

*somewhat
different*



Next Generation of Accelerated Underwriting

Actuarial Club of the Southwest
June 6, 2023

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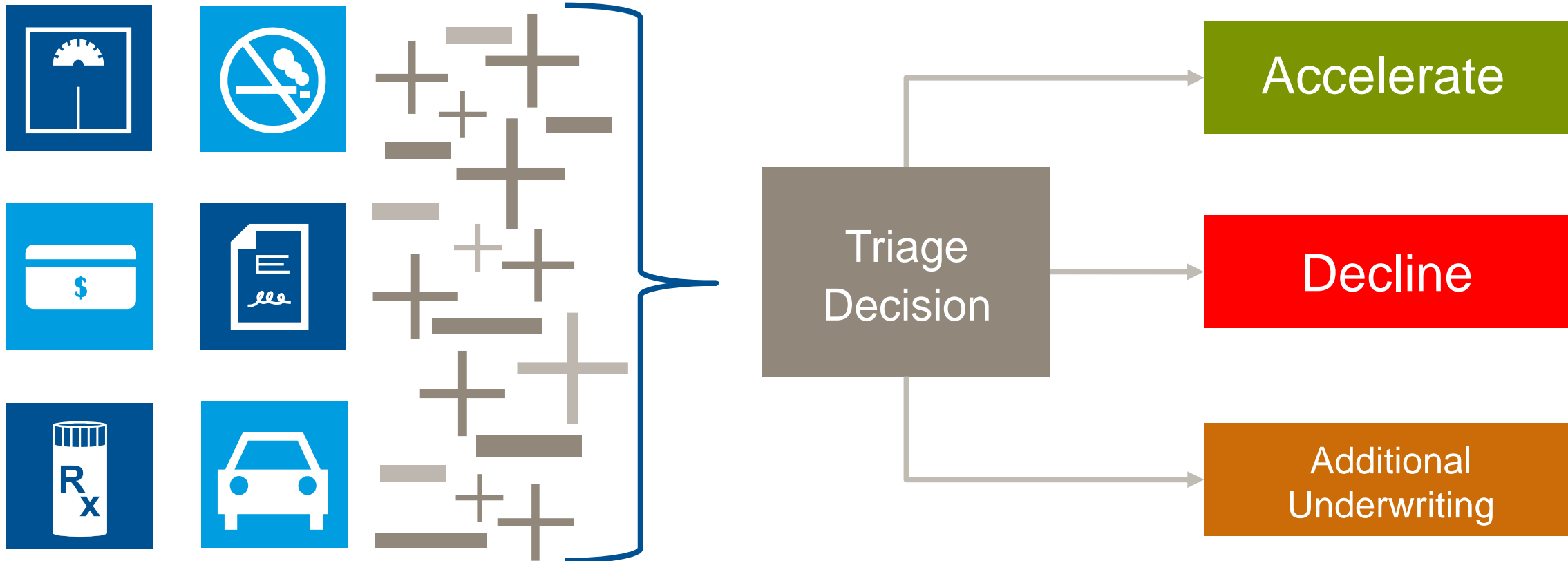
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Accelerated Underwriting

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Accelerated Underwriting Overview

- Accelerated underwriting (AUW)
 - Underwriting triage; identify “good risks” eligible for less underwriting based on non-invasive information
 - No paramedical exams/fluids necessary for a subset of lower risk applicants



Accelerated Underwriting

An area of focus for Hannover Re

25+ Programs in production



Typical goals:

- ✓ Same rates
- ✓ Fast underwriting
- ✓ Less invasive

Age of earliest programs 8+ years



Wide variety of program designs, distribution channels, etc.

