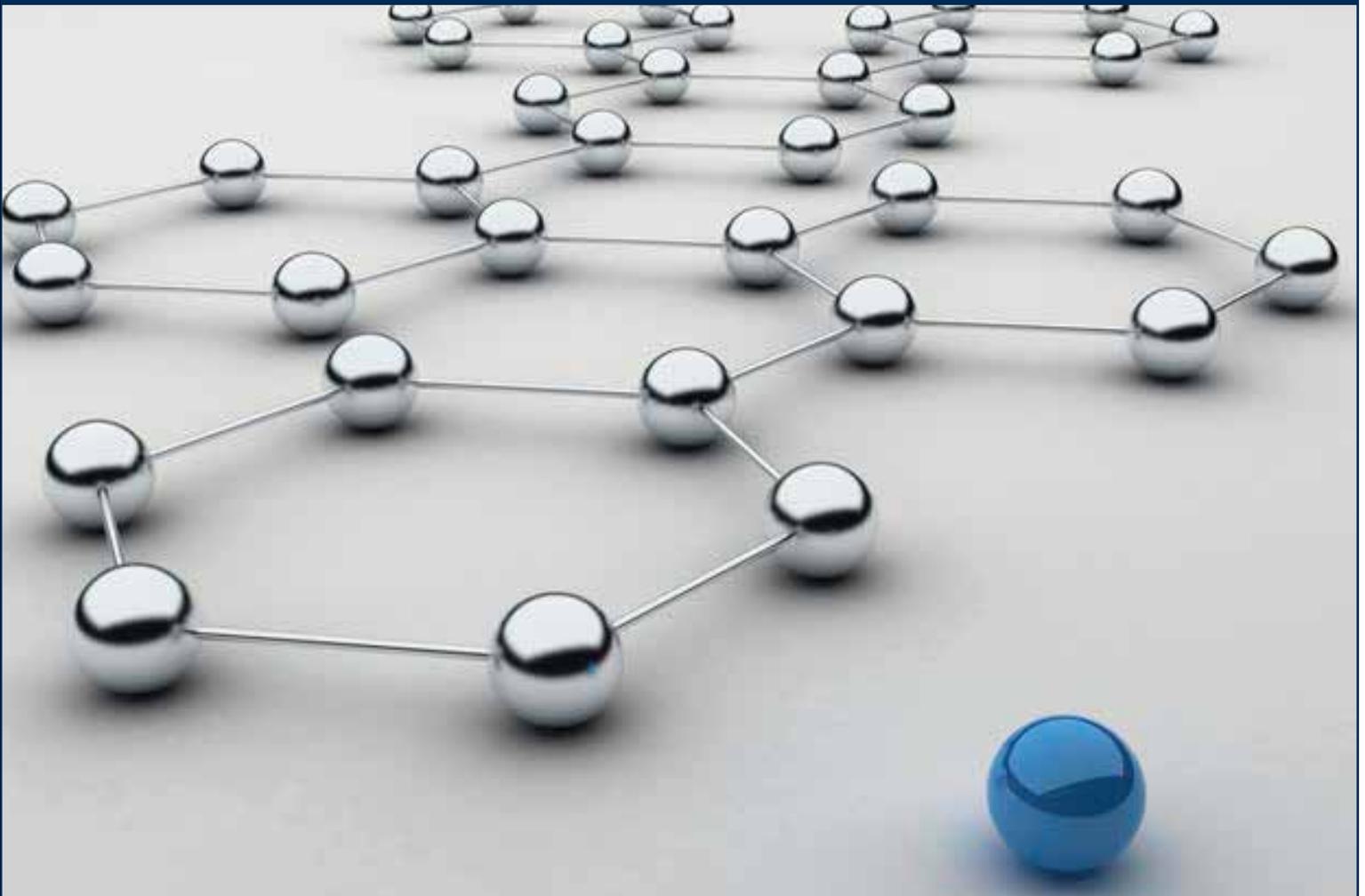




CLAIMING THE FUTURE

AthensPredict

Predictive Modeling for Workers' Compensation



ATHENSPredict

The integration of predictive modeling into Athens' workflow will assist in the earlier detection of the 20% of claims that drive 80% of a workers' compensation programs cost.

