Navigating the automated underwriting journey

Introducing:

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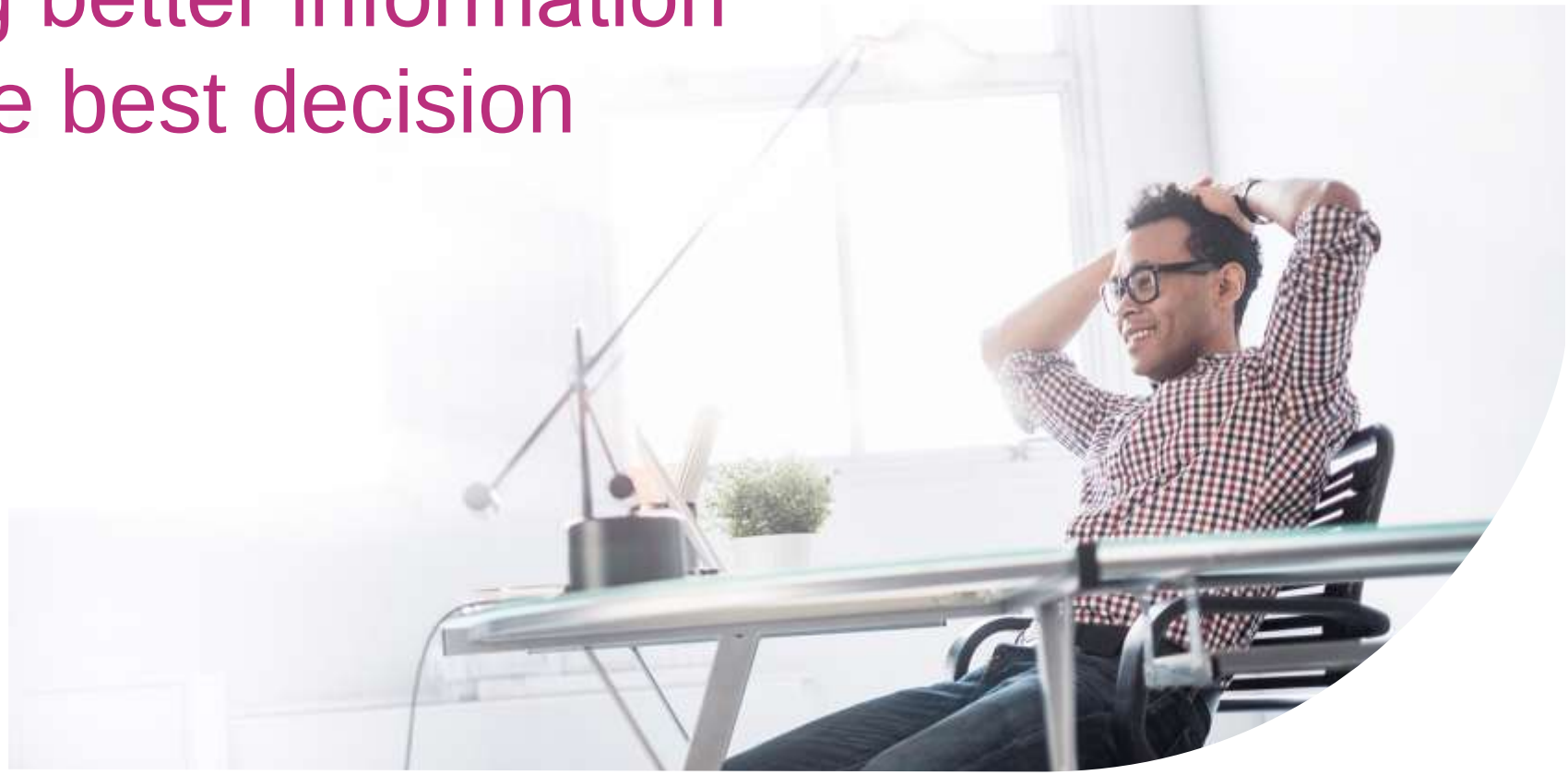
"Obviously, the highest type of efficiency is that which can **utilize existing material to the best advantage**"

— Jawaharlal Nehru

Underwriting efficiency

It’s about using better information to make the best decision



But …

Why are we
looking at this now?

