The evolution of Customer Analytics in Financial Services:

Where have we been and where are we going?

An industry Point of View from FlowTracker Analytics Inc.

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Where have we been and where are we going?

Banking leads many industries in the application of analytical technologies to business problems. We can gain some interesting insights by reflecting on where we have come from over the past 30 years to gain perspective on where we are going. In this article I will provide a **retrospective view of bank analytics evolution** to highlight emergent patterns that may inform your thinking about where your strategy should be heading.

Let's start by laying out two key timelines in parallel - **major events** affecting our industry and **major regulatory changes** - as a baseline. There is a distinct pattern of new regulatory regimes following closely after major industry events, which should come as no surprise to the members of this community.

The 80s were marked by interest rate peaks and a prolonged inverted yield curve which allowed interest rate risk to wipe out the profitability and capital of most of the Savings & Loan sector. This put Asset & Liability / Interest Rate Risk management in the regulatory limelight, driving adoption of matched maturity funds transfer pricing (FTP) as a core tool for monitoring A&L mismatch and enabling measurement of deposit and loan product margins.

The 90s brought us a lending crisis starting in UK real estate and spreading to North America. This advanced the analysis and quantification of credit quality and credit related risk at both account and portfolio levels - in no small part driven by the first Basel Accord.

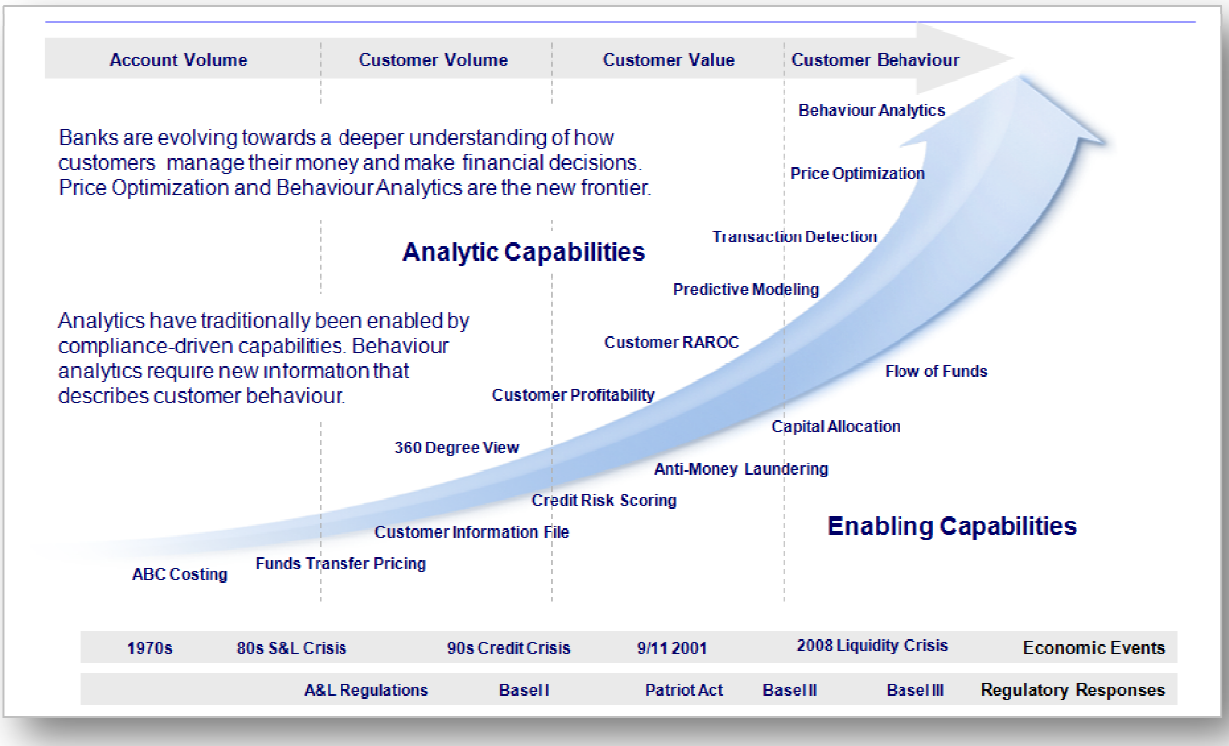
Early in **the 21st century** 9/11 brought us the Patriot Act, which spawned the required Anti Money Laundering (AML) transaction analytics capabilities needed to comply with Homeland Security (and fraud detection) needs. At the same time the Basel Accords expanded to include understanding (and measuring) capital requirements associated with non-credit risks.

