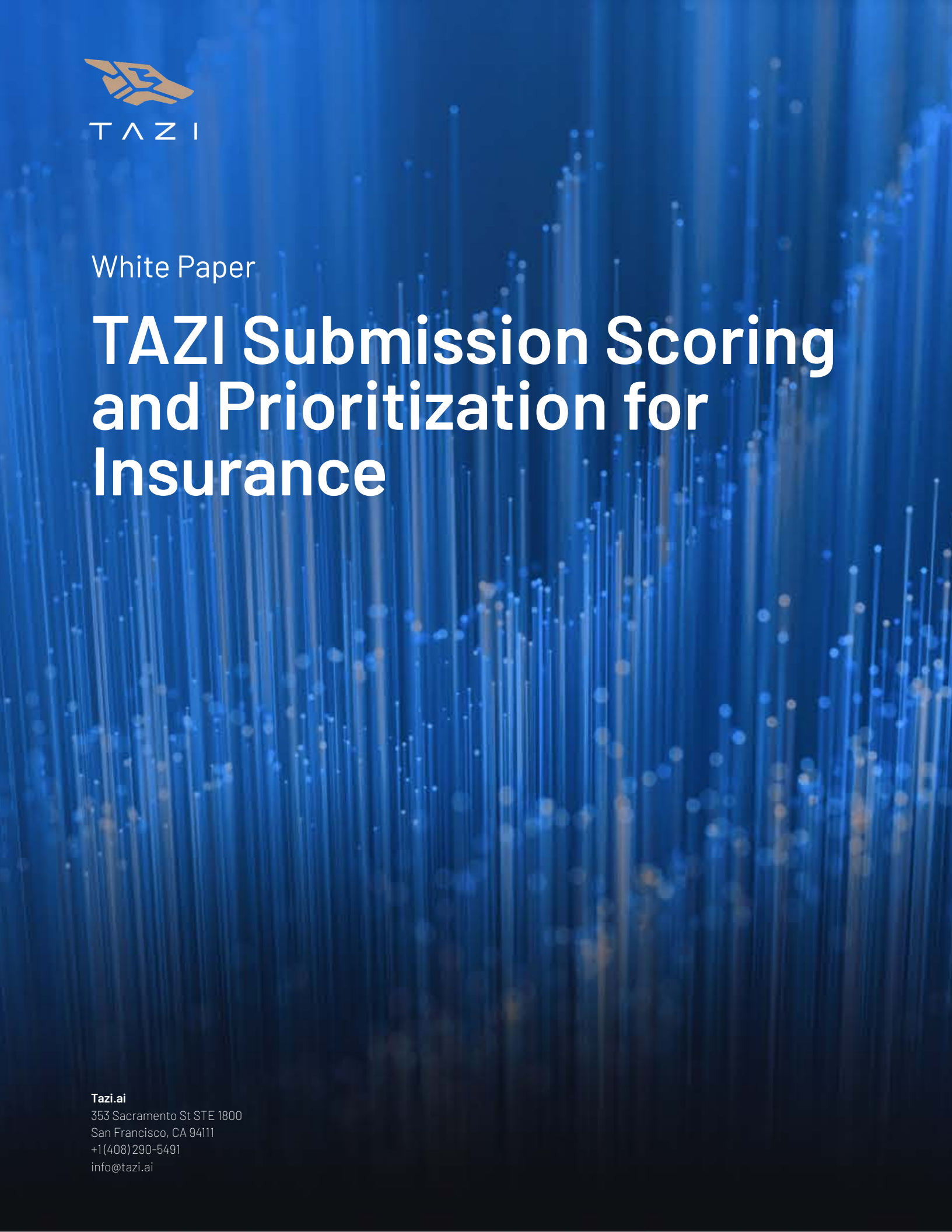

White Paper

TAZI Submission Scoring and Prioritization for Insurance

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

TAZI

SUMMARY

As the insurance industry continues to improve operating capabilities supporting its core functions through digital transformation, the need to adopt prescriptive data analytics capabilities in order to improve business productivity and automation are becoming table stakes.

One such application of prescriptive analytics is in the improvement of underwriting effectiveness by leveraging data to prioritize submissions for underwriting action. This is especially true in the underwriting of Small, Medium Enterprise insurance risks where underwriters spend significant time in assessing and pricing risks, including desirable ones that may end up not getting bound.