Ultimately, **ATHENS***Predict* will help Athens to manage claims more efficiently and drive superior bottom line results for our clients.

James Jenkins
President
Athens Administrators

CONTENTS

Predictive Modeling: A Definition	1
Why is Athens Using Predictive Modeling?.....	1
Benefits of Predictive Modeling: Overview	2
Client Benefits: A Closer Look	3
Athens Benefits: A Closer Look	4
How Does <i>ATHENSPredict</i> Work?	5 – 7
Validating the <i>ATHENSPredict Methodology</i>	8
Claiming the Future of Analytics.....	9

PREDICTIVE MODELING: A DEFINITION

AthensPredict is a statistical model that is intended to forecast future behavior with a high degree of accuracy. The model consists of numerous predictors, which includes the most likely influencers of future behavior or results.

In predictive modeling, data is collected for the relevant predictors, a statistical model is formulated and predictions are made and the model is revised as additional data becomes available.



WHY IS ATHENS UTILIZING PREDICTIVE MODELING?

A Commitment to Industry Leadership Driving Client Savings

For many years other business segments have successfully utilized predictive modeling to improve their business results. These industries include retail, life insurance, insurance underwriting, banking and professional sports. We are confident that it will also drive great results in claims administration. Athens has a history of industry leadership when it comes to implementation of technology into the claim process. Our conversion to a paperless environment in 2005 is another example of a trailblazing initiative undertaken in our drive to become the industry's leading innovator. Our early adoption of a large scale integration of predictive modeling into our workflow continues this long-term effort.

Our predictive model prospectively identifies adverse claims to enable proactive management strategies across all areas of a claim to drive better business results. It will help to earlier predict claims that have a greater severity potential. The objective is to detect the 20% of claims that drive 80% of the cost of a workers' compensation program. Ultimately the model will put Athens in a position that will allow us to more quickly **take actions that will reduce claim costs for our clients in both the short and long terms.**

INDUSTRY TRENDS THAT HAVE ESCALATED THE IMPORTANCE OF PREDICTIVE MODELING

Claim Severity
Average cost of an indemnity claim in California is now greater than \$60,000

Medical Cost + Treatment Inflation
More treatment per claim and more expensive treatments per claims.

Medical Cost
 Now equates to greater than 60% of the cost of lost time claim.

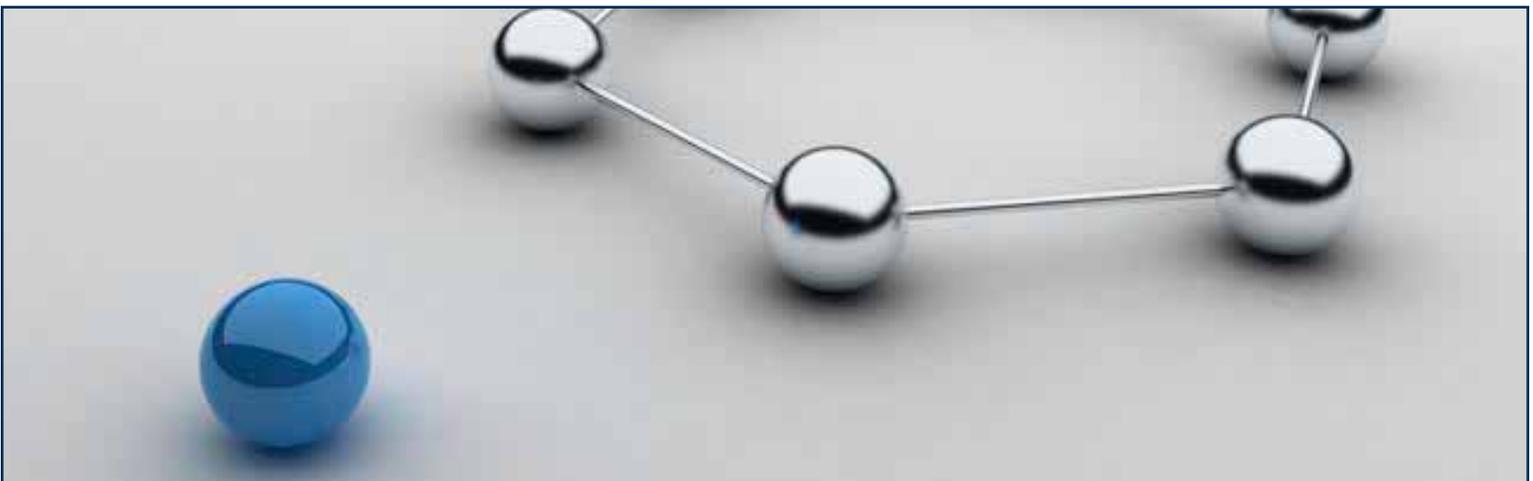
BENEFITS OF PREDICTIVE MODELING: OVERVIEW