Hannover Re's Value Propositions:

- ✓ Execution
- ✓ Data & monitoring
- ✓ Test & learn
- ✓ Experience & best practice

Ever Evolving Landscape

1

Max Age



2

Max Face Amounts



3

Eligible risk classes



4

3rd Party Data
Expansion



Evolving AUW Landscape

5

Electronic Health
Records



6

Digital application



7

Automation



8

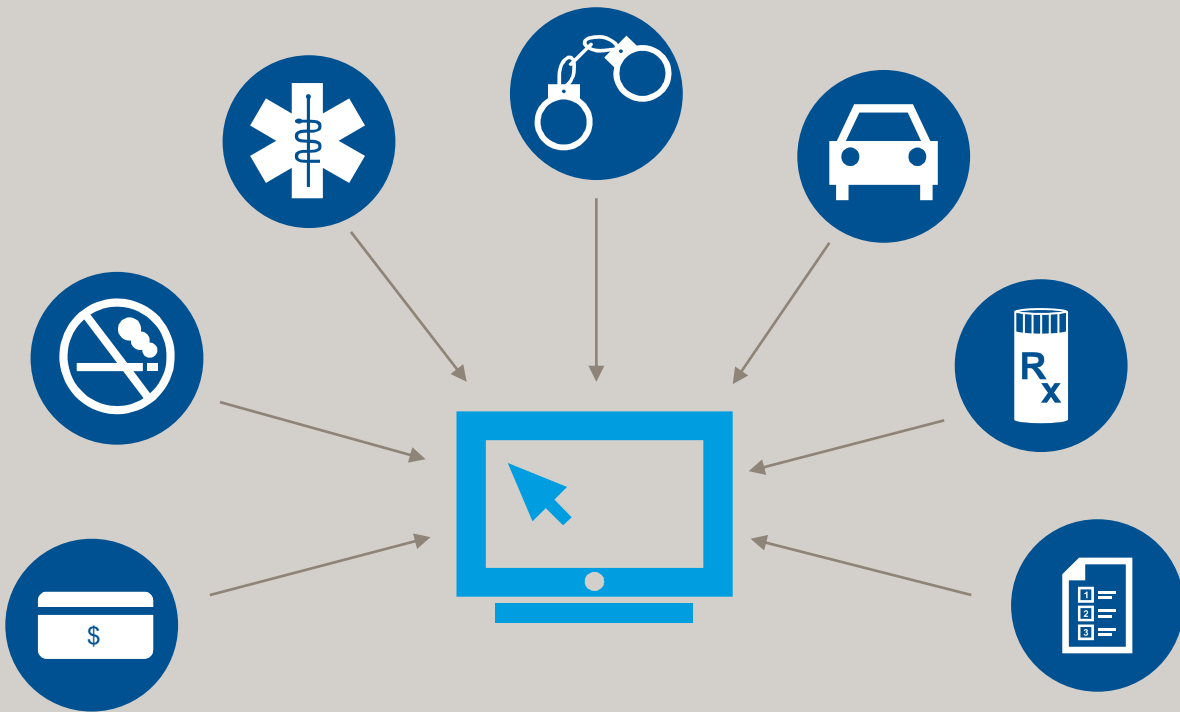
Predictive Analytics



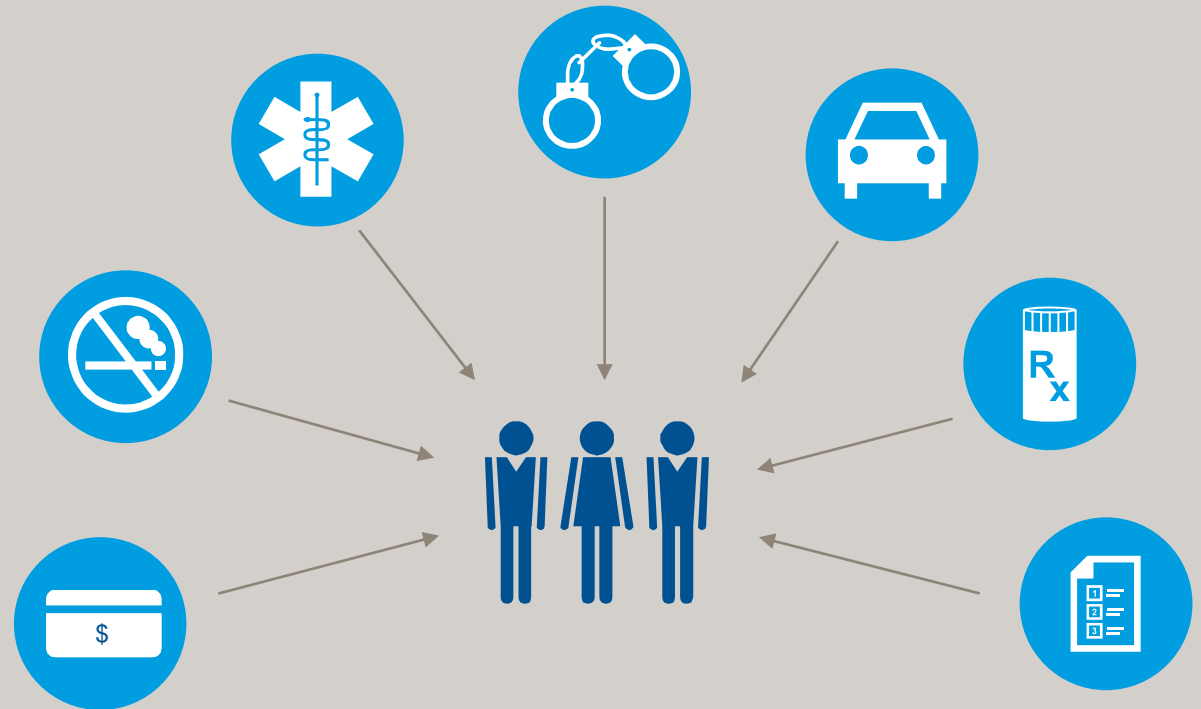
Definition - Automated underwriting

Automation – technology-driven process enabling instantaneous decisions without human involvement

In **automated** underwriting **technology** is at the center of the decision making process.



In **manual** underwriting **humans** are at the center of the decision making process.



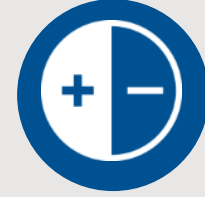
Applicant Digital Footprint is Ever Expanding



