REAL-TIME DATA FUELS THE BIG DATA MACHINE

Shazia Manus
Chief Executive Officer
TMG
In this first in a series of papers on data-driven strategies for financial institutions, TMG CEO Shazia Manus uses examples from both in and outside the financial industry to explore small, or real-time, data. The paper looks at differences between big and small data, how they work together and the ways in which credit unions and community banks can leverage each for the delivery of superior consumer experiences.

Financial institutions working to strategically position themselves for success in the big data revolution may want to begin by getting their small data house in order. It is small data that builds the tower upon which big data perches. Small data contains the real information — the traces of consumer behavior left behind by actions taken every second of every day.
EXECUTIVE SUMMARY

Areas of focus include:

- PRIORITIZING THE RIGHT CAPABILITIES to power big and small data strategies
- ENABLING FASTER business decisions by utilizing data
- RUNNING BIG AND SMALL data plans simultaneously
- GOING BEYOND what’s visible to the naked eye

Advanced strategic plans and the development of sophisticated analytics and artificial intelligence tools for big data analytics are underway. Just as important, however, is giving consumers the best possible banking experience today, and one that is consistent across an ever-expanding number of channels. The insights that come from real-time, small data narrow focus, allowing executives, managers and team leaders to truly see and understand the challenges and aspirations of consumers. These insights give financial institutions the kind of real, in-the-moment intelligence that can turn even the most mundane financial tasks into highly engaging, personalized and memorable moments.

Executing long-term big data and short-term small data strategies concurrently can create a best-of-both-worlds scenario in which big and small data work in concert.
The hype about big data can distort our view of the arguably more important small data, powerful information capable of delivering real-time insights. Big data is a powerful tool many believe to be the answer to their every question about consumers and business. However, many fail to realize how interdependent big and small data are. It is small data that builds the tower upon which big data perches. Small data contains the real information — the traces of consumer behavior left behind by actions taken every second of every day.
Financial institutions working to strategically position themselves for success in the big data revolution may want to begin by getting their small data house in order. What follows is an exploration of the differences between big and small data, how they work together and the ways in which credit unions and community banks can leverage each for the delivery of superior consumer experiences.
REAL-TIME DATA

Analyst Allen Bonde and a few of his colleagues define small data as that which connects people with timely, meaningful insights. Derived from local sources, small data is organized and packaged to be accessible, understandable and actionable for everyday tasks. An example may be a smart label placed on a medicine bottle. When the smart label detects an unsafe temperature or that the medicine has expired, it triggers an alert to a responsible party within the pharmacy or manufacturer.

Big data, on the other hand, is loosely defined as mass quantities of unstructured and semi-structured data, including things such as social likes, online reviews, customer service notes, content downloads and any number of financial transactions – all gathered together to paint a complete picture of a consumer or another subject being studied.

**small data:** that which connects people with timely, meaningful insights.
Small, real-time data, when accessed properly, triggers immediate action. Its usefulness does not end there, however. After being leveraged for real-time strategies, it can be recycled and pooled for use in big data analytics.

My personal view on the emerging field of data analytics has been enriched by studying methods outside the financial industry – some of which are just outside my window. Living and working in the heartland of the U.S., my colleagues and I are surrounded by agriculture and the surging wind energy industry.

One of the best ways to consider how big and small data work together is to look at a wind turbine, the blades of which adjust their position automatically based on real-time information (i.e. small data) delivered to them from onboard sensors. These sensors allow for instantaneous optimization of the turbine’s energy output by...
REAL-TIME DATA

absorbing and then transmitting small data on wind direction, velocity, temperature and other factors. The small data sets generated by the sensors produce even further insights when imported into a big data set. Machine-learning algorithms detect and communicate patterns, which analysts then use to understand how the turbine has performed over time and under specific conditions. This is how wind turbine technology is improved. This is how innovation in renewable energy is conceived, and it all starts with small data.

Dairy farmers, too, have learned the value of small data in making fast decisions that positively impact their businesses. Robotic milkers, equipped with lasers that scan and map cows’ underbellies, identify how well the animals are producing. The robots then adjust feeding schedules to yield higher-producing cows. The laser-sourced data is also collected for further use among analysts.
looking for signs of poor quality or infections in milk. Over time, dairy producers are able to spot trends, gaining a better understanding of what their animals, their machinery and their employees need to produce high-quality milk consumers know they can trust.