This solution would establish a continuously updated underwriting score that incorporates new data as it is obtained through the underwriting value chain. This enables the underwriting teams to focus on selling the right risks for the business. By focusing on the right submissions and improving submission processing, insurance carriers can incrementally improve their underwriting cycle times, bind ratios, and profitable growth metrics.

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

In this paper, we outline how TAZI's Submission Scoring solution works. This solution is based on TAZI's Continuous and Explainable, No-Code, Machine Learning platform. We describe how continuous learning and dynamic policy submission segmentation help score incoming policy submissions in real-time and improve the automation of submission triage by helping underwriters prioritize their daily workload. We also describe how underwriters and agents can monitor their submission processes to take next best actions in order to improve profitable growth through New Business transactions.

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

INTRODUCTION

The underwriting process is one of the core functions in the insurance industry, and for some segments it remains to be highly manual and time consuming. Conventional wisdom and practical experience has shown us that the more complex the risk, the more complex the underwriting process that surrounds it. Given technological advances in the 21st century, personal lines underwriting solutions (auto, home) have achieved high levels of automation using data-driven business rules. Commercial lines capabilities have established similar capabilities, that by design, have not achieved the same levels of automation. While opportunities to incrementally mature business rules capabilities continue to exist, significant gains are there to be realized in the small and middle market commercial underwriting space. In the small commercial space, for example, submission bind rates are known to be 20%-40%. Machine learning insights have proven to improve these bind rates by 5%.

Underwriters receive a significant number of submissions that need to be reviewed and evaluated for appetite fit, exposure analysis, coverage assessment, product structure and pricing. As the number of submissions goes up, it becomes increasingly difficult to review and prioritize all submissions real-time. Not only does this carry a risk of highly desirable submissions not getting the early attention they deserve, but inactivity can also lead to an undesirable customer experience. Hence, In order to achieve profitable growth while maintaining customer experience, there is a need to apply submission prioritization strategies and improve underwriting effectiveness. As an example, machine learning insights showed that time to quote can be reduced by 30%-50% with proper predictive submission scoring. Additionally, Regulators have put moratoriums on certain risk factors to protect the consumer (e.g. credit score) and carriers are now looking to find alternative factors to determine risk without compromising profitability and avoiding proxy biases.

The world will continue to rely on and implement business rules for automation. Machine learning provides an opportunity to source those business rules differently, to monitor them, and to make them dynamic, to the regulatory extent possibly. Wouldn't a solution that continuously enabled submission prioritization

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353 Sacramento St STE 1800
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+1 (408) 290-5491
info@tazi.ai

of the business that is most desirable to you, be of ongoing importance to your underwriters, to the underwriting function and to the company holistically?

Machine Learning systems can detect such complex patterns in data and make accurate risk selection and profitability predictions. However, opaque reasoning or complexity of most ML approaches hamper their use and benefit to the business. TAZI's system is designed from the ground up to be understandable by underwriters, enabling them to trust machine learning and stay in sync with continuously changing business dynamics. TAZI operationalizes machine learning models that enable underwriters to prioritize the submission process across the organization, a prioritized list of submissions, and recommend the right action to take towards increasing your binding rate for profitable business.

When TAZI is deployed to score your submissions in real-time, your combined ratios improve and you stay ahead of the competition. Furthermore, your underwriting team becomes more effective and can improve their performance over time.

In this paper, we give details on the use and benefits of TAZI's Continuous and Explainable No-Code ML solution for Submission Scoring.

Problem Statement:

The insurance carrier needs an automated mechanism to score incoming submissions based on their predicted risk and to refer the submissions for the next best action, be it to obtain additional information, to decline, to accept or to refer to an underwriter for further decisioning. The level of underwriting value chain automation ranges across the industry, with personal lines being highly automated, and large multinational commercial lines being highly manual. In Commercial Insurance, submission scoring has been traditionally processed by simply looking at 2 factors - SIC/NAICS code (is the business in appetite) and broker/agent relationship. This results in underwriters often spending time on quoting submissions that may not have a high likelihood of binding. As such, the usage and value of a submission scoring solution has similar ranges, with the optimal usage being in the small and middle market insurance segments.

