



White Paper

# TAZI Continuous Profitability and Rate Monitoring Solution

**Tazi.ai**

353 Sacramento St STE 1800  
San Francisco, CA 94111  
+1(408)290-5491  
info@tazi.ai



## SUMMARY

Creating and testing competitive insurance pricing strategies has never been more significant as the customer behavior and experience is shifting towards a digital environment due to the COVID-19 pandemic. Insurance organizations need to constantly update their rating models in order to stay ahead of competition and maintain portfolio profitability. Any disruptive rating changes can negatively impact retention and cause a significant loss of revenue.

In this paper, we outline how TAZI's Profitability and Rate Monitoring solution works. This solution is based on TAZI's Continuous and Explainable, No-Code, Automated Machine Learning (AutoML) platform. We describe how continuous learning and dynamic customer segmentation helps discover profitable and loss-making micro-segments. We also describe how business units, such as state product managers, can monitor their rating models and take rating actions in order to maintain their loss ratio.

Please see the resources at the end of the paper to see how much you could save with a tool like this and how you could create a customized insurance profitability solution.



## INTRODUCTION

In order to monitor the rates and profitability across your book of business, there is a need to have an accurate prediction of risks within the current portfolio. Different types of risk are considered for insurance products and combining all such risks might lead to significant rate changes, which might impact both retention and profitability at the insurance carrier. Hence, it is highly significant for product managers to monitor their profitability and rating methods in order to retain profitable, high LTV customers. Wouldn't the business benefit if there was a system available that monitored your existing product portfolio and easily identified those medium to high LTV customer segments that have a high profitability estimate?

Machine Learning systems can detect complex patterns in data and make accurate predictions. However, opaque reasoning or complexity of most ML approaches hamper their use and benefit to the business. Tazi's AutoML system is designed from the ground up to be understandable by a business user, enabling them to trust machine learning and stay in sync with continuously changing business dynamics. Tazi operationalizes machine learning models that enable business users to monitor the profitable and loss-making segments across different LTV tiers, recommend the right rating action to take using the right channel and increase your revenue while maintaining your loss ratio.

When TAZI is deployed to detect profitability and monitor your ratings, your revenue is increased, your expense ratios improve and you stay ahead of competition. Imagine if you also used Tazi to help your marketing team find those high value prospects that look like your highest profitable LTV already on the books and convert them too.

In this paper, we give details on the use and benefits of TAZI's Continuous and Explainable No-Code Automated ML platform for Profitability and Rate Monitoring.



### **Problem Statement:**

The Insurance company needs a mechanism to detect profitable, neutral, and loss-making segments and take the right rating action in order to minimize any retention loss across different lines of business. The product managers or pricing experts in the company want to understand which segments in their portfolio are problematic and the reasons for such problems. They want to monitor their rates and loss ratio for each micro-segment and they want the ability to take appropriate business actions for each profitable or unprofitable segment of customers.

Portfolio risk varies in time and is based on many parameters such as, rating model, premium increase, competitors' pricing revisions or sales cycles, new regulations, agent service, economic conditions in the region, type of vehicles driven, location, and weather conditions, etc.

Traditional machine learning models are not updated frequently, and they are updated usually after they fail. The updates require huge time and effort of the data science teams. Traditional machine learning models are black boxes, the business receives problematic segments, but doesn't understand why problems are happening. If the machine learning models are right and trustable, the right business actions can be taken.

#### **Tazi.ai**

353 Sacramento St STE 1800  
San Francisco, CA 94111  
+1(408)290-5491  
info@tazi.ai



### TAZI Profitability and Rate Monitoring Solution:

The Insurance company needs a mechanism to detect profitability, TAZI utilizes the Profitability and Rate Monitoring Workflow shown in Figure 1.



Figure 1: TAZI's Profitability and Rate Monitoring Approach

To keep up with the current continuously changing and evolving environment, machine learning systems need to be able to adapt “on the fly”. They also need to quickly notice, recognize, and adapt to new strategies and pricing models introduced by your competition. To recognize and react to this ever-changing environment, batch machine learning models are no longer sufficient since they are already out of date by the time they are deployed. Since the change across all profitability and rating variables is rapid, the only way to stay ahead of the market is through continuous machine learning.

TAZI's continuous machine learning technology allows profitability models to be updated continuously, so that they can detect different segments that add value or hurt your business. The descriptive indicators of profitability changes due to a myriad of factors ranging from demographic, economy, competition against the company's own product or marketing actions. Tazi helps automatically and



continuously determine the level of contribution of each of these factors that drive profitability.

The first step in profitability and rate monitoring solution is to automatically provide the detected profitable, neutral, and loss-making micro-segments of your portfolio. A micro-segment can be a class of customers that are of a certain demographic that is being recently targeted by a competitor who has just dropped their rates for this territory or region. A micro-segment can also be those customers that have the highest loss ratio due to poor risk estimate and increased claim probability. In Figure 2, the areas shown in red are micro-segments highlighting loss-making, problematic segments. An example micro-segment of detected profitability, based on vehicle make, insured age, vehicle color, insured type is highlighted in the figure.