Our funding rates are directly impacted by response times

The longer the response time, the lower the funding rate

This is particularly apparent in the indirect auto loan portfolio

Auto approvals

Within 1 HOUR

Within 1 DAY

Within 1 WEEK

90%

70%

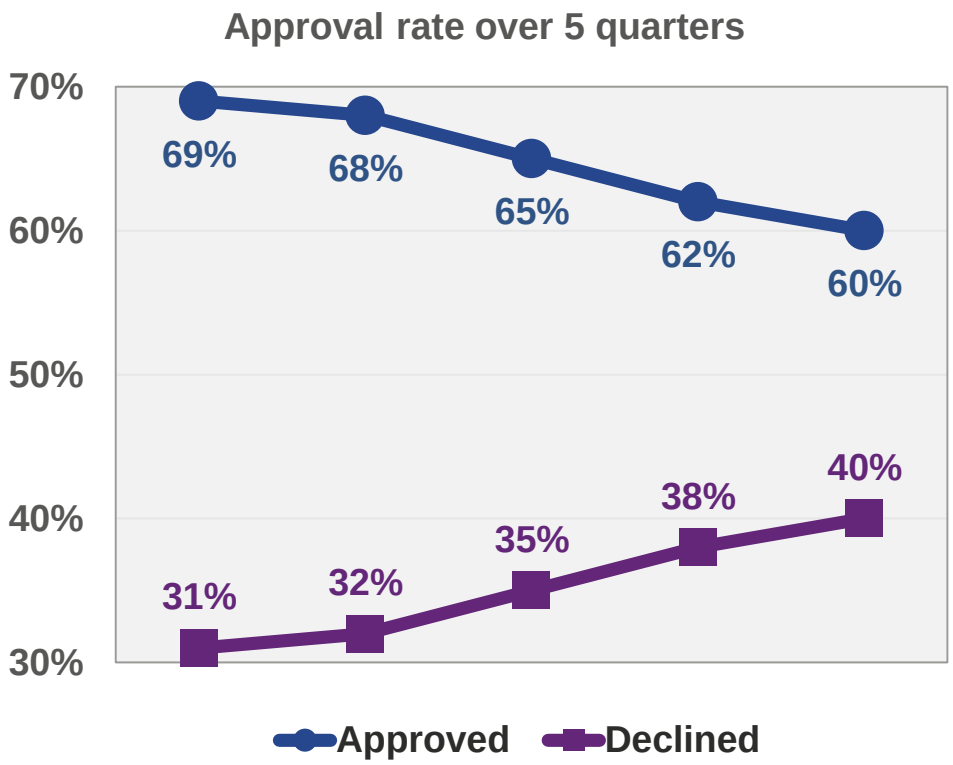
50%

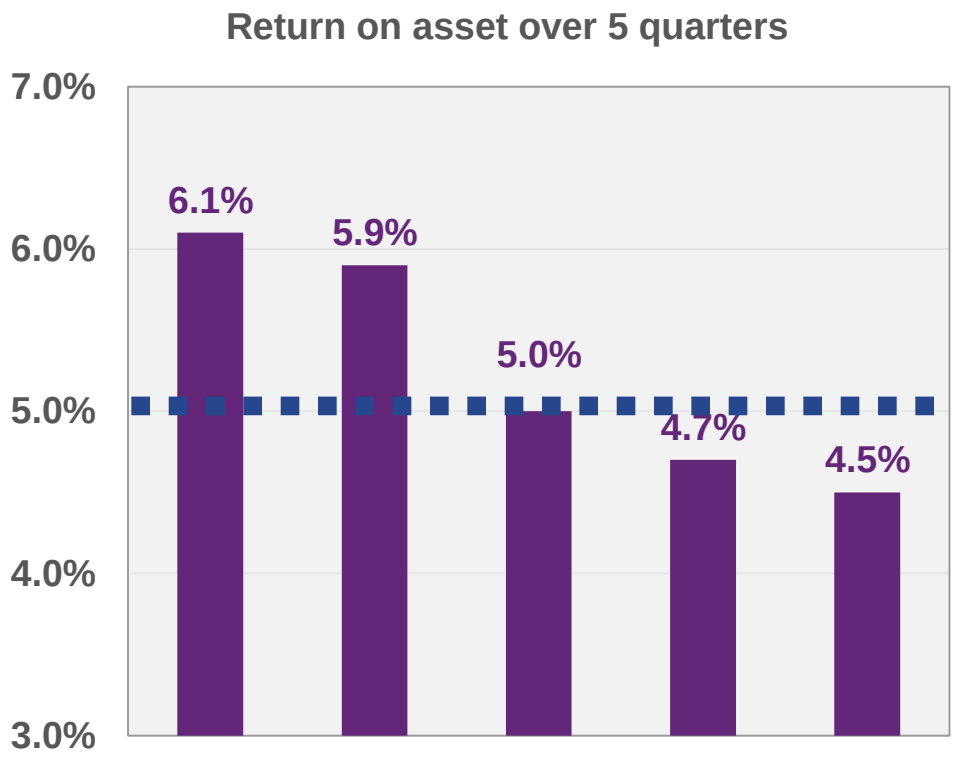
20%

Our risk mitigation strategies lead to a lower return on asset

In order to mitigate risk, lending criteria was tightened

However, this primarily impacted **near prime members who contribute to finance charge revenue**