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

Current submission reviews can be very cumbersome and dependent on the manual prioritization and experience of the underwriters. The underwriting managers and underwriters want to understand the reasons for accepting or declining a submission and want to take the action for referred submissions. The carriers want to leverage AI and machine learning in order to reduce the complexity and manual nature of submission processing.

Traditional machine learning models are not updated frequently, where the need for their update is usually identified after a failure. The updates require a huge time and effort from 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 Submission Scoring Solution:

TAZI utilizes the Submission Scoring Workflow shown in Figure 1.

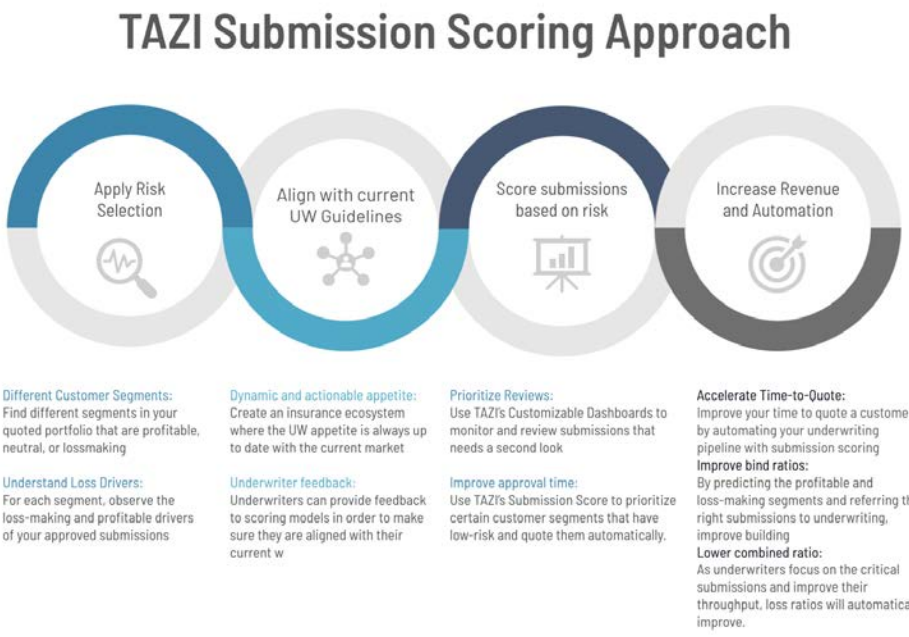

Figure 1: TAZI's Submission Scoring Approach

The first step in the submission scoring solution is to create risk selection models to your existing portfolio and submission history in order to understand

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

the loss and profit drivers inside your book of business and gain insights on underlying risk characteristics. These models are generated based on the historical submissions, underwriting decisions, and existing client exposure where different micro-segments are created with future risk behavior. A micro-segment is defined as a class of customers that are of a certain characteristic similar to other customers with similar risk behavior.

As an example, In Figure 2 below, the red are micro-segments with undesirable customer characteristics, and as such are modeled for an underwriter to reject.. The specific microsegment called out in this example defines that microsegment using Agency City, Vehicle Make, Vehicle MSRP, Vehicle Segment, Customer City and Agency Region descriptors.

