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HOUSINGWIRE MAGAZINE
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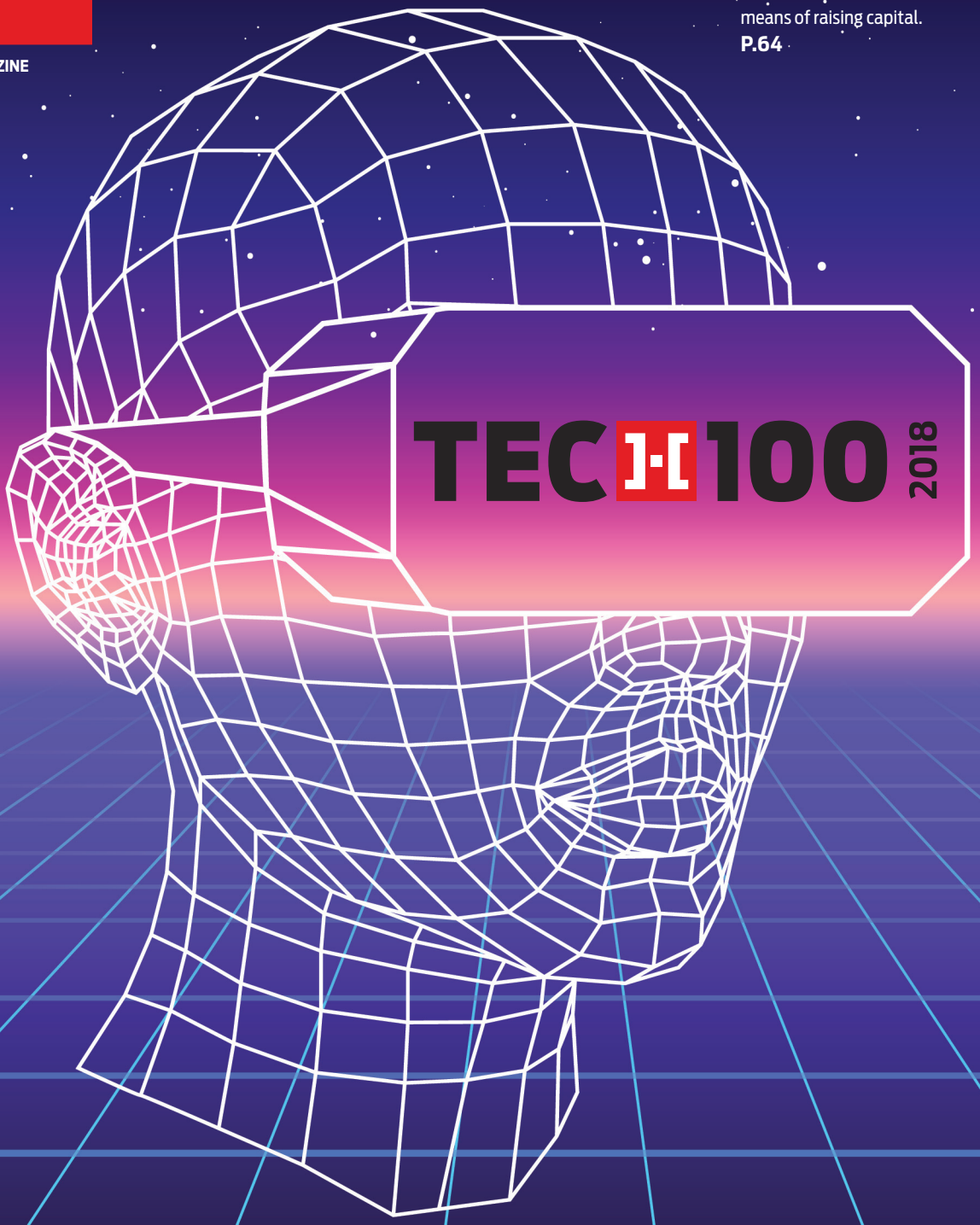

TECH100 2018

THE MOST INNOVATIVE TECHNOLOGY COMPANIES IN HOUSING

BIG DATA DELIVERS

HOW MORTGAGE COMPANIES ARE CAPITALIZING ON THEIR GREATEST RESOURCE

BY SARAH WHEELER

UNTIL VERY RECENTLY, the mortgage business revolved around paper. In that universe, a borrower's personal information and all the details of their loan were written down on a product made from a tree and stored in a filing cabinet. The only way to access that information was for a human being to physically find the file and read it. Analysis was possible, but limited to the ability of people to create, update and share spreadsheets.