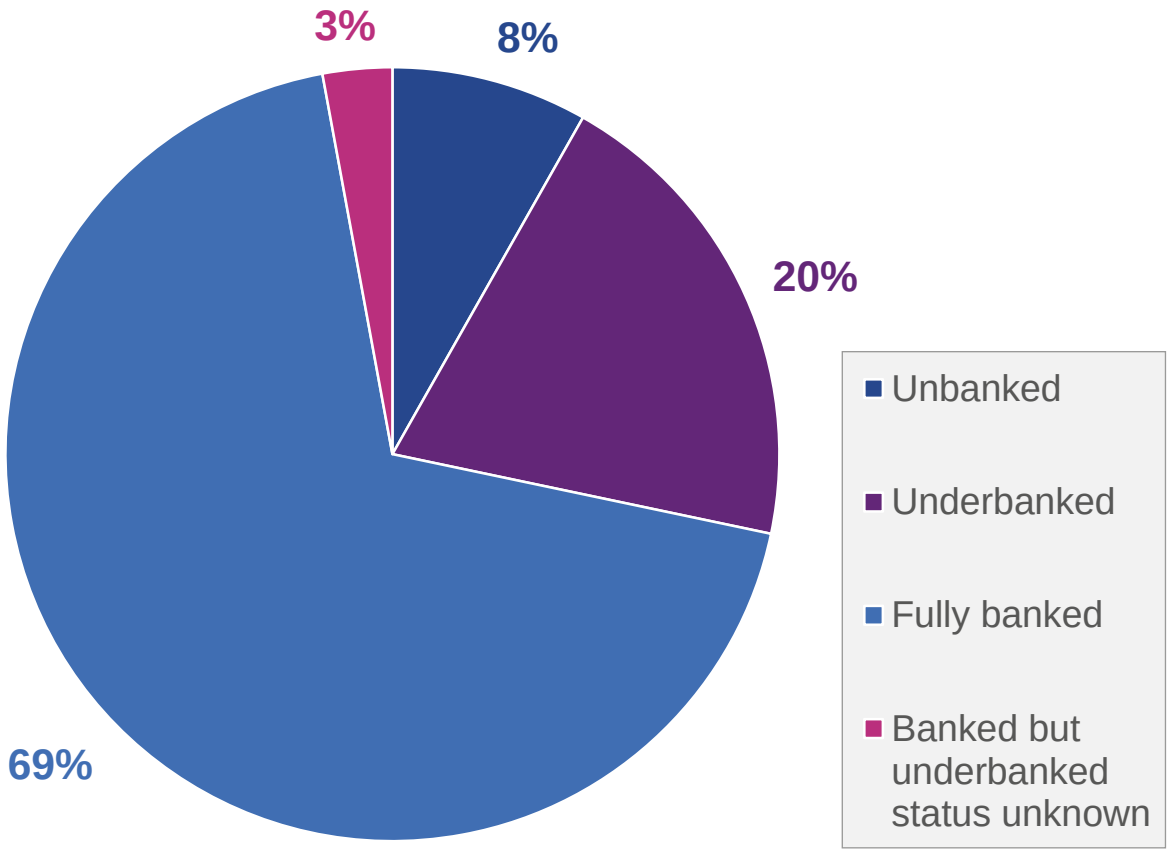


Our application mix has been steadily shifting over time

As more unbanked and underbanked consumers enter the marketplace, we need to begin to incorporate more non-traditional credit information into the underwriting process

The following information may be accessed during application:

- Rental payments
- Public record data
- Thin file / no file scoring models
- Utility payments



Source: FDIC National Survey

There are observed inconsistencies in underwriting results

Despite published guidelines and staff training, there are situations where **underwriter decisions vary**

Vehicle credit application	Value	Underwriter #1	Underwriter #2	Underwriter #3
Time at current employer	5 years	Good	Good	Good
Residential status	Rent	Good	Good	Bad
Annual income	$20,000	Good	Bad	Bad
Number of open trades	4	Bad	Good	Good
Total amount owed to creditors	$10,000	Good	Bad	Bad
# times delinquent last 12 months	1	Good	Good	Bad

Credit decision	Approved	Approved	Declined
Loan amount	$15,000	$10,000	$0

Based on the challenges, we defined our key action items

Lower the response times for decisions

Identify opportunities to lend to profitable segments

Better evaluate unbanked and underbanked members

Quantify the underwriting guidelines with data

- Increase the number of automated decisions
- Use historical performance data to adjust underwriting criteria
- Conduct reject-inference to quantify missed opportunities
- Introduce non traditional credit data and thin file models
- Demonstrate element-level historical performance

We considered three key areas before starting initiative

1
Determine our tolerance

- How do we generate for each incremental booked account?