There are many benefits that will be generated through the utilization of the **ATHENSPredict** predictive modeling methodology into Athens claims management workflow:

PROJECTED BUSINESS IMPACT			
4-8% reduction in loss and expense	5-10% improvement in SIU managed claims	3-7% improvement in nurse managed claims	20-25% redeployment of supervisory resources
Typical Range of Savings for Clients	WC Spend	Savings Per \$1,000,00 of WC Spend	
4-8%	\$1,000,000	\$40,000	\$80,000

- *Earlier detection of the 20% of claims that drive 80% of the cost of a workers' compensation program.*
- *Estimated overall reduction in loss and expense of 4% – 8%.*
- *Estimated 50%+ increase in quality & more timely referrals to WC Special Investigation Unit (SIU)*
- *Significant reduction in claim duration. – Claims closed faster.*
- *Faster return to work for injured workers – Decreased overall claim cycle times*

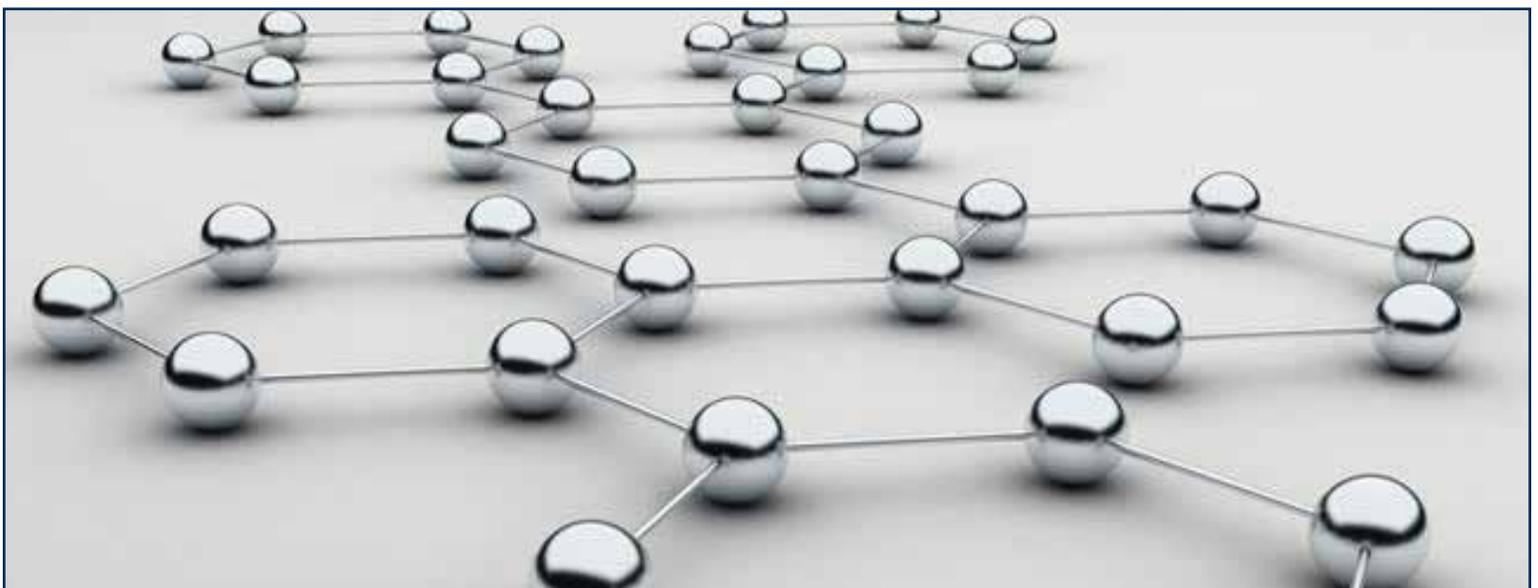
Clients are realizing significant benefits from ATHENSPredict, helping injured workers return to work sooner with reduced loss costs.



