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An Innovation

Summer

Data lights
the way for
meaningful
insights



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Honorable Mention

DATA & ANALYTICS | VOLUME 7

Forward...

Do not go where the path may lead, go instead where there is no path and leave a trail.

Ralph Waldo Emerson



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The best way to predict the future is to invent it.

ALAN KAY



Staying still is not an option

Innovating in the midst of continuous change and disruption

EDITORS @ DATA & ANALYTICS

Whether your business is 1, 5, 20 or 100+ years old like Equifax, the one commonality is that innovation is key to our success. Markets are continuously changing, whether it is new customer behaviors, unforeseen economic forces, or new competitors looking to disrupt old models, businesses must push themselves to innovate. Staying still is not an option — and 'tried and true' is the path to complacency.

In this issue we want to dive into the topic of innovation. Admittedly, it feels like a buzzword, but at Equifax we are focused on making sure you, our customers, are getting the best in class service and solutions. We will discuss new innovations around the globe, areas we are exploring in data science, and how advancements in data and analytics will ensure your businesses continue to thrive.

We hope you enjoy this issue as much as we do — and as always, let us know what you would like to learn more about. ■

Learn how consumer behavior and business responses converge at Ignite LIVE 2021



Innovating for sound decisions

Accelerating insights in times of severe uncertainty

DONOVAN VANSANT
GLOBAL D&A MARKETING LEADER

As the leader of the Innovation Lab for Equifax, Chris Yasko challenges his team to focus on what's next? What are the trends shaping our industry? Who are the emerging competitors? What do customers say they need most? These are the questions we continually ask ourselves to ensure we do not get complacent. We challenge the status quo and attempt to disrupt our own business.

I think we would also agree that times of upheaval often result in the greatest innovation. Let's face it, it is easy to stay the course when times are good — as they say "If it ain't broke, why fix it?" One year ago, our markets were steadily growing and seemingly overnight the table was flipped. In an instant we had to ask ourselves "What does it mean we cannot come to work?" and "What will happen to our businesses if our customers are locked at home?" Even worse, "What happens if people stop spending? What happens to us? What happens to me?"

These were scary questions and none of us had the experience to know what was ahead. At Equifax, in the face of uncertainty, we had no choice but to run towards the fire. We had to answer the questions our customers so desperately needed to answer. Sitting on top of arguably the largest trove of consumer and small business data we had to share what was happening — it was our obligation to you.

In order to make sound decisions in times of uncertainty you rely on information to find insights. So what did we do?

One — we had to exploit credit data and more importantly go beyond, embrace alternative data and see what it could tell us about customer behaviors.

Soon after the shut down the credit file was sending mixed signals. While unemployment rose, debt balances declined. Was this simply due to accommodations and government assistance? We were not sure and needed to find out.

We found telecommunication and utility data provided a unique window not seen in the credit file. It is

especially helpful when evaluating people with thin or no credit histories. Not everyone has a car or a mortgage, but most of us have mobile phones and utility bills.

Additionally we dove into our verified income and employment data. We were fortunate to have over 100 million active employment records that could reveal if consumers were still employed, if they were taking pay cuts, or if they had the ability to pay back loans. In fact, using this asset we were able to claw back 42% of the information loss in the subprime segment alone.

In short, the answer was and continues to be, more data is better. The credit file is powerful but it does not tell the full story, and in a period of uncertainty like the pandemic, when the instrumentation is off, you need all the information you can get.

Two — we had to increase the frequency of analysis. The industry standard is examining the consumer on a 30-day cycle — after all it is what we've always done. But remember what happens when you fail to innovate, and simply do what you have always done?

AN INNOVATION SPRING

We needed more timely information. So rather than monthly, we shifted to weekly — and in some circumstances — daily reports. You know what we discovered? There was an abundance of micro-trends and shifts occurring within those 30 -day windows

It was information that enabled our customers to quickly pivot based on rapid changes in portfolios. Here we are 12 months later and we are still providing real and near time reporting; it reveals signals and patterns unseen in traditional reports.

