographic segmentation system with about 12 group classifications based on various parameters) Lifestyle databases are provided by Computerized Marketing Technologies, National Demographics and Lifestyles, International Communications and Data etc.
Geo-demographic and Geo-Spatial Tools	<ul style="list-style-type: none"> Geo-demographic packages include <u>database or spreadsheet type functions for handling and visualizing spatial data</u>, whereas GIS incorporate a set of functions relating to the <u>analysis of spatial data such as buffer and overlay routines</u>. In some packages, more sophisticated statistical and mathematical routines are available (regression and correlation, location-allocation models, etc.) Geographic Information Systems offer an integrated 	<ul style="list-style-type: none"> Multiple vendors support site analysis, customer identification and targeting, campaign management etc. , Claritas, Experian, etc. that provide lifestyle segmentation tools, marketing analysis applications and market size projections

Table 1.4

A number of lenders have already laid out plans to leverage Geo-demographic systems and Geo-Spatial tools. For example, a leading auto finance company uses geo-demographic applications to facilitate cross-sell between auto buyers and mortgage prospects. On a different note, a top five bank leverages customer lifecycle segmentation to position products appropriately along the customer life-cycle. For mortgages, such concepts hold significant potential, especially if a lender were to track prospects that would go in for refinancing, second homes, buy their next car or even fund their child’s education, based on their geo-demographic profiles.

Trend 2: Use of Data Mining and Predictive Analytics Tools

Large Banks with mortgage businesses (as well as pure-play Lenders) face stiff competition in terms of customer acquisition as well as managing existing customers (customer retention). The latter becomes key in maximizing profitability through the servicing life-cycle. Lenders have realized the need for greater insights into customer behaviors to effectively tackle these problems.

Most mortgage banks, therefore, have launched data warehousing initiatives to first capture and store customer and transaction data and then ‘mine’ through this data using analytical tools to obtain a deeper understanding of customer behavior. These analytical tools aim at increased profitability through enhanced cross-sell/ up-sell and more effective sales and marketing campaigns for improved customer satisfaction and loyalty.

Analytical tools are now becoming increasingly sophisticated, and advanced analytics led strategies are helping in addressing typical marketing challenges faced by these institutions:

Challenges	Analytics-led strategies
Greater and more effective Cross-Sell	Use analytics to identify prospects with detailed profile/ behavioral information, thus offering products that are most suited to their needs. Make use of specific life cycle driven triggers to improve the effectiveness of cross-sell.
Focused Customer targeting	Develop complex analytics models with multiple variables to calculate product propensity for each category of customers
Enhanced customer satisfaction	Reduce the number of one-size-suits-all blanket outbound marketing contacts made on any channel and instead make use channels that are most 'near' to the identified customer segment
Reduce customer turnover	Identify profitable customers who might switch over and using analytics to develop customized offers to that will help in renewing the customer relationship in advance

Table 1.5

Data Mining

Leading mortgage players are using a combination of data mining techniques and behavioral modeling to prospect, acquire and retain customers by identifying and profiling prospects before they take action.

Leading banks are deploying sophisticated tools to analyze mass of customer data for behavioral patterns resulting in a better understanding consumer behavior, forecasting product demand, managing and building the brand, tracking performance of customers or products in the market, and driving incremental revenue. Data mining employs the “law of large numbers” and the principles of statistics and probability to address issues around decision-making in uncertainty.

To avoid the risk of surprises in the areas of data quality and data access, these banks are also making definition, documentation and design for data quality a critical success factor in the data mining project.

Predictive Analytics

Predictive analytics is an important technology trend and logical advancement in mortgage business intelligence landscape. Leading companies are directing most of the new investments in business intelligence to predictive analytics with an aim to gain incremental revenue opportunities though superior predictions about consumer buying behavior, product pricing and related market dynamics. Predictive analytics makes use of better and more sophisticated algorithms to track customer behavior which when combined with improved processing and testing capabilities result in successful new predictive applications.

Predictive analytics techniques consist of methods of directed and undirected customer behavior discovery, relying on advanced techniques of statistical algorithms, neural networks and optimization, parallel processing etc. to prescribe and predict actions based on discovering and applying patterns in customer behavior data.

Predictive Analytics builds upon the existing investments in Data Warehousing and Data Mining techniques and features. It has successfully proliferated into marketing and customer retention applications that support prospecting and customer acquisition, customer value and churn management, campaign optimization, and fraud detection.