CLIENT BENEFITS: A CLOSER LOOK

ATHENSPredict delivers real value to clients:

- Identifies claims that have the potential to be more severe in exposure. Conservatively, the worst 20% of claims represent almost 80% of total loss costs.
- Match claim complexity with appropriate claim resources at First Notice of Loss (FNOL).
- Use medical management more efficiently to provide timely and appropriate medical care to return claimant to work sooner.
- Identify potential fraud earlier.
- Deterrence of “soft fraud”.
- Identify claims with potential for subrogation earlier.
- Identify potential litigation earlier.
- Identify changes in claim activity that warrant earlier escalation.
- Identify claims requiring enhanced examiner oversight.
- Reduce overall return to work times through more targeted investigation and strategies.
- Reduced claims handling costs – When Athens is able to close claim faster it will cost our clients less to have them administered.



ATHENS BENEFITS: A CLOSER LOOK

ATHENSPredict also provides substantial benefits to the Athens claims process, which in turn enable better claims management service and results for our clients:

- Improved client satisfaction strengthens client relationships
- Proactive and more strategic claim management
- Enhanced claim handler productivity
- Optimal resource allocation, based on complexity – In the future we may be able to direct claim to staff based on complexity and staff experience.
- Enable low complexity claims to be processed in a low touch unit
- Enable claims severity to be matched to adjuster skill level
- Enable supervisors to focus on high severity claims or adjuster skill gaps.
- Event based scoring triggers escalation/review
- Early assignment to most appropriate resources
- Prompt assignment of managed care on the cases that need it the most
- Focused and more effective claims oversight

SIU Benefits

- Real time fraud detection provided by the model can trigger SIU referrals
- Reduce the impact of soft and hard fraud through early detection and deterrence.
- Enable higher quality and more timely (reduced lag time) referral of claims to SSIU resources.

Managed Care Benefits

- Enable medical resources to be placed on the most medically complex claims, regardless of injury group or lost time/medical only status.
- Manage the utilization of medical resources to focus on claim most in need of these services.

Supervisory Benefits

- Enable increased management oversight on the more complex claims.
- Allow supervisors to monitor individual adjuster inventory based on potential severity.
- Draw early leadership attention to claims with potential to become significantly more severe.

HOW DOES ATHENS *PREDICT* WORK?

Analyzing Internal and External Data to Predict Claims Outcomes

The **ATHENS*Predict*** model begins with the analysis and review of numerous internal and external variables, utilizing data from traditional and non-traditional means to predict claim outcomes. This data includes:

- **Claimant Specific Data** (age, average weekly wage, etc.)
- **External Public Databases** (distance from work, household demographics, etc.)
- **Medical Data** (co-morbidities, treatment history, etc.)
- **Claim Data** (jurisdiction, losses, etc.)