Three — we had to get more granular in our observations. Making lending decisions based upon large segment behavior is not entirely reliable. A person with a 680 in Las Vegas, Nevada and one with a 680 in Des Moines, Iowa might have wildly different outcomes. Cities that rely on tourism, travel and high touch industries were exponentially more susceptible to the pandemic's economic impact versus municipalities that relied on agriculture and low touch industries.

It is important to understand nuances. Location matters, granularity matters. To get that view you need more data and you need to look at consumers beyond a snapshot, you need to see trajectory and behaviors over time.

I share all this because I think it speaks to the spirit of innovation. When in doubt, run to the fire, get closer than ever to your customers, and help them. What results might be your greatest innovation.

Fortunately we appear to be pulling out of the pandemic, and like you I am hopeful that steady growth takes hold and unemployment falls. But let us not forget the lesson it taught us. A sense of urgency and an ability to quickly pivot, to innovate, are what ensures our businesses continue to thrive. ■



innovation^x™

A strategic ideation experience where Equifax customers collaborate with the industry's most creative minds and advanced data to solve business challenges and create new, game-changing solutions and innovations.

InnovationX is a new immersive customer experience that acts as a collaboration center with our Equifax D&A and Product experts for fintechs and financial institutions. It allows them to readily access Equifax differentiated data and capabilities so they can explore new solutions and markets using our advanced analytics and cloud-native data. We are providing customers access to our differentiated data, analytics capabilities, and leading Explainable AI and Machine Learning techniques to rapidly analyze massive amounts of data and drive complex solutions to their problems. Our best-of-the-best data scientists will collaborate and co-innovate with customers to help them test and bring new data solutions to market ... fast! ■

[Learn more](#)

Delivering perfect predictions

5 solutions for alleviating information asymmetry, increasing the speed and reducing the friction of decisions



Temporal View: Capturing More Trends And Longer Histories

Multidata Solutions: Bringing All Equifax Data Together For Our Customers

Representational Capacity: Unlocking Higher Performance And New Insights



Challenges

We've utilized traditional modelling techniques that rely on human intuition.

Impact

Lower representational capacity than complex analytical techniques. Expanded representational capacity minimizes "loss of information".

Example

High Dimensional Clustering



High Frequency Data: Enabling Real-time Insights

Challenges

Equifax has worked with monthly snapshots due to technical challenges of streaming live data.

Impact

This may lead to systematic bias in models based on whether information was received at the start or end of a reporting cycle.

Example

Loan Stacking



Challenges

Equifax has summarized contributed data into attributes because storing full time series versions of all data was technically infeasible (e.g., storage, compute, etc.)

Impact

This summarization leads to loss of signals that could be predictive for many use cases.

Example

Journalized Attributes



Challenges

True multidata solutions have not been created. Instead, we've glued outputs of two data sources onto a single report. This was due primarily to technical and legal challenges.

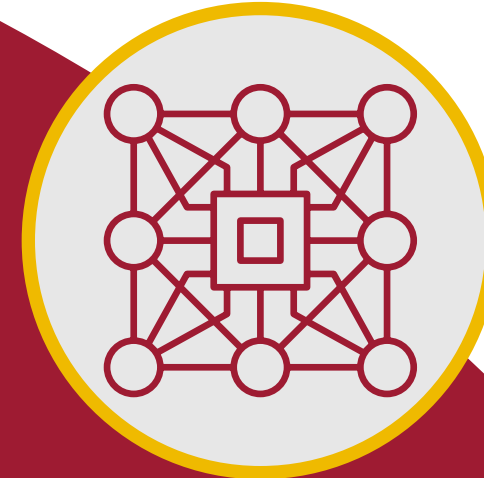
Lack of configure multidata solutions leads to custom analytics projects which are expensive to scale (human capital dependent.)

Impact

Lost revenue; Not extracting full value/lift from our datasets

Example

Generic Score Plug-Ins



Keying & Linking: Single Unifying Key

Challenges

Bringing Equifax and 3rd party datasets together can be difficult due to disparate keys across datasets and restrictions on PII usage.