Predictive analytics has several advantages vis-à-vis traditional data mining techniques. These include use of prescriptive methodologies that identify correlations between multiple variables thus identifying potential actions, help in developing new hypothesis (and not just its analysis) and use of advanced techniques to identify discontinuous data changes.

Large US mortgage and banking players are making significant investments in data mining and predictive analytics technologies. For example, a leading auto finance company is currently implementing an enterprise-wide customer data warehouse that will help achieve revenue and profitability improvement through better understanding of customer data. Similarly, a large full service Bank applied data mining and predictive analytics to identify customers who could go in for a potential refinance leading to better targeting and campaign management. Each such borrower was given a refinance probability score along with a classification of desirable or undesirable on other criteria, which was then used to develop marketing campaigns aimed at retaining the desirable customers.

Trend 3: Creating a Holistic Customer View to deepen relationships

One of the major challenges facing mortgage organizations in executing effective marketing programs is the absence of a single, accurate, consistent, and timely customer view that cuts across applications, systems, business units and customer touch points.

There are several key benefits of creating and leveraging a single customer view such as:

- Gaining revenue and profitability upside through improved customer cross-selling and retention
- Delivering a better, more-consistent and more-valued customer experience
- Delivering cost reduction by providing a platform for consolidation of marketing infrastructure and standardization of processes
- Enhance marketing effectiveness by fixing data-quality issues that result in manual reconciliation and wasteful sales/marketing expenditure

However, most mortgage lenders are constrained in achieving a holistic customer view. The reasons for the same can be attributed to the state of current transaction systems, level of integration, or even the way data has been treated historically in the organization:

- Multiple disconnected transaction systems – borrower data spread across many different transaction systems, data marts, and external marketing databases and use different tools and competing rule sets. This can be partly attributed to the multiple origination and servicing systems, and the inorganic growth patterns followed by companies. The result is fragmented, conflicting and non uniform customer information that's difficult to use.
- Multiple poorly integrated technology components – data spread across a wide mix of over-lapping technologies resulting in integration challenges
- Data decay in customer information files - Data not updated/extended on a regular basis resulting in wasted marketing expenditure. In addition, lack of well laid out data definitions for existing database systems.

Trend	Description
1. Enterprise Data Warehouse (Mortgage Data Repository)	An Enterprise Data Warehouse creates a central source for all of the mortgage lender's customer reference data (e.g., names, addresses, phone numbers, SSN, account numbers, customer attributes, etc.), or the "single source of truth" concerning its customers. To derive the benefit of a complete view of an mortgage customers, banks are leveraging a range of data quality functionalities along with the data warehouse.
2. Integration middleware	The Integration middleware is used to integrate a wide variety of enterprise information, applications, databases and files. While some of these solutions enable real-time access, they are primarily focused at the transaction level and attempt to tie transactions together across multiple systems. This solution can be either message-based, based on an EAI or an application server.
3. Customer Hub Based Mortgage Data Integration	The hub based data integration solution consist of a central hub of customer information with linkages to leverage data cleansing and integration services and other such tools to distribute information to systems that need it (thus combining the benefits of data cleansing, data matching, and data management with integrated data ownership and administration in a single solution).

Table 1.6

Several technology themes are emerging to address these challenges. These themes are increasingly being deployed by Banks and Lenders to enable them in integrating diverse customer data and thus realize the desired benefits stated above. Key among these technologies are Enterprise Data warehouse, Integration middle ware and Customer Hub based Solutions. While Enterprise Data Warehouse and Integration middleware technologies have been implemented by several mortgage lenders, Customer Hub based solutions are still nascent in terms of adoption. Using these technologies, banks are building a central reference file for customer data (the repository or by linkages), creating accurate and consistent information within the reference file, and building a way to share customer data throughout the organization.

Customer Data Integration (CDI) is one of the hottest new markets in enterprise applications and deserves special mention. CDI encompasses the technology, processes, and services that enable an organization to create a single view of a customer across all of its applications, databases, and customer data sources. The crux of the data management problem most companies face is the inability to complete the customer view when most of the systems are isolated and independent.

CDI systems extract critical customer information from the multiple customer data sources and use business and data quality rules to validate that the data is correct and meets business standards. CDI solutions can also update and enhance the customer data with internal and external information, and store, manage and maintain the same to provide the best customer information the entire mortgage organization. CDI represents a distinct shift away from past data management efforts that focused on the technology and after-the-fact customer data cleansing towards more pro-active data management.