Clinical Lab Data



Prescription Histories



Financial

Vendor Data Available



Medical Claims



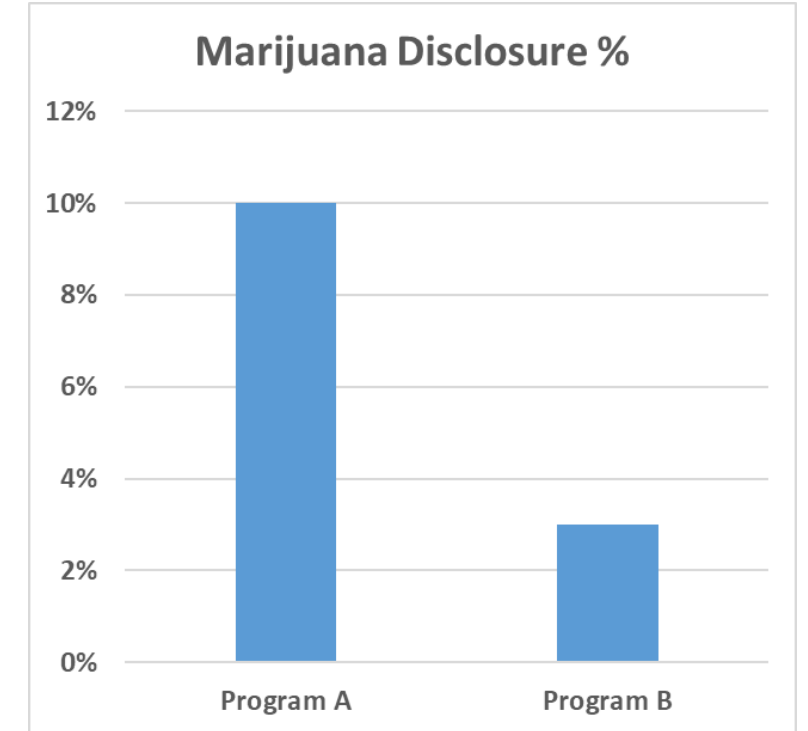
Criminal Histories



Motor Vehicle Records

Data Driven Insights – Applicant Disclosure

- ▶ We found applicant disclosure heavily depended on how the question was worded.
- ▶ Two companies, similar target markets, similar distribution, two very different question wordings, two very different disclosure amounts.
- ▶ Why does it matter?
 - Customer disclosure is important, especially due to 2 year contestable period.
- ▶ Clear, concise and thorough application questions complement the 3rd party data footprint.
- ▶ As this data matures, even more insights can be obtained.



Program A	When was the last time you used Marijuana?
Program B	When was the last time you used Cocaine, heroin, narcotics, barbiturates, amphetamines, hallucinogens or cannabis?

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Predictive Analytics

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So many models, so many scores