Impact

Keying and linking challenges lead to lower hit and match rates, and even lead to valuable datasets going unused.

Example

Linking Fraudulent Records With Graph Databases

Finding hidden connections in smart data

Using multidata solutions to fight identity fraud in a post-pandemic world

STYLETTA CARTER
PRODUCT MARKETER

2020 was quite a year. COVID-19 accelerated digital transformation across the board. We viewed a stark paradigm shift take place where we went from a “digital first” to “digital only” business environment. This was brought on by abrupt shelter in place orders. Consumers were forced to do everything online from buying groceries to ordering food, and it meant handling all their financial transactions online.

During this pandemic, not only have new fraud schemes emerge, but we have also seen that the different types of fraud have multiplied. The [Federal Trade Commission received nearly 2.2 million fraud complaints in 2020](#). Also, from Equifax data, it is noted that the authorized user abuse risk in 2020 increased over 23% compared to 2018 and 2019.

When Congress passed the [\\$2.2 trillion stimulus package](#) also known as the “Coronavirus Aid, Relief, and Economic Security Act” (‘[CARES Act](#)’) to help struggling families and boost the economy, new fraud schemes emerged that exploited the Payroll Protection Program (PPP) and unemployment insurance program. According to Cori Shen, Senior Director of Identity Fraud Analytics & Data Science at Equifax, as [millions of Americans applied for help](#), there were [international and national criminal rings](#) that were working relentlessly to steal these funds using sophisticated methods of identity theft.

That is why it is more important than ever to begin thinking of better ways to use data for identity theft prevention and fraud mitigation. With so much data out available, how can we sort through these billions of interactions and use

analytics to really derive insights that can be used to mitigate against these growing identity and fraud challenges?

“If we look at today’s technology paradigm, managing big data from multiple sources is no longer a challenge,” says Cori Shen. “What matters the most is how to make sense of big data, and how to intelligently and efficiently assemble multisource data for the right insights. In our Innovation Lab here at Equifax, we call it ‘smart data’ because we want the data from multiple sources to ‘talk’ and offer up recommendations.”

It may sound easier said than done, especially when it comes to synthetic identity fraud. Many synthetic identities have been in the system for a while, and they look like legitimate people. It seems as if their identity information is

complete because it matches what the systems have. That is why these fake identities look like real people and can be used to create fake businesses and defraud the system with millions of dollars of PPP loans and unemployment claims. Even if businesses conduct identity verification matches from multiple sources, they may not be able to catch them.

Here is where smart data comes into play. “A wise man once said don’t listen to what fraudsters tell you; watch what they do,” says Shen. “You want to search for the abnormal signals throughout an identity’s lifecycle. By doing so, you will need the consumer activity data from multiple sources and different systems to talk to one another.”

According to Shen, some synthetic ID outliers appear at an early stage. You see the synthetic IDs applying for mortgages or shopping for luxury cars, while a regular legitimate consumer often applies for a cell phone, apartment, internet service, credit card or student loan at an early stage. Other times, synthetic IDs can play a patient game and wait for a couple of years to build up their credit history before taking actions. However, once they start taking actions, they do it very quickly, to an extreme extent. So when you explore the trended activities, you would see those synthetic IDs can be dormant for a while and then all of sudden you can see a huge spike in their activities — desperately shopping around for money and acting extremely anxiously in monitoring their credit.

These hidden connections can be supplemented with digital signals and consumer data. To establish and maintain a synthetic ID, the fraudsters like to manipulate identities via online channels. They like to change addresses and alter names online or from mobile phones. With smart data, you can see the same device linked to many different identities for name and address change requests, and you can see that the IP geolocation is far away from the existing addresses and new addresses.