From wind and dairy farms to financial institutions, big insights begin with small data. The consumers who engage with credit unions and community banks are generating billions of small data each day, much of which is easily accessible, yet likely underutilized. Take a financial institution’s loan portfolio, for example. By collecting and analyzing transactional histories, the financial institution can very quickly identify those accounts with a high likelihood of delinquency. Rather than waiting to work with the account holder after he or she runs into trouble, the financial institution can monitor these accounts more closely and work with the account owners proactively to prevent them from falling behind. Taking that a step further, the lending team can contribute its data to the financial institution’s larger data bank to round out the borrower’s profile, spot trends among like borrowers and adjust strategies to give consumers a highly customized experience.
Rosaria Silipo, a data mining consultant, warns against underestimating the power of small data:

Sometimes customers ask for a big data platform just because. Then when you investigate deeper, you realize they really do not have and do not want to have such a big amount of data to take care of every day.

A nice, clean general statistical sample might produce higher accuracy in terms of prediction, classification and clustering than a messy, large and noisy data lake (a data swamp really!).
When community financial institution leaders investigate their needs for big data further, they may be surprised by the findings. Indeed, more immediate and meaningful action may be possible through small, real-time data than through big data. Plus, small data is likely more readily available because we are living in a time when consumers embrace digital engagement with their financial institutions. Every login, click or download generates small data that can be acted upon in real time to produce highly personalized experiences.

Consider this metaphor, which drives right to the heart of the consumer-centric nature of small data. It further reiterates how big and small data rely on each other.

Think of data as sportscasting. Big data is the play-by-play description — the who, what, where facts of the game. Small data is the color commentary. It’s more human. It analyzes, explains and enlightens. It gives the play on the field deeper context and meaning.

A closer look into the world of sporting events shows how small data is helping more teams, stadiums and fan-favorite brands enhance the fan experience. As summarized by the Smart Data Collective, going to a sporting event has become more of a hassle than an enjoyment for many people. Expensive tickets, nose-bleed views and exhaustive concession lines make the prospect of watching the game from a living room much more attractive.

To combat this problem, some of the biggest names in sports are turning to data-driven strategies to reenergize fans about the in-person viewing experience. The San Francisco 49ers, for instance, use Bluetooth beacons to locate fans wherever they
happen to be in the stadium and provide them with personalized directions. A complementary mobile app also allows fans to have concessions delivered right to their seats and watch replays on their phones.

Community financial institutions can take a page from the sporting industry’s playbook. Like the 49ers, financial institutions should consider the key consumer pain points they need to address before they lose out to more enjoyable experiences offered by competitors. These institutions should look at which financial tasks are seen as hassles, and how small data on those tasks can trigger action that will alleviate pain and create memorable experiences. Credit unions and community banks that set strategy around real-time reaction to small data can go even farther. By pooling data from multiple channels and using it to spot trends and make predictions, the leaders of these financial institutions will lay the foundation for winning over (or winning back) influential consumers.

The question for the financial services community is: What are the high-value, low-difficulty problems we are trying to solve? Say, for instance, a financial institution acquires an average of 600 new accounts each month, yet loses 400 during the same time period. How tremendous would it be to predict which of those 600 new accounts are most likely to be closed within a year? Imagine the kind of proactive retention strategies that could be developed and executed with insider information.

Because the possibilities are so great, you may be tempted to aim high right from the start. The key, however, is to begin building a culture of data-driven strategy by starting with the high-value, low-difficulty problems. Give yourself time to learn, relearn and course-correct before tackling problems with a higher level of difficulty. Then, address bigger problems and identify new solutions incrementally on a reasonable timeline.
Leveraging Data to Create Exceptional Consumer Experiences

Credit unions and community banks are in the enviable position of having access to consumer behavior indicators in real time. By looking first at user-level detail, then enhancing the results with trend data from larger groups, a community financial institution may get closer to achieving truly customized, individual services.
So where does a credit union or community bank start? Core processing systems can be extremely rich repositories of consumer data, so it makes sense to begin by investigating whether the organization’s existing system connects real-time information with the people who most need it. However, a core processing system is only the starting point, as there are likely many other sources of small, real-time data within the credit union or community bank.

An organization’s next step is to assemble each of its teams to determine how various strategies across the financial institution, from growth to engagement, can benefit from small data.