SAMPLE DATA SOURCES DRIVING *Predictive Model Scores*

Claimant Data	External Public Databases	Medical Data
<ul style="list-style-type: none"> • Claimant Specific Information • Diagnosis Information • Years of Employment • Type of Work • Job Level • Average Weekly Wage 	<ul style="list-style-type: none"> • Zip Code Demographic • Household Demographic • Claimant • Medical • Legal 	<ul style="list-style-type: none"> • Medical History • Treatment History • Treating Physician • Diagnosis Information • Treatment Pattern • Prescription Usage
Claims Data	Policy History Data	Employer Data
<ul style="list-style-type: none"> • Losses • Timing/Patterns • Settlement Data • Jurisdiction • Fraud/Lawsuit 	<ul style="list-style-type: none"> • Experience Data • Policy Data 	<ul style="list-style-type: none"> • Financial Stress • Years in Business • Public Record Filings • Loss Control Data

HOW DOES ATHENS *PREDICT* WORK?

Severity Scoring + Reason Codes

ATHENS*Predict* combines and converts available internal and external claim characteristics into a *Claim Severity Score (CSS)* and generates corresponding reason messages. The reason message explains the potential exposure of the claim and assists in ensuring that the right resources are assigned by our staff to the claim. The CSS is generated on a scale of 1 to 100, with a score of 1 representing the least severe and a score of 100 the most severe.

MODEL INPUTS

Several hundred internal and external characteristics are tested to identify the 50-100 with greatest predictive power

Data Mining & Statistical techniques

SAMPLE MODEL EQUATION

$$w_1(\text{Claimant Age}) + w_2(\text{Dist_H_W}) + w_3(\text{Emerg_Rm}) + w_4(\text{Occupation}) + w_5(\text{CoMorbidity}) + w_6(\text{Report_lag}) + \dots$$

MODEL OUTPUTS

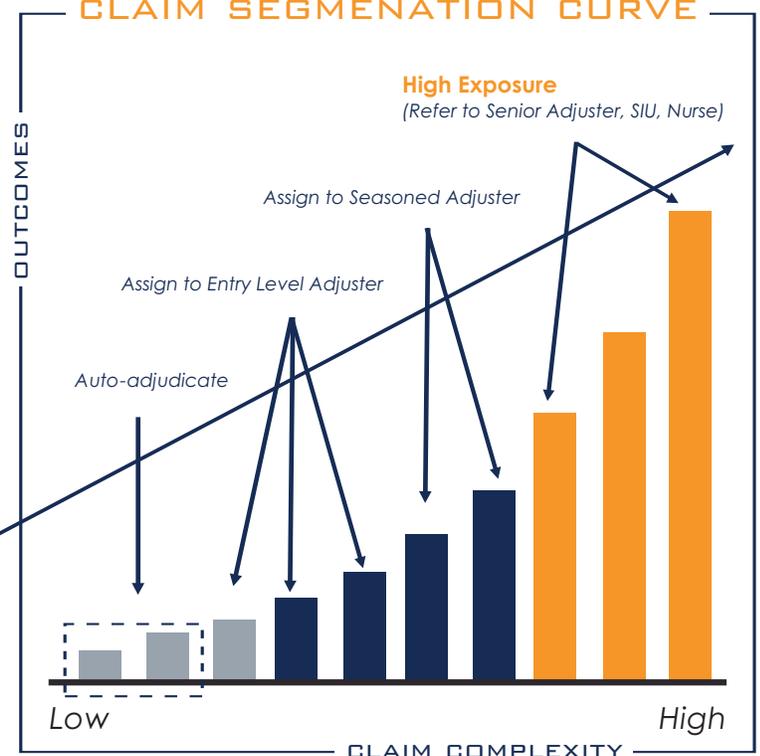
Reason Messages:

- Multiple Co-Morbidites
- Claim History
- Employment Characterisitcs
- Distance from Work

92

John Smith
1 Circle Ave.
Anytown, CA

CLAIM SEGMENTATION CURVE



ATHENS*Predict* combines and converts available internal and external claim with reason messages characteristics into a score corresponding messages. This output reflects and explains the potential exposure of the claim and assists with ensuring the right resources are assigned to the right claims.