Using smart data gives you the whole picture. Once you derive the insights, you can connect the insights to discover the fraud attempts. With that information, businesses can take the right actions to conduct fraud reviews or do a step-up authentication. ■



Listen to the podcast



Canada

Capacity Model
Leveraging historic actual consumer payment behaviour to model potential for a consumer to take on additional credit usage whilst maintaining in good standing

Vertical Recovery Scores - Micro Market Attributes
Testing of new R&D micro market (FSA level) score movement attributes found to be highly predictive for our new credit card and telco recovery scores

LATAM

The consumption data and online information in addition with Equifax financial data, enable the construction of 360 profiles, lifestyles indicators

Panama

Using utility data has become relevant for the construction of a Income Predictor, that will be the first Product released for the last CAMex acquisition

Peru

Offering an economical way of segmenting the population through lifestyle estimation

United Kingdom

Redevelopment Of Flagship Application Scoring Suite generates an 8% lift measured in Gini on thin file customers

Bank Account Transaction Data underpinning a 20% increase in score performance for thin file customers seeking to get onto the credit ladder

Integrating Data Geo And Household For Credit Risk Models has increased the performance by 11% measured in KS for the unbanked population

Argentina

Australia

Through Leveraging A Multidata Approach, including comprehensive credit reporting data, emerging profiles (BNPL) and other sources of alternative data combined with Equifax unique EX AI capabilities (NDT) we have created our best ever consumer score. Improving lending decisions by 10%



Data innovation across the globe

Meeting diverse customer needs in global markets with local innovations

Revolutionizing the credit industry with ML and xAI

CIO Applications names Equifax "Top Machine Learning Company 2021"

KEVIN MORRISON
VICE PRESIDENT, SOLUTIONS MARKETING

In 2015, Equifax developed a patented solution, NeuroDecision® Technology, powered by explainable artificial intelligence (xAI), to help lenders approve more consumers for credit. The technology is among the first machine learning (ML) credit scoring methodologies to provide explainable reason codes for consumers. Today, Equifax is working toward a launch of its fourth generation of NeuroDecision Technology.

Given this ground-breaking technique and other advances developed through our Enterprise Innovation Lab inside the Equifax Data & Analytics team, [CIO Applications](#) magazine recently named Equifax to its annual list of Top 25 Machine Learning Companies.

To learn more, we sat down with Chris Yasko, head of our Enterprise Innovation Lab. He explains how we got here and what makes Equifax ML technology so unique.

What led your team to focus on innovating the credit lending process?

Credit lending is a massive business domain in the

U.S., directly and indirectly influencing almost all areas of the economy. With a major share of the population holding loans worth trillions of dollars, any technology capable of making even a small advance in a financial organization's bottom-line or market-share would be an opportunity for substantial growth.

For that reason, both established banks and fintechs are constantly looking for ways to innovate. Both AI and ML present excellent opportunities to expand portfolios. At its core, lending is a big data challenge, making it a function perfectly suited for ML. The more data an organization can leverage, the better it can increase business and gain customer traction while eliminating administrative overhead, bad decisions and delays. AI and ML come with a promise to analyze multiple data sources and models to deliver optimal decisions aimed at improving outcomes for consumers and for businesses.

In this regard, Equifax is a powerhouse that is proactively applying groundbreaking modeling

techniques fueled by explainable AI and ML in the credit decisioning landscape. Our patented [NeuroDecision Technology](#), now in its fourth generation, is a prime example of this.

What does Equifax aim to achieve through machine learning?

When we started the Innovation Lab, we focused on new solutions to help improve business and consumer outcomes, while also explaining the key factors that might negatively impact an applicant's credit score. The Fair Credit Reporting Act (FCRA) has requirements that consumers are provided with key factors that give weight their score.

To help fulfill this regulatory requirement, we pioneered a solution that applies ML and has patented numerous xAI solutions. By taking these solutions to regulatory agencies in the U.S. and Europe, we gained mindshare around what was possible. Currently, we are working with unstructured data, streaming data and time series data to further raise the bar.

What can we expect from the fourth generation of NeuroDecision Technology?

The fourth-generation NeuroDecision Technology xAI algorithm comes with advanced computing capabilities and big data processing capabilities, which are facilitated by Cloud technology. They are also designed to consume more types of data.

Recently, Equifax has acquired significant alternative and proprietary data assets. By leveraging powerful data, technology and analytics, we seek to open more growth opportunities for our clients and more paths to financial products and services for consumers.

