

Safely grow your lending business

ZAML™ allows you to increase your approval rates by leveraging machine learning

Why traditional underwriting makes it hard to grow

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 are often reluctant to expand approvals to thin- and no-file borrowers, which in turn can restrict their growth to new markets.

Lending businesses need to grow revenue. In today's low interest rate environments, growing lending is the primary path to revenue growth. Responsibly expanding approval rates to thin- and no-file borrowers 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 approve borrowers from 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 customer 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 safely increasing their approval rates

ZAML facilitates the inclusion of hundreds or thousands of variables not used in traditional underwriting. With this additional data, the machine learning models built with ZAML can produce accurate credit decisions for previously hard-to-score borrowers, allowing lenders to safely approve additional borrowers without increasing risk.

* **ZestFinance partnered with JD.com**—China’s second largest e-commerce company—and using ZAML, built new machine learning models that increased JD.com’s approval rate by 150%.

Key to this improvement was the ability to incorporate additional data into the underwriting process and to develop the machine learning models to handle that data. Working with JD.com’s team, ZestFinance incorporated browsing data from potential applicants into the underwriting model. Additionally, the teams used ZAML to generate new features for the model, such as building submodels to verify applicant’s information based on the applicant’s web browsing or order history. The resulting model allowed JD.com to safely extend installment loan offers to its shoppers, even those with no traditional credit data on file.

* **A top-five U.S. credit card issuer** is using machine learning models built with ZAML to increase approvals by 9%, extending hundreds of millions of dollars in additional credit without increasing risk.

ZAML makes such gains possible by facilitating the use of hundreds of additional data points in its model build. This client’s existing underwriting solution, based on a logistic regression model, employed a collection of variables from credit bureau data. But the client also possessed additional bureau variables, application data, and a collection of customer relationship management (CRM) data that was not incorporated in its traditional underwriting model. Working with ZestFinance’s data scientists and using ZAML, this client was able to take volumes of raw CRM data for each applicant and generate a set of coherent features that could be used for modeling. For example, the team took monthly snapshots of credit bureau variables from the prior year and used it as trend data in the machine learning model.

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 applicable regulations, including those for adverse action and disparate impact in the United States.

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 accurately score potential borrowers neglected by traditional underwriting methods. And it allows them to do so efficiently, cost-effectively, and compliantly.

To learn more about how ZAML can help your company safely increase approval rates to grow its business, contact us at partner@zestfinance.com or visit www.zestfinance.com.