Looking at that process now is like trying to remember how you navigated before GPS, or explaining to your kids how you wrote a research paper without the internet ("There was this thing called a card catalog..."). Not only was the loan process inefficient and slow, seeing and acting on any larger patterns was nearly impossible.

The evolution from that paper-based process to this era of big data is astounding. Consider that according to IBM, 90% of the world's data has been created in the last two years. The Internet of Things — your thermostat, refrigerator, even your kid's Barbie doll — is increasing that data exponentially, leading IBM to estimate that by 2020 17 MB of data will be created every second for every person on the planet. Every person, every second. Wow.

For mortgage companies, that data represents a treasure trove more valuable than the gold bars stacked in the vault at the New York Federal Reserve Bank, but only if they can figure out how to harness it for their specific business. Fortunately, scores of fintech companies are ready to help.

ORIGIN STORY

The term Big Data was first used in a report by NASA scientists in 1997 to describe a volume of information that was difficult to process within the confines of a computer's hard disk space. In fact, what constitutes big data changes in concert with our ability to generate and then store the growing avalanche of information. Companies are constantly chasing new storage options, from hard disks to flash to cloud to hybrid — and whatever is coming next.

For mortgage companies, accessing data from their own businesses was a necessary first step in their adaptation to big data, requiring significant investment to switch from a paper model to digital processes. But the real game changer comes from marrying their internal data with the information available from a myriad of other sources, including transactional data, machine data and social data.

This is where mortgage companies rely on third parties to process this often-unstructured data into something useful. Not many lenders, servicers or investors would have the resources to employ data scientists to manage a data lake and extract meaningful insights.

"It comes down to access, cost and solution availability," said Julian Grey, mortgage market leader of the data and analytics division of Black Knight. "Ten years ago, a small lender or servicer simply did not have the resources to access comprehensive and linked data sets in order to develop data-driven strategies. At the same time, information and technology vendors had not yet developed many solutions to bridge this access gap."

Today, the market has an abundance of those solutions and mortgage companies are using them to transform every part of the loan process.

"WITH THE ADVANCE OF APIS AND WHITE-LABEL WEB PRODUCTS, **MORTGAGE COMPANIES CAN NOW OFFER CONSUMERS DIRECT ACCESS TO BIG DATA."**

— **MARTIN MORZYNSKI,** CMO, HOUSE CANARY

THE MODERN API

Confused about APIs? That might be because their role has changed so much. What was once primarily a connection for mobile phone apps has grown to be much more. Here's a summary explanation from MuleSoft:

APIs EXPLODE

One of the essential catalysts for leveraging data has been the rise of public application programming interfaces — APIs. There are web-based APIs, operating system APIs, database system APIs and hardware APIs. These modern APIs, which can be quickly developed and integrated, enable software systems to talk to each other (see sidebar).

"The proliferation of new technologies has had a big impact on how big data is used," said Martin Morzynski, chief marketing officer at HouseCanary. "With the advance of APIs and white-labeled web-based products, mortgage companies can now offer consumers direct access to big data via a website plugin or a report that's generated and branded for the mortgage company but powered by a data and analytics specialist."

The number of APIs has exploded in the last few years, and for good reason. They connect the databases of mortgage companies and third-party vendors, allowing all parties to develop and utilize apps — whether for their customers to use or for their own internal purposes. APIs are the antidote to the data compartmentalization so rampant in the industry.

Optimal Blue began an API-first initiative in 2017 and by any measure it has been a huge success, integrating 40 mortgage tech providers into its system and onboarding 100 clients who subscribed to its API platform in the first year.

The company's API strategy was a direct result of talks with clients and vendors, which revealed a critical roadblock to streamlining the mortgage process.

"On the positive side, there were a whole bunch of innovative game-changing tech platforms being developed," said Bob Brandt, vice president of marketing and alliances at Optimal Blue. "On the negative side, we were seeing providers requiring lenders to hand-enter rates into their products." This manual process undermined the ability of the technology and produced data that didn't reflect real-time changes.

Optimal Blue's first API integrations were for product and pricing data, but the company has expanded those offerings to include scenario pricing and locking. Users can not only create, update, and retrieve loans, but they can also retrieve, filter, and sort pipelines.

"What's held the industry back is integration. Our API-first strategy is all about breaking down those walls and making the digital process work," Brandt said.

APIs are fueling a race to make things better throughout the traditional loan lifecycle, starting with the very beginning of the loan process.