- If we maximize the approval rate, will there be incremental risk?
- What are the operational costs of manual underwriting?

2
Understand the limitations

- Can my LOS support access to multiple external data sources?
- How much information can be used in the decision process?
- Are the resources available in-house to perform an evaluation?

3
Know how to track results

- What are the key performance indicators (KPIs) that we want to measure?
- Have we defined short, medium, and long-term milestones?

Next, we partnered with Experian's Data Analytics team

Experian provided us with a strategic design and roadmap to the analysis process

Experian's collaborative approach leverages three primary steps based on data and industry expertise

1. Capture historical performance data
2. Evaluate available decision elements
3. Recommend/quantify criteria adjustments

Capture historical performance data

Evaluate accounts funded by MACU 18-24 months ago

- Append all data and information from the credit application
- **Append additional credit bureau data** assets from the time of the application
- **Track performance** through today to determine the ‘worst ever’ performance on the account
- **Define ‘GOOD’ vs. ‘BAD’ performance** definition. (e.g., 3+ cycles delinquent or charged-off, etc.)

Evaluate applications that were **NOT** funded by MACU

- Using Experian's credit data, isolate those applicant's that opened a comparable account elsewhere
- **Append additional credit bureau data** assets and information from the credit application
- **Track performance** through today to determine the 'worst ever' performance on the non MACU trade
- **Define 'GOOD' vs. 'BAD' performance** definition. (e.g., 3+ cycles delinquent or charged-off, etc.)