Figure 2: Interactive Explainable AI interface showing detected loss-making micro-segments (in red) and highlighting a particular micro-segment. The variables used by the profitability model are shown on the left.



All the segments in the explainable AI interface can be copied over to the business dashboard component of the solution, where the user can interactively monitor the loss ratio and profitability trends for a specific segment. Profitability of customers with high LTV as well as their loss margins can all be observed through a single screen (Figure 3,4).



Figure 3: Business Dashboard interface showing profitability estimates over time and loss ratios for high LTV customers.

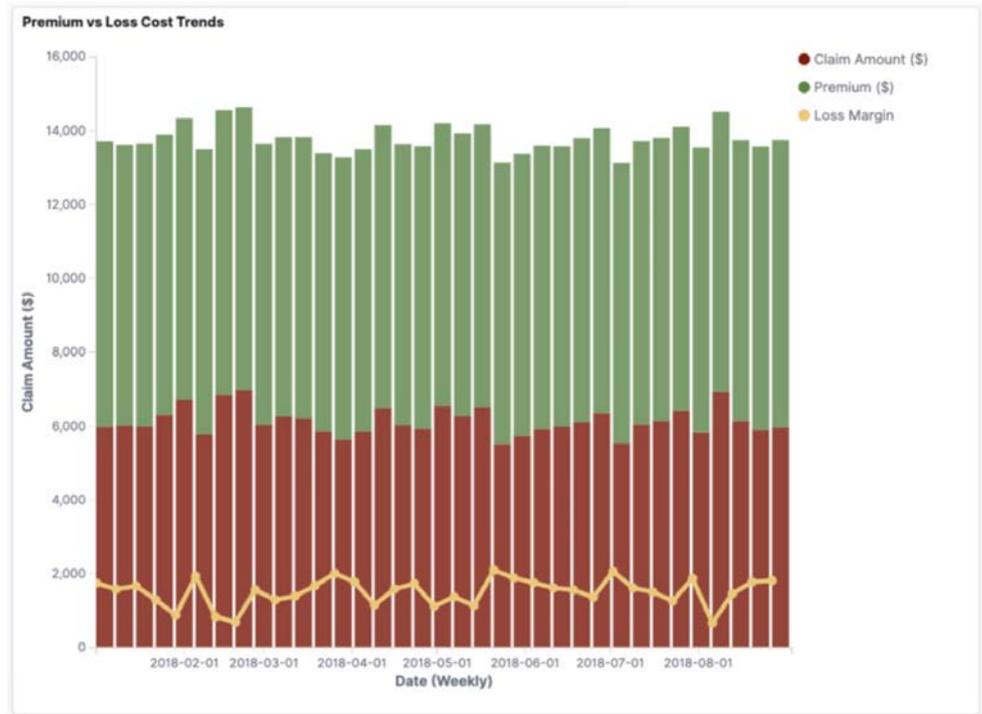


Figure 4: Profitability trends and loss ratio changes over time can be observed in the bottom screen.

The appropriate action for profitable or loss-making segments may depend on the micro-segment definition. Up-Sell campaigns can be created for certain unprofitable campaigns as a business action. Another action might be to offer claim free discounts to segments with no expected losses. Competitor pricing changes may require actions such as policy rate plan review, deductible optimization, or even review and update of the existing pricing models with TAZI's price elasticity approach.



TAZI focuses on its prediction models to be actionable. Hence, all the actions described above can be planned for business straight from the interface. For each segment, the user has the option to customize different business actions, and take output from TAZI's prediction models as the next best action that will add value to the insurance organization.