CUSTOMER ACQUISITION

Competition for potential homebuyers is fierce, and customer acquisition and retention is a top priority for lenders. Data, combined with predictive analytics, can help real estate agents and lenders identify and target the right prospects before others do.

DataTree by First American leverages its massive database of property information to allow lenders to pull very targeted leads lists for direct marketing campaigns, as well as generate a loan or lost lead analysis so lenders can determine who they lost business to. In addition, DataTree

Over the years, what an "API" is has often described any sort of generic connectivity interface to an application. More recently, however, the modern API has taken on some characteristics that make them extraordinarily valuable and useful:

- Modern APIs adhere to standards (typically HTTP and REST), that are developer-friendly, easily accessible and understood broadly.
- They are treated more like products than code. They are designed for consumption for specific audiences (e.g., mobile developers), they are documented, and they are versioned in a way that users can have certain expectations of its maintenance and lifecycle.
- Because they are much more standardized, they have a much stronger discipline for security and governance, as well as monitored and managed for performance and scale.
- As any other piece of productized software, the modern API has its own software development lifecycle (SDLC) of designing, testing, building, managing, and versioning.

provides lenders with detail on their market penetration.

"Lenders need to track their market penetration for analysis and compliance reasons," said Brian Fluhr, vice president of marketing at First American Database Solutions. "We have worked with several lending customers to develop a graphical representation of their customers so they can visually represent their customers down to the subdivision level."

Real estate agents still advertise on billboards and deliver postcards via mass mailings to entire neighborhoods, but these tactics belie the true sophistication that many agents and lenders are using to connect with potential homebuyers at the beginning of their search.

"Providing a level of detail that consumers crave but are unable to access is going to be huge for any data company that wants to make it in the future," Morzynski said. "For example, it's not enough to merely show which homes are for sale and offer price range and bedroom/bathroom filters for search — that's something every consumer is going to expect as a basic function of real estate search.

"The real future differentiator will be giving buyers the power to filter a home search by school quality, crime levels, cash-on-cash investment return, and other factors that will make or break that home purchase for that buyer in that neighborhood right now," Morzynski said.

Providing a convenient way to access that information is also crucial to attract customers.

"We think that the ability to begin the home-buying process from a smartphone is going to be the most disruptive way that data is going to transform lending in 2018 — and it will have the greatest potential within real estate," Morzynski said. "As mobile technology advances and more companies are able to showcase their data abilities on smartphones and tablets, consumers will be given the freedom to dive deep into data from the devices in their hands, allowing them to shop for and buy homes literally anywhere."

But smartphone access is just the first step.

Consumers expect what happens on their smartphone to be as painless as their other online interactions — an expectation that is often frustrated.

The J.D. Power 2017 U.S. Primary Mortgage Origination Satisfaction Study showed that overall satisfaction with primary mortgage originators was down 8 points in 2017. "This is driven in part by reports of longer times from initial application to closing. On average, the purchasing process took 36 days this year, an increase of almost a week from 2016," the survey reported.

Importantly, although 43% of mortgage customers in the J.D. Power study said they applied for a mortgage online in 2017, satisfaction among that group declined by 18 points year over year and trailed satisfaction with in-person applications by 10 points.

Mortgage companies can use data to change that metric by mining available information about the borrower and populating much of the necessary fields on the loan application automatically.

"Historically, it was common for lenders to request all kinds of required information from the borrower, then have to wait as the borrower tried to find the information," Fluhr said.

"Lenders have found that information such as ownership, property value, homeowner association information (contact information, lien status and dues amount), tax status information and much more can be retrieved instantly, early in the loan decision process. This greatly reduces the burden on the customer and shortens the time required to make a lending decision," Fluhr said.

"Enhancing the customer experience was a big focus for all of our lender clients last year and continuing into this year. With the emergence of industry disruptors, leveraging data to auto-populate point of sale and loan origination systems has drastically reduced cycle times."

"WITH THE EMERGENCE OF INDUSTRY DISRUPTORS, **LEVERAGING DATA TO AUTO-POPULATE POINT OF SALE AND LOAN ORIGINATION SYSTEMS HAS DRASTICALLY REDUCED CYCLE TIMES."**

— **BRIAN FLUHR,** VP MARKETING, FIRST AMERICAN DATA SOLUTIONS

VALUATIONS

The valuation process has been a target of disruption for years, as those in the mortgage space — led by the GSEs — rely more and more on data to more quickly value properties and measure loan risk compared to the traditional appraisal process.