Underwriting Class



Prescription Histories



Triage



Financial

Predictive Analytic Landscape



Medical Claims



Distribution

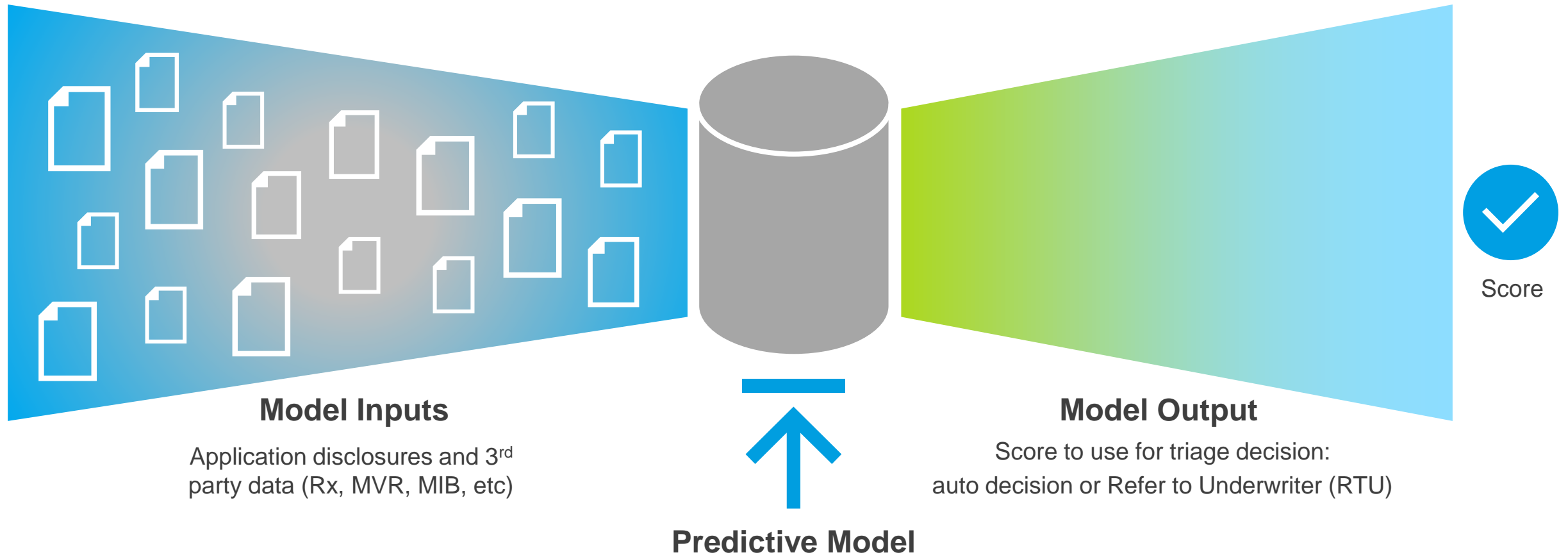


Mortality



Tobacco

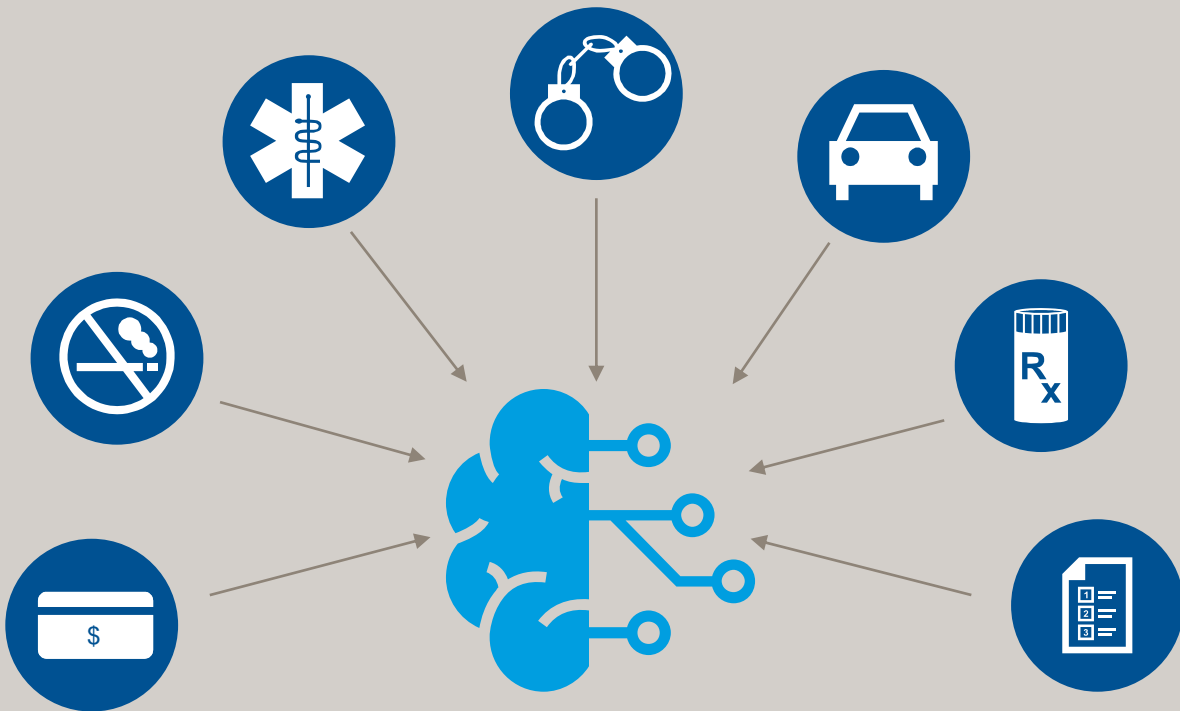