What are some of the factors that differentiate Equifax from other players?

Equifax is on a transformative journey. Over the last three years, we have invested \$1.5 billion in technology and migrated thousands of customers to the Cloud to help them succeed and grow.

Today, we are at the forefront of ML and explainable AI technology. In the last four years, we have obtained more than two dozen patents in these areas. We can process huge volumes of data in the Cloud. More importantly, we work across a wide range of data types, many of them differentiated and proprietary, to deliver robust and actionable insights.

Further, our team engages extensively with key customers, industry peer groups and universities.

We have a faculty research sponsoring program and work with several colleges in the state of Georgia, including Georgia Institute of Technology, [Kennesaw State University](#) and more, providing opportunities for Ph.D. students to do independent research and make significant contributions to science. We also have teamed up with Cornell University in New York, Stanford School of Economics and Harvard business school to facilitate research opportunities.

At the end of the day, we have a laser focus on leveraging data, analytics and technology to empower businesses to make better, more confident decisions while helping consumers get access to the credit they deserve. ■

“Equifax is on a transformative journey”

CHRIS YASKO
VICE PRESIDENT, EQUIFAX INNOVATION LAB



Listening with purpose

We Hear What Our Customers Say

THA VIN
CONTENT DIRECTOR

BONNIE SMITH
PEAK ENGAGEMENT STRATEGIES, PRINCIPAL

“How much can we trust what we think we know?”

When a leader of credit policies at a large credit union shared this concern with a cohort of other data science leaders, we all could hear the frustration mixed with relief this past year had brought. Equifax Data & Analytics launched the Equifax Ignite Innovation Council, a forum for data science leaders to discuss innovation and industry trends, in May 2020. Unlike most customer advisory boards led by marketing teams, the data & analytics group planned and executed this forum. So when the leader of credit policies expressed his healthy skepticism, his words not only were cathartic for him, but purposeful for Equifax. The insight served to trigger an innovation process built to capture and disseminate customer feedback.

A true customer advisory board (CAB) is a small group of individuals from a strategic group of accounts and a few key leaders from your company. The group meets regularly and thrives because both customers and the host company benefit from the discussions, the networking and the relationship building that board meetings provide. The best boards are run by keeping this mind and resisting the temptation to inject board meeting agendas with presentations & sales pitches.

Customers want to be heard

Equifax leaders know our customers want to be heard. When John Fenstermaker, Chief Innovation Architect at Equifax Data & Analytics, heard the council member express the shared concern, he empathized with the customer and showed Equifax leadership understood the origins of the member’s anxiety.

“This isn’t the first time I’ve heard this uncertainty expressed,” says John. “The rise in uncertainty in consumer behavior and economic conditions has increased the need for faster data, smarter analytics and automated decisioning.”

Customers invest significant dollars in companies whose products and services are a clear and critical part of their success. Customers who view your products and solutions in this light know there is too much at risk for them to not pursue the opportunity that CAB membership presents to regularly be heard by, hear from and build relationships with your company’s leadership.



What is your data & analytics headline for 2021?

We asked our council members to write their company’s news headline for 2021. The headlines reflected the need for alternative data to understand behaviors that are not as accurately predicted by credit scores resulting in unexpected profits, a lack of confidence in current information and an overall need for more frequent data. Here are a handful of headlines from a few of our top customers.

“How Much Can We Trust What We Think We Know?”

CREDIT POLICIES LEADER AT CREDIT UNION

“Automation. Clients Want To Use Data To Make Automated Decisions.”

FOUNDER AT FINTECH START-UP

“More Data, More Data, Faster Data. Data Science Starts With Data, Not With Science.”

PRODUCT LEADER AT FINANCIAL INTELLIGENCE CONGLOMERATE

“To Identify New Clients That May Perform Better Than Their Credit Scores Would Normally Indicate.”

CREDIT RISK LEADER AT TELECOMMUNICATIONS COMPANY

“Look At Non-credit Behaviors Potentially Affecting Credit Dynamics.”