Most recently liquidity has moved to the foreground as a consequence of the 2008 global financial liquidity crunch. Basil III and balance sheet "stress tests" are now in the spotlight.

What can we learn from this? First and foremost it appears that both management and regulation of our industry have been largely reactive rather than proactive in the advancement of the analytics side of banking business intelligence. Core capabilities that enable modeling of customer value and other key insights have trickled in over

the years driven not by our quest for insight, but by capabilities demanded by regulatory requirements. We have not been brilliant business leaders exploring new frontiers of insight for business advantage: **we have actually been slow to exploit technology to uncover business fundamentals**.

Let's now layer on the introduction of **analytics enabling capabilities** with the growth of customer insight over the same period. When we do distinct phases of advancement in business insight over these three decades emerge.



Before the 80s banks ran on volume metrics in branches, with practically no technology enabled insights into customer relationships. This was followed by a product-centric management trend (thanks partly to FTP, partly to the influx of consumer packaged goods marketers in the 80s) and the evolution of the geography-product management matrix that still prevails in most banks today.

With Basel I we got better at assessing credit exposure and that information, coupled with FTP and ABC costing gave us the basic ingredients for understanding customer "profitability" (more properly Customer Value). There was a big push in the 90s to develop a 360 degree view of each customer relationship (the Customer Information File or CIF) and start leveraging FTP, credit loss exposure and ABC cost to measure customer value to the bank. The insights produced were profound, enabling us to **understand the value dimension of the**

Customers

customer base for the first time, revealing huge disparities in contribution of different customer groups. These observations spurned development of target marketing and marketing strategies that are still dominant today.

Leading firms started to look at **transaction streams** when AML requirements (and card fraud losses) forced investment in streaming data analysis. Banks started to apply business rules to identify anomalous transactions – statistically outside of a customer's normal volume, frequency, location etc. – in an attempt to identify appropriate interventions in response. These efforts were fruitful, enabling retention and cross selling interventions to be identified in real time, dramatically increasing the relevance of the response to events detected by the monitoring tools.

Transactions

In parallel **predictive analytics** – forecasting future events based on history – has grown in importance. Originally used to predict loan defaults (credit scoring) the same statistical techniques have extended to identify next likely sale, probability of offer conversion, probability of account and customer defection and the like. More sophisticated methods of analysis such as price optimization based on price elasticity of demand at the micro-segment and individual customer level have been meeting with significant success in recent years.

All of these techniques have led us to better understand our customers better. The new frontier in Financial Institution customer analytics is an extension of these insights to get past understanding the probability of a customer doing something or reacting quickly to new or unusual transactions, to understanding why the customer is doing what they are doing.

Understanding "why" is the key to being relevant. This is the domain of customer behavior analysis, which requires a new way of thinking about our data, our tools and our objectives in using analytical tools.... and this time advances are being driven not by regulators, but by the need to create competitive advantage.

Behavior

Understanding the **motives** that drive customer behavior is increasingly being recognized as essential to relevant customer interaction. Knowing that customers are likely to drop a product or add a new one, or detecting abnormal changes in account use provides only a small part of the information you need to have a meaningful conversation with your customer.

Leading banks are now exploring how to better understand motive by gathering information about what is going on in their customer's lives, and developing offers and dialogues that are relevant to the individual in the context of their changing circumstances. Detecting "**life events**" such as birth of a child, cohabitation, going to college, buying a home, renovating, acquiring a vacation property and the like is not easy.

Some of this information must necessarily be solicited directly from your customers, through interviews or online tools that provide the customer with more relevant advice when they share details of their circumstances with the bank. These capabilities have long been used in the investments domain to gather a fuller understanding of customer aspirations and needs, while satisfying "know your client" (KYC) regulatory requirements. There are now many financial planning and customer dialogue scripting tools available to engage your customer and extract vital insights into circumstances and aspirations that can be used to tailor offers and interactions to be more relevant to the individual person you are serving.

More Data

Implementation of similar life event dialogue tools is now growing in popularity among leading retail banks. Asking your customers about their life events must involve a meaningful exchange of value to work. Customers must perceive a real benefit to providing information about their plans, aspirations and circumstances, and perhaps more importantly, if they proffer this information they need to see that your bank remembers it, protects it and utilizes it intelligently to improve the relevance of customer dialogue, offers and interventions. Failure to use information you ask for is worse than not asking in the first place. A coordinated customer dialogue requires integration across products, geographies and distribution channels with a consolidated understanding of your customer as the common base.