Overview of AUW Predictive Model



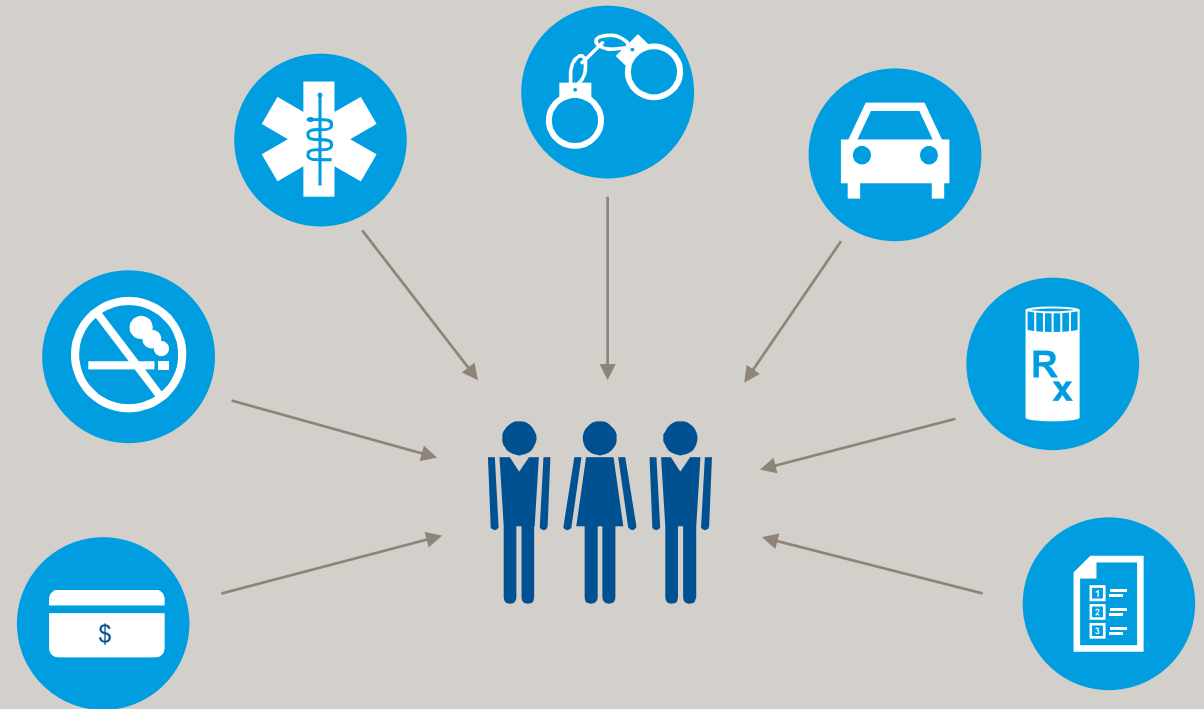
Similar, but Different

- Predictive Models can utilize the same inputs but digest them differently

Predictive Analytics evaluates mortality risk according to what the experience data indicates