ATHENS *PREDICT* IN ACTION

Sample Scenario, Actions, and Outcome

FIRST NOTICE OF LOSS SUMMARY

- The claimant, who was a four year employee, worked as a heavy machine operator.
- The claimant (44 years old) suffered a back strain after a slip and fall.
- Return to work date unknown.
- Employer did not question legitimacy of claim.

TRANSLATING MODEL OUTPUTS

High claim severity score indicates need for experienced claim resource

Prior loss history prompted review of past claims with handling adjusters prior to initial claimant contact

Model score, claim history, accident characteristics, and distance variable triggered an automated SIU referral

Model Score: 87 (High Severity)

BUSINESS ACTIONS

- Assignment to a senior claim adjuster
- Adjuster took the claimant's recorded statement to the accident and injury details
- SIU Investigator screened and accepted case referral
- When initiating contact at the claimant's residence, the investigator was referred to a nearby bar operated by a friend of the claimant
- Claimant was observed working and once questioned, indicated he would withdraw the claim

RESULTS

- SIU field investigation revealed claimant was not disabled
- The claim was denied with no payouts made
- No additional follow up by the claimant or attorney



VALIDATING THE ATHENS *PREDICT* METHODOLOGY

Utilizing Actual Claims to Verify PREDICTIVE Power and Accuracy

Before going forward with implementation of **ATHENS*Predict*** methodology into our claims management process, it was critical for us to validate the effectiveness of the underlying predictive model. In order to do so we conducted an extensive test. Athens submitted 30,000+ actual historical claims from our system to our development partner.

The claims were entered into the model with only the information that Athens would have had as of the date they were originally submitted. The goal was to determine if the model could identify at onset the 20% of claims that historically represent 80% of the cost for employers. By utilizing historical claims Athens had the benefit of knowing how the claims had actually developed.

Once each claim received a score Athens was able to compare their score to the actual financial outcome of the claims. The test proved successful. The model was able to detect with a high degree of accuracy that the model was able to predict the most severe claims.

ATHENS TEST VALIDATION RESULTS Powerful Ability to Segment Claims

Predictive Model severity scale is based on a scale of 1-100 (100 being the most severe)

PREDICTIVE MODEL SCORE	AVERAGE CLAIM COST
Less than 10	\$3,710
Geater than 90	\$45,514
Greater than 95	\$62,540
Geater than 98	\$79,579
100	\$147,410