RISK LEADER AT SPECIALTY FINANCE AUTOMOTIVE LENDER

“Credit Inclusiveness — Using The Best Products Available To In Order To Extend Credit As Deep Into The Credit Spectrum As Possible.”

DATA SCIENCE LEADER AT RENT-TO-OWN RETAILER

Creative thinking fuels “customer-first” model development

Using multisource data and expertise to build tailored, high-performing models

DAVE WHITIN
VP, ANALYTIC SOLUTIONS CONSULTING

Analytic model development has come a long way in a relatively short period. What used to be a little-understood process managed by data scientists has become slightly more mainstream, thanks to the proliferation of big data and end-to-end platform technologies. Equifax fueled this market shift with the 2017 introduction of Equifax Ignite®, our dynamic, cloud-based data and analytics platform. It enabled data analysts and business users alike to readily collaborate with data scientists to build the right models that drive the right outcomes.

Today, our creative customer-first approach to model development offers our valued customers yet another industry-exclusive advantage. We spoke to John Fenstermaker, Chief Innovation Architect, about how we are able to combine and precisely adjust the right mix of data and modeling techniques to proactively recommend the highest-performing models to best grow and protect a client’s business. He gave us a quick peek behind the curtain to show how it works.

Tell us a little bit about how this approach is different.

John: We start off by reframing the development mindset. With a customer-first approach to model development, it seems the first question should be, “what do you want to build?” At least, that is how many providers approach model development.

Not Equifax. We take a different approach, one that proactively shows our customers, “here’s what we know works best, based on your unique needs.”

First, we gather a customer’s trade and inquiry data. Then, we run hundreds, if not thousands of simulations, each time tweaking and adjusting the data components as we go. If the customer’s inquiry data is not available, we build a “like database” of peer inquiry groups. All data is aggregated and anonymized during testing.

Throughout this process, we experiment and layer on expanded data sources— including several alternative and consumer-contributed data sources that our customers may not even know exist — to optimize outcomes. Plus, we are examining the most optimal modeling techniques — will a neural network provide the best (and explainable) outcomes, or maybe a gradient boosted machine? Or is the tried and true logistic regression method still providing the best outcome?

We are looking for the exact combination and calibration of data inputs that can either: 1) increase account approvals while keeping risk levels steady; or 2) lower risk levels, while keeping approvals steady.

Once we figure out the ‘secret sauce,’ we go back to the customer with our top recommendations. This is all done prior to model development to preserve

customer’s time and resources, and ultimately deliver the highest-performing model possible, in the shortest time frame.

Tell us more about how you and your team derive even more value from data.

John: This creative approach — tinkering with alternative data sources and layering it on top of a customer’s existing data — enables a better understanding of individual consumers, and as a result, it uncovers hidden opportunities and risk. In turn, these deeper insights allow the business to make better, more personalized credit offers to a wider audience of creditworthy consumers, including those who might be near-prime, sub-prime or unscorable.

Alternative data is essential to this approach for a couple of reasons. First, it is typically not included in a traditional credit report, which means it offers another angle or view of the customer. Second, it can be highly predictive of future account performance by revealing a consumer’s payment behaviors, credit capacity and

credit trajectory. Here are a few examples of the types of alternative data we use in our simulations.

- Telecommunications, pay TV and utility payment data, which shows how people pay their “everyday bills.”
- Employment and income data that indicates how long a person has worked for an employer, which demonstrates employment stability.
- Alternative lending data from short-term unsecured lenders (such as payday lenders and cash advancers), which can show if a person is making payments on time.

Just as important as our data strategy is our ability to experiment in the cloud using Equifax Ignite. It ultimately enables this “plug and play” approach to simulating and building models on an entire data population, as opposed to a sample set that data scientists have historically used. ■



ignite
LIVE

Converge

On new paths
to innovation

Missed Ignite LIVE 2021? Check out all the on-demand content to help you navigate converging trends that impact the credit ecosystem. Learn what has changed, who has changed, what's temporary and what's permanent. [View the replays today.](#)