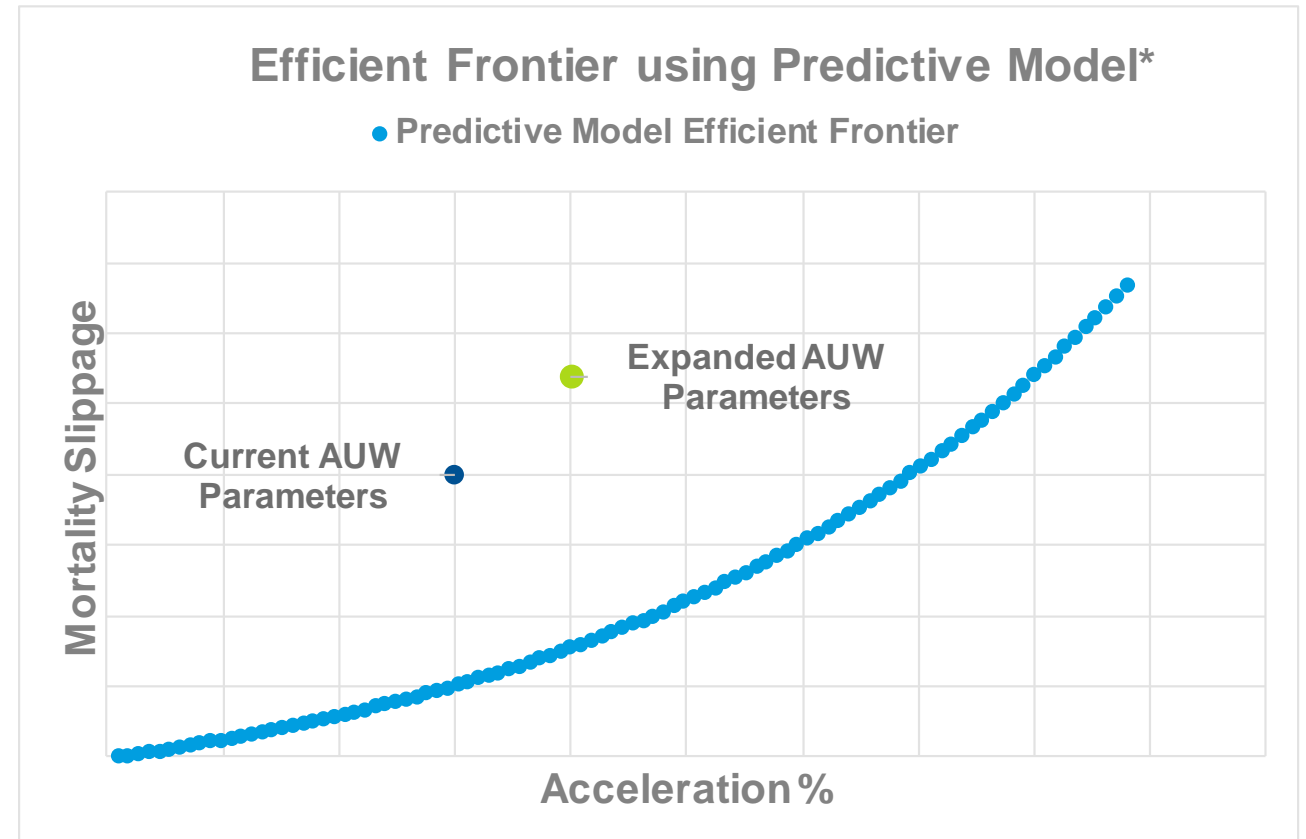


Humans evaluate the mortality risk according to manuals, training & existing practices



Predictive models complement automated underwriting rules, benefit AUW program

- Coupled with a robust automated underwriting rule set, a predictive model can offer significant benefits to both acceleration % and mortality slippage for AUW programs
- A customized predictive model offers the ability to efficiently manage the acceleration/slippage trade-off (i.e., the “Efficient Frontier”)



A Perfect Blend

- Predictive Models & automated underwriting rules complement each other well
- Underwriting rules identify what can “break the math” of mortality slippage



Predictive Analytics

- Data driven, Emerging Trends/Relationships/Flexible Risk Selection
- Sample Bias/Needs Data



Rules

- Can handle the “Infrequent & Severe”
- Focuses mostly on classification & not triage

