Cut your credit losses without losing borrowers

ZAML™ allows you to improve your underwriting by leveraging machine learning

Why traditional underwriting makes it hard to grow without increasing credit losses

Most underwriting technology in use today does a good job of identifying creditworthy borrowers with an easily accessible credit history. But traditional underwriting has not changed in 50 years. This lack of innovation makes it challenging to identify millions of creditworthy borrowers.

50 years ago, most people with a credit bureau file had no missing data or errors in their file. This is no longer true. As many as 40% of Americans—including tens of millions of millennials—now have thin credit files, or no credit file. These applicants—whether they will be good credit risks or not—are neglected because they haven't amassed the extensive credit histories needed to fuel traditional underwriting models.

This problem is even worse in many emerging markets because the data needed for traditional underwriting doesn't exist in those markets. The result: Businesses needing to grow their lending in these markets often struggle to control credit losses.

Lending businesses need to grow revenue. In today's low interest rate environments, growing lending is the primary path to revenue growth. Minimizing credit losses is key to growing lending businesses. Given the challenges traditional underwriting faces, this is a hard problem to solve.

How the Zest Automated Machine Learning (ZAML) platform can help

Machine learning can help lenders improve their risk performance across these previously hard-to-score populations. Machine learning uses vast amounts of data to provide accurate, predictive analysis, instead of the 50 or fewer data points traditional models use.

Even with well-trained data scientists, however, there are significant obstacles to adopting machine learning technology for underwriting. Upfront costs—in time and money—can be prohibitive for acquiring and preparing the necessary data and building the supporting machine learning infrastructure.

In addition, machine learning models often function as "black boxes," making it difficult or even impossible to understand which factors are driving model outcomes. This lack of transparency is another roadblock for business owners who need to understand changes in model behavior and the resulting economic impacts.

Perhaps even more importantly, the black box nature of machine learning models can be prohibitive due to compliance risks. If lenders can't understand which variables are driving model outcomes and how those variables are interacting, they risk violating regulations for adverse action and disparate impact.

The ZAML platform was built to overcome these obstacles. ZAML gives data scientists more information and tools to work with and improves lenders' underwriting by enabling efficient, transparent adoption of machine learning techniques.

ZestFinance developed ZAML—an end-to-end underwriting platform—over seven years of experience lending to and scoring diverse customers segments. ZAML's *data assimilation* tools allow lenders to acquire, onboard, and prepare massive amounts of disparate data for modeling. Its *modeling environment* allows data scientists to train, ensemble and productionalize models more efficiently. Together these tools drastically lower the time and financial cost of adopting machine learning. Finally, ZAML's *explainability tools* solve black box concerns, providing model insights to executives and tools to support analyses needed for compliance.

ZAML in action: Two examples of lenders who are improving risk performance

ZAML facilitates the development of machine learning models that spot risk indicators traditional models and methods miss, enabling lenders to more accurately isolate high-risk applicants. And by identifying better quality borrowers to "swap-in," ZAML models ensure that lenders can cut risk without sacrificing approvals.

* **A top-five U.S. credit card issuer** is using machine learning models built on the ZAML platform to decrease loss rates by more than 15%, saving more than $100 million.

With machine learning, the ZAML model built with this customer was able to identify distinct customer segments other models missed, and thus recognize which variables drove behavior in each respective segment. For example, the ZAML model took into account the respective retailer and acquisition channel in its final risk assessment of an applicant—data points that traditional underwriting systems struggle to incorporate. Consequently, the ZAML model could determine that a likely one-time customer applying for a big-box retailer credit card online inherently presents a different risk compared to a general-use customer applying in-person at a gas station. While fairly intuitive, this is a differentiation that traditional methods can't make as accurately.

* **A major U.S. auto lender** is using machine learning models built with ZAML to cut losses from low- and no-FICO borrowers by more than 20%.

Using its data assimilation and modeling tools, the ZAML model built with this customer leverages underlying transactional data from credit bureaus. It spots risk indicators masked in high-level data and is thus better able to isolate the riskiest borrowers. For example, while a traditional model might focus on metrics like loan-to-value and payment-to-income ratios, the ZAML model looks deeper into the data, spotting indicators that a customer has taken out an additional loan to cover their down payment. While this is also an intuitive indicator of credit risk, it's one that traditional underwriting models and their limited supporting data might miss.

Neither of these companies relied heavily on machine learning before working with ZAML. But they had capable and experienced data scientists and analysts that were able to harness the value of machine learning because ZAML endowed them with the right tools.

ZAML's data assimilation tools allowed the clients' data scientists and analysts to use a variety of disparate data sources and produce a clean, robust data set for modeling, with hundreds or thousands of variables for each applicant. The ZAML modeling tools enabled them to develop submodels and ensemble them into a single, integrated underwriting model. And finally, ZAML's explainability tools allowed them to unpack the model results in each case to understand what was driving the credit scoring. With these explainability tools, both clients were able to ensure that they continued to meet regulations for adverse action and disparate impact.

Grow your lending business with new math and more data

Machine learning requires both new math and more data. Often, that data already exists within an organization. ZAML allows lenders to use machine learning and new data—either from internal sources or a third party—to improve the performance of their underwriting. And it allows them to do so efficiently, cost-effectively, and compliantly.

To learn more about how ZAML can help your lending business cut losses without sacrificing borrowers, contact us at partner@zestfinance.com or visit www.zestfinance.com.