Community financial institution marketers, for instance, may find small data from the customer relationship management (CRM) solution to be particularly helpful in the development of ongoing promotional campaigns. Data generated when a member or customer responds to a particular offer can trigger the placing of him or her into a queue to receive the next one. Cards teams, too, can benefit from real-time intelligence from the organization’s payments processor. Debit card transaction data, for example, can trigger a predictive alert, warning an account holder of the likelihood of an overdraft.

Business and merchant relationship managers may see potential in GPS data that is capable of prompting opt-in retailer coupons through a financial institution’s mobile app.
Ideas like those just described demonstrate how small data can provide a leg up for financial institutions competing in an increasingly crowded marketplace. Walmart, Apple, Facebook and plenty of other consumer-centric brands are in hot pursuit of consumers’ everyday financial transactions, and ultimately, ownership of the consumer relationship. The stakes for community financial institutions, in particular, are high. Yet, credit unions and community banks are in a healthy position. They have the capabilities, the systems, the infrastructure, the people and the expertise – not to mention the trust of their members and customers – to offer what consumers want. Small data analytics and the experiences it can produce will help community financial institutions exploit their capabilities for continued success with consumers while also exploring new opportunities.

“What we’re seeing now is that the smaller banks and credit unions can really start to compete with the big boys,” Ed O’Brien, Mercator’s director of banking channels advisory service, told American Banker.

“Compared to just two or three years ago, the technology available now enables them to do so much more without a huge investment. Obviously the big banks still have an edge, but the gap is closing.”

Consumer experiences, however, are only one part of the small-data picture. Timely information from accessible sources can also drive better business decisions that can keep employees happy, processes sharp and revenues up.
DATA ENABLES FASTER BUSINESS DECISIONS

Beyond providing the means for personalized service, small, real-time data can also help executives make critical business decisions more quickly, having an immediate impact on revenue. As California restaurateur Lindsey Hiken explained to MSNBC, raw data helps her avoid a trap many of her colleagues fall into, which is to collect receipts in a drawer until a bookkeeper has time to analyze them, often months down the road.
If the cost of meat goes up by seven cents per pound, for example, Hiken, and other business owners like her, may not notice it right away. It may be six months down the road before she detects a change in revenue. Fluctuating food costs and the paper-based businesses of many food vendors make it difficult for restaurateurs to spot illusive price hikes. Hiken, however, insists on digitizing each and every vendor receipt she receives, allowing that raw data to be gathered into a database that flags price changes in real time. Once alerted, Hiken can make immediate changes, whether that’s to up her prices, switch out an ingredient or negotiate with a vendor.

“This is the difference between a business that generates data – which all businesses do – and a business that strives to be data-driven where the data becomes part of the decision making,” said big data analyst Allen Bonde.

Many of today’s community financial institutions are poised to take advantage of the same opportunity to become data-driven businesses. To begin, leaders will need to strategically shield their eyes from the gleam of big data to truly see the small-data opportunities there for the taking.
Valuable Needles in Big Data Haystacks

Before financial institutions can participate in the big data revolution, they will have to get their small-data capabilities in shape. Called the “valuable needles hidden in big data haystacks,” small data and the resulting consumer experiences are within reach for credit unions and community banks committed to adopting data-driven business strategies.
REAL-TIME DATA STRATEGY

To make the most of a credit union or community bank’s small, real-time data, it’s important for leaders to take a three-step approach:

1. THINK STRATEGICALLY

Deploying a real-time data strategy in this kind of phased manner lets the problems the financial institution wants to solve drive the architecture. Doing so ensures leaders invest in the right technology. The data projects that fail most often are those that begin with the buying of tools and the acquiring of data without knowing which problems they’re actually intended to solve.

Before investing in any new technology or tools, teams must first take a look at how the financial institution’s technology infrastructure currently manages small data. Often, that infrastructure is composed of hundreds of different tools pulling data from multiple entry points. Leaders must ask the questions: How do these systems handle the collection, organization, storage and use of proprietary data today? How is our process managing the data to maintain its integrity? From there, information technology and other teams can work to enable different systems from different departments to talk with one another.

2. PLAN ARCHITECTURALLY

3. ACT TACTICALLY
Guiding credit unions and community banks through this internal analysis today are high-tech companies with strong infrastructure and data warehousing experience, such as payments and core processors. TMG, for example, is helping our financial institution clients to master analytics and then see beyond the basics to what’s next. We rely on our own big-data journey to do this.