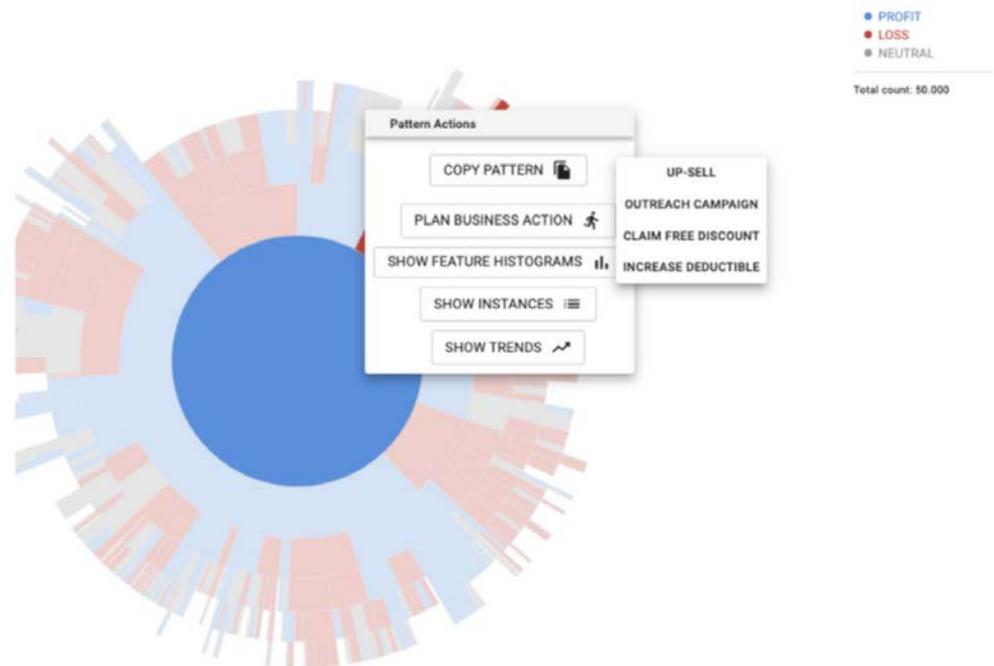


Figure 5: TAZI makes the models actionable from the explainable AI interface.

In addition, especially when there are abrupt changes through competition, economic conditions, and risk levels, there might also be emerging micro-segments with small amounts of data where traditional machine learning models are not able to detect these new patterns. For these situations, the Tazi self-updating models can be fine-tuned by business SMEs that are able to detect newly emerging patterns for improved performance.



With TAZI, the state product managers or pricing experts can now drill down into the micro-segment to monitor the loss ratio and observe profitability trends. The user can view the profitability drivers for each segment and can take the best action for an increase in revenue. Based on historical customer behavior, the system recommends the right action that has the highest probability of success. For example, an increase in deductible or an up-sell offer will be suggested by Tazi for different sets of customers (Figure 6).

Customer Name	Region	Profitability Estimate	Policy Premium	Expected Loss Ratio	Best Action
John Doe	Region 1	Profit	1457	0.12	Up-Sell
Mike Brown	Region 3	Neutral	2378	0.43	Deductible Increase
Jane Hydes	Region 6	Neutral	4532	0.41	Deductible Increase
Alice Robbins	Region 1	Profit	1867	0.01	Claim Free Discount
James Chibe	Region 4	Loss	2312	0.86	Rate Review
Wade Kipler	Region 2	Profit	2856	0.15	Outreach Campaign
Dylan Combs	Region 3	Loss	2097	0.88	Rate Review

Figure 6: Example List of Customers with suggested actions.

## CONCLUSION

TAZI AI with its automation can help you identify the problematic and succeeding segments in your portfolio, provide the drivers of profitability and recommend the right action to improve your loss ratio while maintaining retention. By engaging with TAZI's Profitability and Rate Monitoring solution, product managers will be able to control their ratings and easily understand the profitable and problematic segments in just a few clicks.



## ABOUT TAZI

Artificial intelligence (AI) is a source of both huge excitement and apprehension, transforming enterprise operations today. It is more intelligent as it unlocks new sources of value creation and becomes a critical driver of competitive advantage by helping companies achieve new levels of performance at greater scale, growth, and speed than ever before, making it the biggest commercial opportunity in today's fast changing economy.

TAZI is a leading global Automated Machine Learning product/solutions provider with offices in San Francisco. TAZI is a Gartner Cool Vendor in Core AI Technologies (May 2019) and is considered as "[The Next Generation of Automated Machine Learning](#)" by Data Science Central.

## WHO WE ARE

Founded in 2015, TAZI has a single mission which is to help businesses to directly benefit from Automated Machine Learning by using TAZI as a superpower, shaping the future of their organizations while realizing direct benefits like cost reduction, increasing efficiency, enhanced (dynamic) business insight, new business (uncovered), and business automation.

## WHAT WE OFFER

Through its understandable continuous machine learning from data and humans, TAZI is supporting companies in banking, insurance, retail, and telco industries in making smarter, more intelligent business decisions.



TAZI solutions are based on a most compelling architecture that combines the experiences of 23 patents granted in AI and real-time systems, proven at different global implementations.

Some unique differentiators of TAZI products are:

- Business users can automatically configure custom ML models based on their KPI and the available data. TAZI's Profiler accelerates this process through data understanding and automated cleaning, feature transformation, engineering, and selection capabilities.
- TAZI models learn continuously, and are suitable for today's dynamic, realtime data environments.
- TAZI models are GDPR compliant (no black-box models). They provide an
- explanation in the business domain's terminology for every result they produce.
- TAZI supports multiple (heterogeneous) data sources, i.e.,...: external, batch, streaming, and others.
- TAZI can learn both from human domain experts and from data, which speeds up accuracy improvement.
- TAZI's hyper parameter optimization feature reduces human time spent for model configuration. TAZI products contain algorithms that are developed and coded to be lean, efficient, and scalable.