Freddie Mac started using Automated Collateral Evaluations in 2017 for certain loans to cut costs and speed up the transaction process for borrowers. HouseCanary launched a similar product in September 2017 and it's now being leveraged by dozens of appraisal management companies and hundreds of appraisers all over the country.

"After building and selling our real estate data and products since 2014, we've learned that there's a lot data can tell you about a home — and a lot that it can't tell you," said Alex Villacorta, executive vice president of analytics at HouseCanary. "Our data and algorithms work with an incredibly small margin of error for the bulk of housing stock in the United States, but homes are more like snowflakes than assembly-line SUVs.

"When it comes to outliers, like the highest-priced or lowest-price home on a block, then human oversight to fine-tune the details is critical to achieving an accurate home value. To address this insight, we developed the Agile Appraisal product, which feeds data analyzed and ready to a human appraiser, to allow them to focus on what they do best, which is valuing a home — not taking measurements and collecting information," Villacorta said.

That approach to valuation illustrates one of the key takeaways for data providers and data consumers alike: technology is best used to enhance human expertise, not supplant it.

TITLE

For a long time, the process of accessing title information was stubbornly resistant to automation, with billions of recorded documents being housed in county offices all over the country. Today, however, APIs can make this part of the mortgage process seamless.

Within DataTree, FlexSearch allows users to use a Google-like search to identify needed documents by locating any word, phrase, number or any combination of these to locate a document, such as a release of lien, a misrecorded deed or mortgage within the 6 billion recorded document images in DataTree's data set.

"Specifically, Data as a Service solutions (like DataTree.com) that enable instant research of property and homeownership information provide the decision-making insight lenders need without searching multiple county web sites and submitting multiple requests to borrowers. Additionally, XML, API and Bulk Data requests enable lenders to fuel and monitor the application process."

MAKING IT CLEAR

As Big Data gets bigger, isolating and analyzing the parts that inform a specific business get harder, especially if it's a small business. Companies that can distill data to inform specific decision-making that's common within particular verticals of the industry are valuable indeed.

"In the past, even if a small organization did have the financial bandwidth to curate and/or purchase data assets, understanding how to apply and operationalize the myriad of use cases hidden within that data required dedicated personnel and highly specialized expertise," Grey said.

"The creation of analytics such as retention, prepayment and default scores, home price indices, listing, origination and performance indices mean small companies can apply these solutions in very specific ways to develop unique strategies, tailored to their unique needs, in a cost-efficient manner.

"And when these information solutions are then integrated into BI solutions, LOS, and servicing platforms – the information itself is no longer hidden from view," Grey said.

The Black Knight Rapid Analytics Platform provides access to a multitude of data assets, combined with machine learning and predictive analytics libraries.

The company is not only making its indices available via this platform, but also includes a number of traditional and machine learning analytics, including prepayment and default models, refinances scores, loan loss analytics and valuation analytics.

"We actually originally developed this solution for our own use, since there was a material gap in the industry," Grey said. "We're creating an external version because we know that, when it comes to data, one size does not fit all. This will let our clients rapidly deploy new analytics, create data queries and leverage the power of machine learning and massive computational power."

Finding new uses for the data flowing through their platforms is a hallmark of API-enabled businesses.

Optimal Blue, as part of its primary business providing secondary marketing automation, connects originators, investors and providers in one platform, ingesting an enormous amount of data in the process. Through this data, the company saw an opportunity to develop a social media compliance solution for lenders.

The decision required Optimal Blue, which acquired Comergence in 2017, to learn how to take feeds from Facebook, Twitter, LinkedIn and build a data lake with the assets. During that implementation, the company realized it was more than just a software provider — it was also a data company.

"We have one foot in the marketplace, facilitating transactions, and another in data," Optimal Blue CEO Scott Happ said. "Our goal is to figure out how to package that information and make it a valuable resource for the mortgage industry."

Last year Optimal Blue deployed a business intelligence platform with a sophisticated visualization tool that makes data understandable. With its many lender integrations, the company has a unique window on the lending market and now provides investors with real-time insights on originators.

"Historically, one of the challenges with data and analytics is that you end up with lots of data files that the client then needs to hire people to slice and dice. Our visualization tool makes this information understandable and meaningful to the client," Happ said.

With seemingly unlimited data to work with, mortgage companies are innovating at a furious pace. The end result is a better process for all involved.

"The best consumer lending experience is quick, easy and without hassles — that is where the smart use of data can help both consumers and lenders," Fluhr said. ■

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— **BOB BRANDT,** VP MARKETING, OPTIMAL BLUE