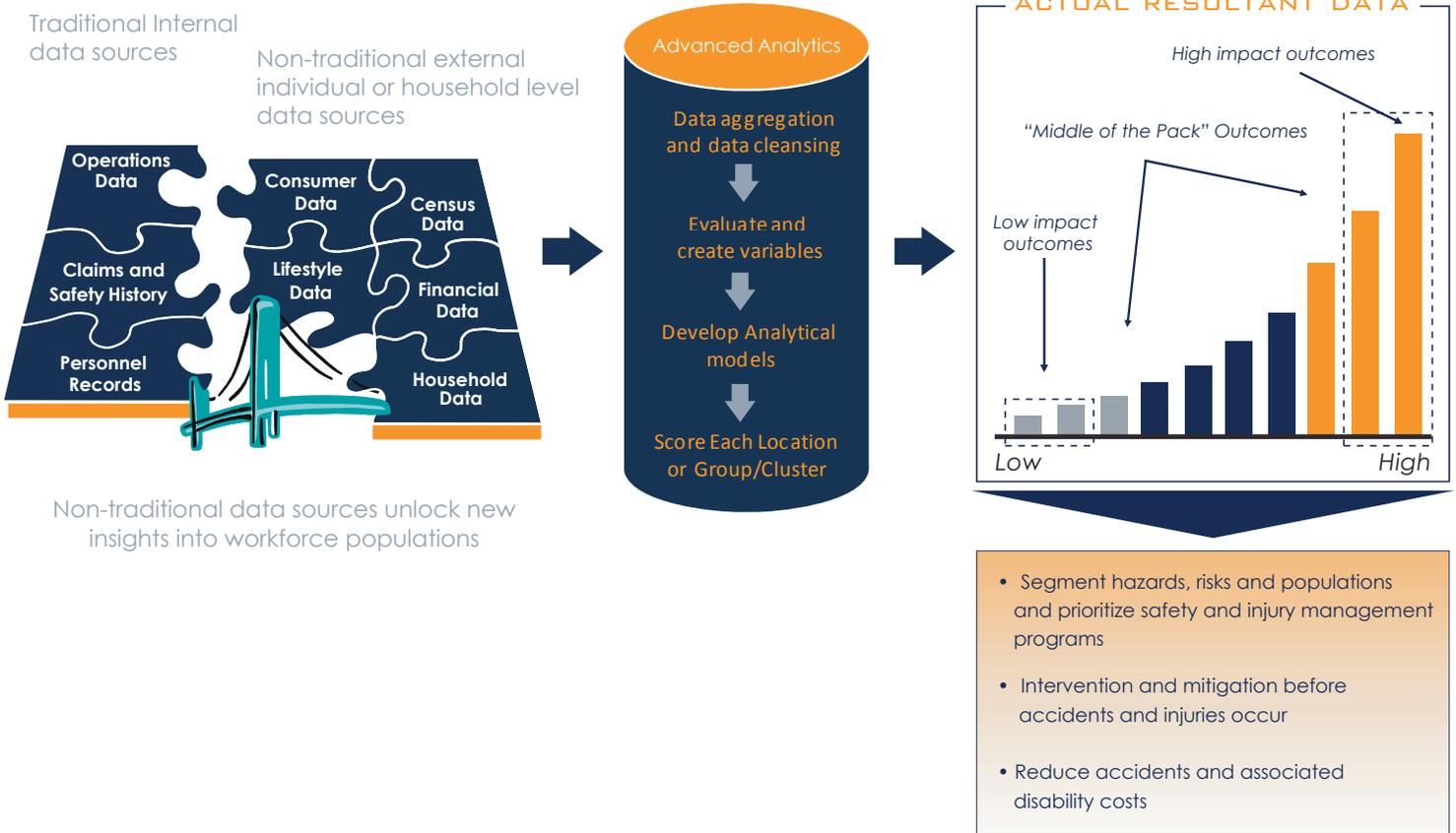
- This demonstrates the risk score created by the model versus the actual ultimate cost of the claim. The scores proved to correspond to the value of the claim.
- 47% of the claims that received a score between 91 & 100 had a value of \$100,000 or more and 61% were valued at equal

OUR DEVELOPMENT PARTNER

We are diligent about who we will partner with. An exemplary reputation and track record of success are absolute requirements. Our predictive model development partner is the leader in the risk management Predictive Modeling field. Over the years they have tested and have learned the optimal variable to utilize in this sort of model. They are a long standing, global company that employs more than 45,000 professionals.

ATHENSPredict: CLAIMING THE FUTURE OF ANALYTICS

ATHENSPredict provides Athens Administrators with the unique opportunity to lead the industry forward in the use of advanced analytics to deliver superior claims management results for clients by leveraging traditional claims-related data with non-traditional external data to pinpoint risk and exposures.



Statistical Viability – Scoring Every New Claim

For the ATHENSPredict model to be statistically viable it is important that every new claim medical only & indemnity receive a score. This is critical because the model will check known claim factors plus all other available data sources to determine the most severe claims. Often the “other” data factors are not available, known or obvious to an examiner.

This is why scoring each claim versus just the most likely severe claims is where the model will generate optimal results. The objective of the model is to help Athens to catch non-obvious potentially financially costly claims at the onset of the claim.