In addition to revealed motives gleaned from customer dialogue, important insights about how customers use your products and services can be gleaned from traditional information sources. The big challenge is getting past account or transaction based analysis to understand holistically what your customer is doing. Traditional banking systems fragment customer behavior into sets of transactions that obscure what is really going on. For example when a customer borrows against their home to invest in mutual funds, banks see the two sides of the transaction as unrelated (and even contradictory) events; borrowing and investing. It is only when both sides of the event are seen together that we understand the customer's real behavior.

Unstructured Data

Taking a holistic view of customer use of products and services enables you to gain insight into customer intent. 30% of account level growth and diminution occurs because your customer is switching money from one product or service to another. Transaction and account analyses fail to see these important flows of funds – everything is seen as a win or a loss of business. This distortion leads to false targeting, false triggers and irrelevant customer dialogue (see my BAI blog entries What is a cross-sale? and Event detection).

Let's take a look at how customers move money around inside the bank:

Customer moves money	Possible motive
Between accounts of the same product	Features, location
Between Deposit products or between lending products	Rate, features, location
From Deposits to Loans or vice versa	Borrow to invest / pay down loan

In addition to moving money between existing accounts, your customer may be moving into a new account or product at the same or a different branch. These changes, normally observed as sales and lost business, indicate clear product or location choices that are **conscious choices your customer is making** to reallocate their money within your bank's products and services, and you need to understand why. For example relocating accounts may be indicative of a change in job or residence – a major life event. Paying down loans suggests that your customer has recently acquired new wealth. Borrowing to invest may imply an impending major purchase.

You can refine these insights by knowing which products are involved. For instance borrowing from a HELOC to invest in short term mutual funds may indicate an impending renovation, whereas borrowing from a HELOC to invest in equities or long term CDs likely indicates a change in investment strategy. **Knowing what your customer is doing** holistically reveals – at least partially – their intent, which should inform your customer dialogue.

Switches between deposit and lending products are another interesting case. These substitutions – often called cannibalization – illuminate customer preferences. Within deposits, for example a customer can move money between products with different liquidity characteristics (short term, long term, demand) and with different rates of return and risk. Changes in preferences reflect **changing customer needs** which you should be aware of.

Analysis of this type reveals a lot about customer behavior. When you combine this data with other information acquired through tools designed to gather life event data you can sharpen the relevance of your dialogue significantly. Moving beyond the analysis of individuals, statistical techniques can be applied to your entire portfolio of customers to better understand, predict and optimize your customer interactions by first understanding why customers do what they do.

In this last part of these reflections, we will look at **the notion of big data** and the changes it will bring to customer analytics in banking. Big data is much talked about, and will have a profound impact on our industry. Big data analytics breaks down the barriers between traditional, structured information that is typically stored in a data warehouse and unstructured information - video, voice, text, images etc. - that are now part of the digital world. We have vast amounts of unstructured customer data in our organizations, including application forms, telephone conversations, email dialogues and letters from clients, for example. Bigger still is the amount of content that is generated by customers on the web - blogs, forums, wikis, tweets, facebook posts and the like. All of this information is part of the Big Data universe.

There are obvious problems with working with big data: traditional data warehousing tools and techniques were never designed to deal with unstructured information. Enterprise Content Management has emerged as the discipline of managing this unstructured information - and if you are not focused on getting your ECM under control and into your analytics thinking, you are certainly leaving vast strategic resources untapped.

So what can it do for you? The answer is almost limitless. In the age of social media - which your future customers are the prime participants in - people are sharing **attitudes, opinions, intentions and behavioral information** by the petabyte in publicly accessible space. You can mine this information many techniques to gain insight into how your customers (and non-customers) act, feel and talk about your brand, products, service, pricing and more. In fact, the emergence of social media has created an enormous opportunity for marketing research, which even extends to monitoring your brand and interacting with customers in the social media domain in real time (see Gatorade example).

And it not just social media that you can mine. The email, telephone and snail-mail dialogues you have with customers provide rich information about their experiences and attitudes towards your bank.

Understanding customer behavior is a key differentiating capability for any financial institution that wants to have relationships with its customers... it enables you to know them, understand them, demonstrate sameness and to anticipate needs, wants, desires and aspirations which underpin their actions as banking service consumers. Big data is what I see as the next big stretch of road, when I look out the windshield.... **are you ready to navigate it?**