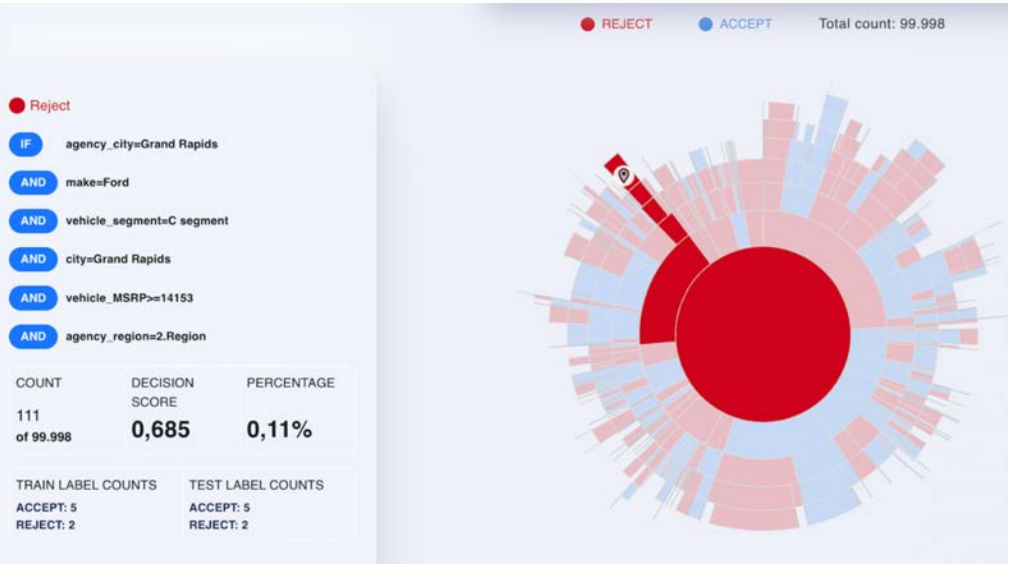

Figure 2: Interactive Explainable AI interface showing predicted loss-making submissions (in red) and highlighting a particular micro-segment.

All segments in the explainable AI interface can be represented in TAZI's business dashboard, where the business can track and monitor KPIs such as bind ratio, average time to quote and quotation trends. Referral indicators and submission trendlines for a specific customer segment be observed through a single screen (See Figure 3).

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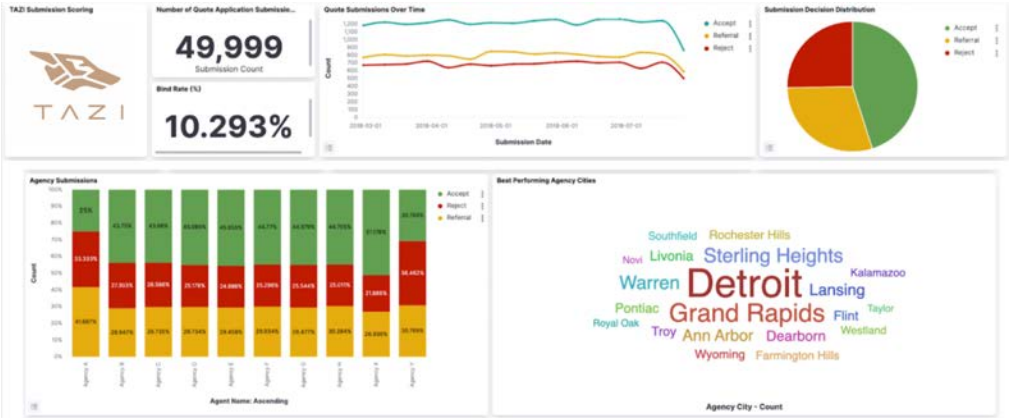

Figure 3: Business Dashboard interface showing historical submission and bind rates, best performing broker information and number of referrals.

The second step is to score the incoming submissions in real-time. On the basis of modeled micro-segments and their underlying risk factors, each incoming policy submission is scored from 0 to 100 where 100 is the customer with the lowest predicted risk. As incoming submissions are scored in real-time, high-scoring and low-scoring submissions can be accepted or rejected automatically. Submissions that have scores in the 50-60 range are referred to underwriters to a second-look with a reason for referral. By leveraging TAZI's submission scoring system, underwriters can easily prioritize their work and only investigate the submissions that need a second look.

Policy Submission ID	Submission Score	Policy Action	Explanation	Expected Premium
AU-JD-124	84	ACCEPT	Low Risk, Agency City, Age	357
AU-KD-945	86	ACCEPT	Low Risk, Occupation, Limit	423
AU-JH-234	59	REFER TO UW	Medium Risk, Broker, Age	897
AU-AR-196	34	REJECT	High Risk, Age, Vehicle Model	956
AU-JC-934	64	REFER TO UW	Medium Risk, Vehicle Year, Tenure	652
AU-HG-267	78	ACCEPT	Low Risk, Previous Exposure	128
AU-DC-210	21	REJECT	High Risk, Previous Exposure	932

Figure 4: Example List of Scored Submissions

TAZI solutions are embedded with the thinking that predictive insights need to be accompanied with recommended business actions. In this manner, we shorten the repetitive cycle times it takes to get from data to information to insights to action. As such, our solution configures various underwriting actions that should be taken as a result of such insights. For each microsegment, the

Tazi.ai
353 Sacramento St STE 1800
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user can configure business actions. These business actions can then be integrated into underwriting systems for business action (See Fig 5). Since TAZI can be integrated with legacy systems through REST APIs, underwriting staff can continue to work in their core applications (e.g. underwriting workstation or policy admin system) with little disruption to their workflow.