Key Challenges

1

Evolving Tools



2

Evolving Behavior



3

Expertise



4

Black Box



Key Challenges to Predictive Models

5

Cross Pollination of
Skills



6

Data Collection



7

Communication



8

Regulation



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3 Monitoring

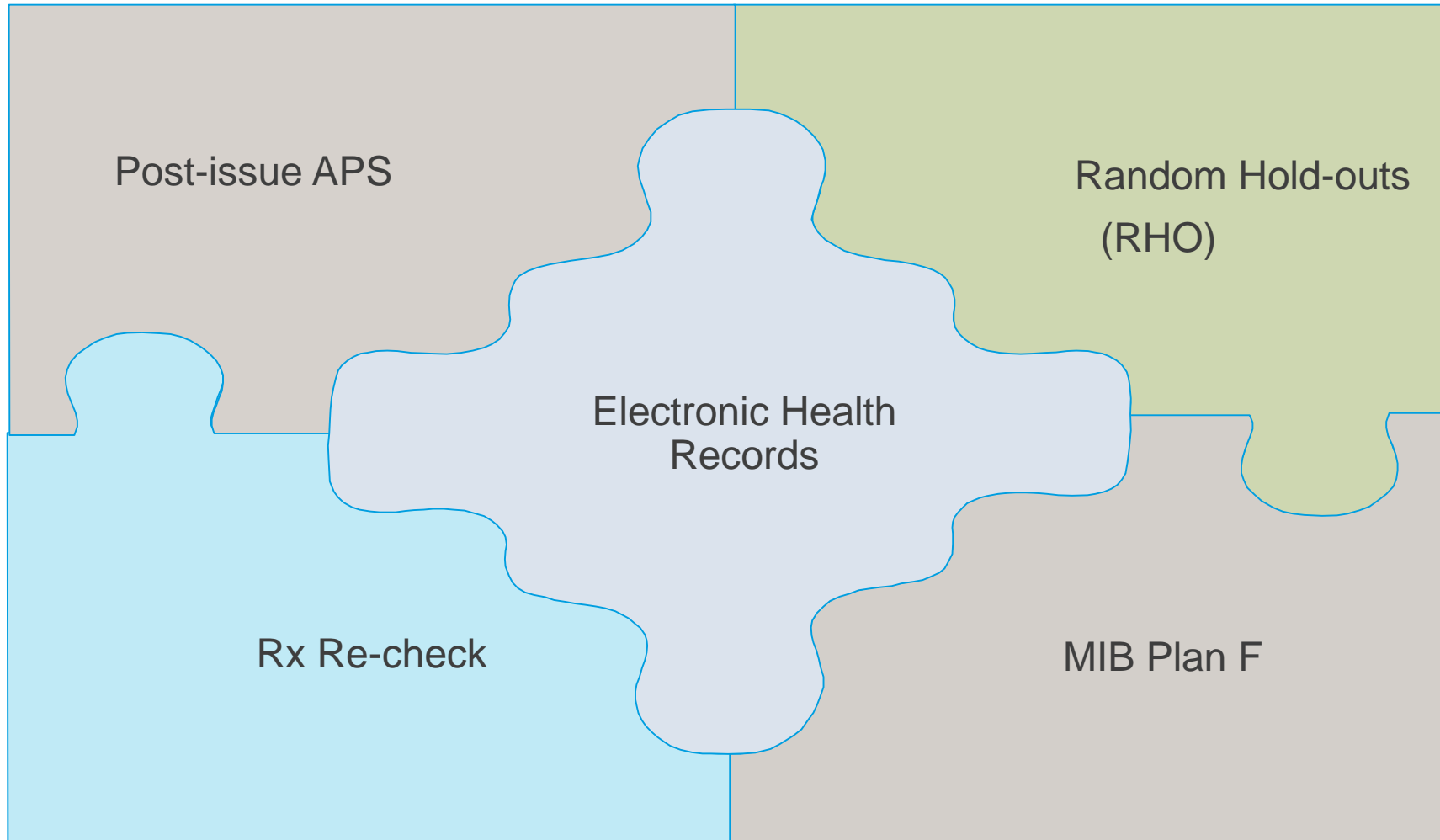
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Monitoring & Management

- Data monitoring important for success
- Risk management and process improvement
- Learn quickly, adapt as necessary
- Regular reporting & feedback loop



Monitoring Tools



Quantifying mortality slippage

- “Confusion Matrix” analysis
 - Compare risk class based on AUW to decision with additional info (exam/labs/APS)
 - Analyze frequency & severity of miss-classification to quantify mortality slippage

Risk Class with Additional Info								
AUW Risk Class	Pref plus	Pref	Std plus	Std	Pref tob	Std tob	Rated	Declined
Pref plus								
Pref								
Std plus								
Std								
Pref tob								
Std tob								
Rated								
Declined								

Benchmarking Confusion Matrix Results

Typical results of confusion matrix analysis

Accuracy of AUW decision	Typical result
AUW more conservative	< 1%
Accurate	80-90%
Off by 1 class	5-15%
Off by 2-3 classes	3-5%
Rated	< 1%
Declines	< 0.5%
Smoker non-disclosure	1-3%

- Results by:
 - Gender
 - Age
 - Face amount
 - Distribution channel






- Mortality impact can range from <10% to >50%

Key is ensuring mortality impact is consistent with pricing assumptions

Accelerated underwriting and automation enable new markets & distribution



Accelerated Underwriting



Automation



New Markets &
New Distribution

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