That journey began several years ago with the creation of a proprietary analytics tool, which provided insight into a cardholder’s purchasing behaviors and buying patterns. Since its development, the solution has provided real-time access to incredible amounts of data. It was the human element, however, that helped our card-issuing clients use that data to better understand the triggers that drive specific cardholder behaviors. To integrate this expertise into our solution, TMG partnered with financial institution data analytics firm IQR Consulting.

Reporting and analytics based on real-time, small data, albeit important, were only the beginning. Today, we are moving beyond, using what we now know to help both our company and our clients get to the prescriptive elements of big data. These are the insights that will earn levels of loyalty and retention never achieved before — not only inside payments programs but across the organization.
There is no doubt aggregating huge pools of data from multiple channels and third parties will provide strategic insights. Big data analytics will be a critical function for every financial institution over the long term. Credit unions and community banks will want to begin positioning themselves today for enhanced big data capabilities tomorrow by focusing on ways in which big and small data can work in concert.
Many are already on the path to do exactly that. Take Navy Federal Credit Union, for example. The $70 billion cooperative has begun execution of a five-year member experience plan to provide a higher degree of personalized service to its 5.6 million members. The plan relies on a massive enterprise data warehouse that will eventually service the entire organization from operation reporting to predictive analytics.

TMG client Partners Federal Credit Union, too, is assembling a team of internal experts as a first step on its roadmap to big data analytics. Because the $1.5 billion credit union services the cast and employees of The Walt Disney Companies who are accustomed to high-quality interactions and exceptional experiences, data-driven insights are critical.

Led by a chief data and analytics officer, this data team will ultimately be responsible for the data lifecycle inside the credit union, managing the people, processes and technology involved in the data activities. These activities will include acquisition, analytics, personalized marketing, governance, quality and technology.
As progressive financial institutions like Navy Federal Credit Union and Partners Federal Credit Union march down the strategic path to data analytics success, they are likely to find new uses even for old data. As IBM big data experts write in “Big Data Beyond the Hype,” innovation in analytics will enable us to extract more insight out of “forever-archived” data than we can with today’s technology.
They rely on a gold-mining analogy to explain:

In the “olden days,” miners could easily spot nuggets or veins of gold because they were highly visible to the naked eye. But there is more gold out there, perhaps in the hills nearby or miles away; it just isn’t visible to the naked eye, and trying to find this hidden gold becomes too much of a gambling game.

Today’s miners work differently. Gold mining leverages new age capital equipment that can process millions of tons of dirt to find nearly invisible strands of gold. In other words, there’s a great deal of gold in all of this dirt, and with the right equipment, you can economically process lots of dirt and keep the flakes of gold that you find.

Taking the analogy even further, gold miners and processors understand the end game. They know the precious metal they uncover will eventually be used to satisfy demand for luxury items, medical and electronic products or monetary currency. In the same manner, financial institutions working on their big data plans have to know where they are headed, the outcomes they want to achieve and how the data gold they mine will deliver the insights they need to produce high-value products, services and consumer experiences.

Think of it this way: Owning a gold mine is of little value if you aren’t able to extract the gold. A lot of hype is placed on mining data. Yet, we can all predict the day when the extraction of data is simply the norm. What will you do with that data gold, both big and small? It’s an important question and one that will help you follow the three-step approach (see page 19) to deploying sustainable data strategies for the long term.
In the race to develop advanced strategic plans and artificial intelligence tools for big data analytics, it is important to note the significance of consumer experience. Consumers want, and expect, a positive banking experience that is consistent across all channels. Valuable insights from small, real-time data narrow the focus of executives, managers and team leaders, allowing them to truly see and understand the challenges and aspirations of the individuals who make up their consumer base.

The real, in-the-moment intelligence gained through small data can help financial institutions transform the most mundane financial tasks into highly engaging, personalized and memorable experiences. Simultaneously executing long-term big data and short-term small data strategies can create a harmonious scenario in which big and small data work in concert.
Shazia Manus is CEO at payments processor TMG. She leads more than 350 employees, each committed to making life easier for TMG’s financial institution clients and the consumers they serve. A former credit union CEO, Shazia applies her perspective and expertise to everyday challenges and opportunities facing credit unions and community banks in the U.S. and Canada as they look to usher in new and better payments solutions. An entrepreneur since the age of 17, Shazia’s spirit of innovation, commitment to collaboration and keen sense of sound business management have compelled TMG to record growth. She can be reached at shazia.manus@tmg.global.