Several large mortgage players have embarked on initiatives aimed at achieving a single customer view. For example, a leading full service bank is currently focusing on customer data consolidation exercise to have a holistic view of customer across different lines of businesses. This, along with several other projects in the area of customer analytics, cross-sell & retention and consolidated origination is aimed at helping the Bank realize its goal of becoming a top ten mortgage lender in the country. The expected benefits include increased cross-sell among mortgage customer, increased mortgage sales to bank customers, and greater efficiency in mortgage operations.

Trend 4: Greater Channel Integration through data, rules and workflow technology

While the internet, call-center, kiosk and the branch play a greater role compared to mere product and information search, mortgage marketers continually face challenges in managing customer expectations of:

- a. Gaining flexibility of **choosing the channel** for pre-purchase, purchase and post-purchase transactions
- b. Ensuring **continuity of conversation** when a customer moves from one channel to the other
- c. Providing a **similar and consistent experience to the customer**, that manifests from the organization’s brand and customer promise, irrespective of the desired channel

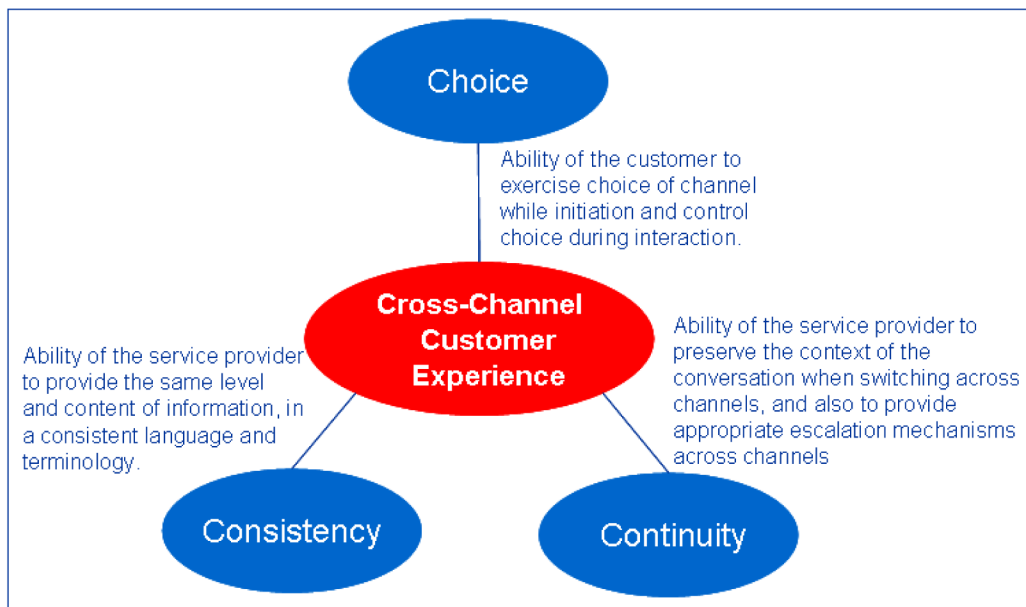


Figure 1.3

While these three “channel imperatives” apply to most multi-channel service providers like travel agencies, telecom services providers etc., selling mortgages across channels has added complexity:

- greater customization of the product is taking place due to more awareness and
- this leads to a need for greater consultative selling, and deeper knowledge of both customer needs and levels of customization
- the lender has to move quickly in order to extend the customer transaction from pure “rate-shopping” to an actual sale

Lenders are realizing the importance of these considerations. In addition, the proliferation of the internet and wireless communication has exposed customers to higher levels of self-service in terms of information search, rate comparison, product selection and finally purchase. Prospects are using internet to shop for rates and compare rates across lenders, brokers etc., shortlist and select property, configure and understand the appropriate product that suits their needs etc.

Lenders are sprucing up their own act to provide all of this to the customer and even more. Increasingly sophisticated systems at the point of sale, and loading greater functionality at the front-end, that is directly accessible to the customer, has become an imperative for Lenders. In addition to this, integrating the call centre with the web, providing enriched and similar knowledge and functionality to the call center executive as well as to the branch/ loan officer selling the loan is critical to providing consistent customer treatment across channels. Lastly, factoring an existing relationship into the product-price as well as the level of treatment is a key requirement for customer retention strategies.