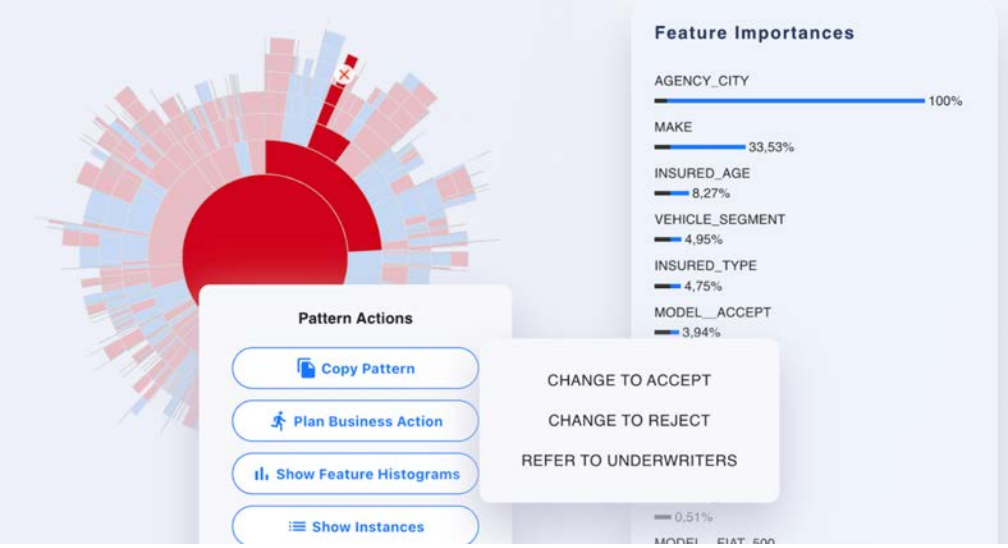

Figure 5: Tazi makes the models actionable from the explainable AI interface.

Additionally, when there are ongoing changes to market conditions as experienced through changes in underlying competitive, economic and risk factors, different microsegments can emerge from the shifts in data. These insights are left undetected in traditional machine learning models, with resulting impact on underlying business decisioning justifications. To address these scenarios, the TAZI models enable ongoing underwriting maintenance to detect newly emerging patterns for incorporation into business decisioning. This is a key capability for enabling high performing agile teams that develop and maintain ML models for business decisioning.

With TAZI Submission Scoring, underwriting management can leverage data insights to mature existing Submission Triage capabilities. The underlying decision models and their resulting business actions can be monitored continuously, leveraging established KPIs, where ongoing insights and resulting actions can be managed, new insights explored, and resulting business actions established. the conversion ratio, to serve sales trends and to gain underlying

Tazi.ai
353 Sacramento St STE 1800
San Francisco, CA 94111
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insights. Based on historical customer behavior, the system recommends the right action that has the highest probability of success.

CONCLUSION

TAZI AI, with its automation and explainable interface can leverage data insights to prescribe the next best underwriting action, starting with Submission Triage, and continuing through the underwriting value chain. Exposure, coverage and pricing information often change through the underwriting process, and levering those shifts to update submission scores is a must-have for any Submission Scoring solution. By leveraging TAZI's Submission Scoring Solution, underwriters can improve business KPIs; including underwriting cycle times, profitability, premium growth and bind rates; in order to increase profitable growth and to improve customer loyalty across the organization.

You can start leveraging actionable insights from TAZI's Submission Scoring Solution today. If you are contemplating any of the following questions, we can help.

How can you build and deploy, into production, your own submission scoring models within 40 days?

How can you start improving your bind rate within 1-2 months?

How can you up-skill your underwriting and data teams to adopt machine learning?

Start to leverage intelligent and explainable insights to improve the effectiveness of your submission triage initiatives today!

Please email us at info@tazi.ai.

For more information visit our website tazi.ai.

Tazi.ai
353 Sacramento St STE 1800
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info@tazi.ai

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.ai
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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.

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