Hence the online model has take centre-stage in a Lender’s strategy for customer acquisition and origination, and other channels - the call center, branch, etc. are integrating with this increasingly dominant channel. The table below details the activities being undertaken by Lenders to address these considerations:

Channel Integration Objective	Trend	Description
CONSISTENCY	Common business rules repository	Consistency across channels is being enabled by the implementation of consistent rules related to product selection, pricing, stipulations and fees across channels. Rules that are typically 'hard-coded' in application logic are being extracted and housed in 'consolidated rules repositories'. These rules are then exposed as a 'service' to all front end applications.
	Common process models	Lenders are attempting to ensure consistency of key marketing processes across channels. For example, a borrower should experience the same prequalification process via the call center as she would over the web. This process consistency is being enabled by the use of common process models.
CONTINUITY	Holistic customer view	In order to ensure that a borrower experiences a continuous transaction across channels. It is imperative to implement a holistic customer view . These technologies have been described in detail in the 'Holistic Customer View' section of this report.
	Integrated transaction databases	Lenders are in the process of integrating transaction data across their core processing systems. In some cases this is enabled by replication of data into a common physical repository which is then accesses by marketing applications (example the website). In other cases logical integration is being achieved.

Table 1.7

Trend 5: Leverage rules and workflow technology for marketing automation

Lenders have retained focus on marketing automation with a view to enhancing speed or response, predictability and market penetration. This focus has been enabled by technologies relating to automation, data management and analytics. Functions that are typically included under the purview of marketing automation include database procurement, list management, campaign execution, management of loyalty programs, contact center management and lead generation.

Marketing automation has been driven through various sourcing models including managed services and partial / complete outsourcing of functions. From a service provider perspective, third party agencies and ASPs exist for database management, campaign management and execution, e-mail marketing and analytics. Software vendors including CRM software providers co-exist to provide one or more services to the lender. Marketing services firms providing e-mail delivery offer clients access to some of their campaign tools, allowing more collaborative (or self-managed) campaigns.

Banks are increasingly outsourcing more strategic functions and deploying applications for better management of the marketing functions in the organization. Banks are also looking at consolidating the number of outsourced service providers for different services.

While marketing automation has traditionally been an end-user sale focused on functionality, we are now seeing a number of vendors emphasize broader, more robust platforms and scalable architectures. The following trends are becoming increasingly from the point of view of marketing automation:

Trend	Description	Technologies
Real Time Marketing	Mortgage banks are attempting to optimize every customer interaction. This is enabled by ensuring that the marketing response is based on real-time information. For example, certain patterns of buyer behavior on a web-site may invoke a automated invitation to chat – in order to consummate the cross-sell or to offer advice at a critical phase of a transaction.	Marketing analytics is becoming integral to high-end marketing automation solutions. Some vendor technologies provide tightly integrated marketing analytics, while others feature add-on data mart or reporting modules using third-party platforms like Business Objects, Cognos etc.
Workflow driven campaign management	Multi-step campaign requirements are getting more sophisticated, requiring products automate campaign flow and event handling to provide more dynamic dialogs with the customer. Workflow componentization and reuse are also gaining importance as companies struggle to manage hundreds of different, overlapping campaigns.	While workflow is often listed as a foundation component of most CRM solutions, marketing vendors focus on user- (not programmer) defined workflows that can reach out to non-CRM users (via e-mail), for which time-based and repeatable processes for many customers goes beyond the offerings of most CRM vendors.
Rules and models-driven lead management and retention	Lead Management vendors and service providers are now offering not just lead qualification, but also lead routing and follow-up services	This is being enabled through the application of application of rules-based lead qualification, integration of lead management systems with sales applications and channel management systems, and application of rules-based technologies to campaign management and retention programs.

Table 1.8

Conclusion

To summarize, this paper attempts at identifying the trends that play a key role in enhancing the effectiveness of mortgage marketing. These trends are at varying levels of maturity in terms of their adoption by lenders, and the degree of impact is also dependent on the categories of business the lender is in. For example, customer data integration and the need for a holistic customer view could be of much greater relevance to a bank with large lending operations compared to a pure-play lender. However, we believe that each of these trends would play a role irrespective of their nature of play in the market.

We also believe that some of these trends would apply to other, larger technology initiatives at mortgage banks. For example, deploying rules and workflow technologies at origination and fulfillment processes would have an impact on these trends being adopted for mortgage marketing. Therefore it would be interesting to evaluate these trends in the context of how some of these technologies are being adopted by lenders across other lending processes.



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