Comparison of funded and ‘inferred’ member performance

Performance

Booked accounts:	**10,000**
Good accounts:	9,750
“Bad” accounts:	250
“Bad” rate:	**2.50%**

Inferred performance

Approved/not funded:	**8,000**
Good accounts:	7,760
“Bad” accounts:	240
“Bad” rate:	**3.00%**

Declined:	**2,000**
Good accounts:	1,600
“Bad” accounts:	400
“Bad” rate:	**20.00%**

Some examples of the data that is appended for analysis

Application data:

- Annual income
- Time at employer
- Debt ratio
- Etc …

Credit scores:

- Payment risk
- Bankruptcy
- Custom models
- Etc …

Collateral:

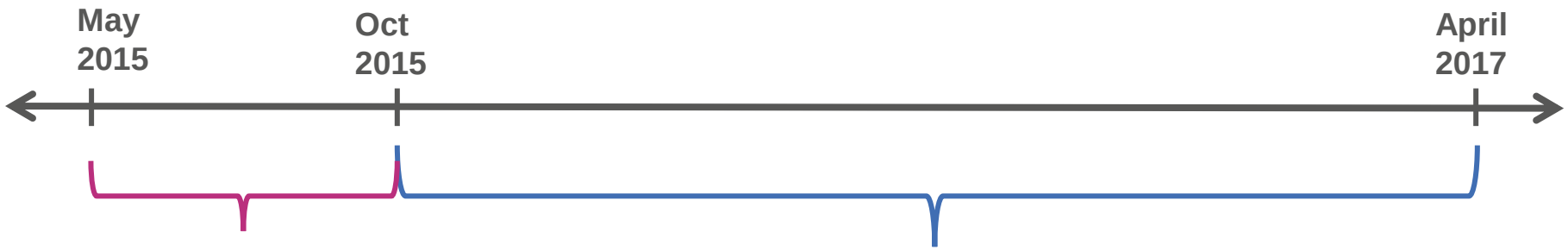
- Product type
- Vehicle age
- Loan to value
- Etc …

Credit attributes:

- 1,700 premiers
- Industries (CU, bank)
- Products (HE, auto)
- Etc …

Evaluate available decision elements

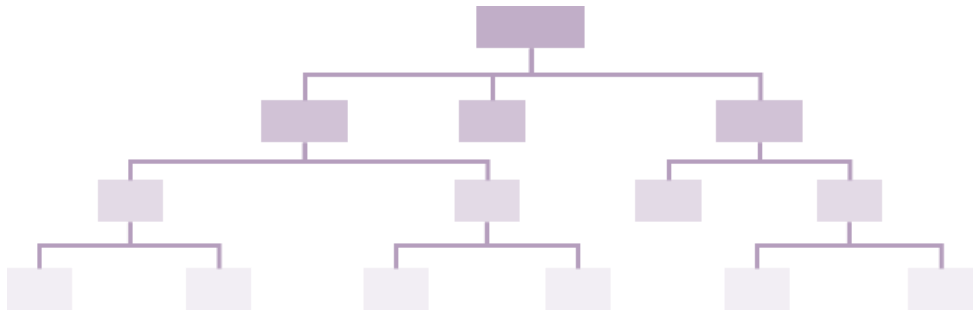
Identify which data elements are predictive of the outcome



Members apply for Mountain America credit union trade

Define 'worst ever' performance over period for each account / applicant

Characteristic analysis



A criteria-level waterfall will determine impact on decisions

Credit history

Criteria	% Fail	Volume
Credit score	12%	600
# Trades delinquent	5%	250
Age of oldest trade	1%	50
Etc …	- - -	- - -
	20%	1,000

Financial information

Criteria	% Fail	Volume
Monthly income	6%	300
Time at job	2%	100
Maximum debt ratio	5%	250
Etc …	- - -	- - -
	20%	1,000

Product parameters

Criteria	% Fail	Volume
Max loan amount	3%	150
Vehicle age	3%	150
Loan to value	1%	50
Etc …	- - -	- - -
	10%	500

Each element range in '**credit history**' is analyzed

Current underwriting criteria

Credit score	**Range**	**350 – 579**	**580 – 649**	**650 – 699**	**700 – 779**	**780 +**
	Loss %	12.00%	4.50%	2.50%	2.00%	0.90%
# trades presently DQ	**Range**	**+4**	**3**	**2**	**1**	**0**
	Loss %	25.00%	14.00%	5.00%	3.10%	1.95%
Age of oldest trade	**Range**	**0 – 11**	**12 – 18**	**19 – 23**	**24 – 36**	**37 +**
	Loss %	6.00%	4.50%	3.50%	2.00%	1.75%

NOTE: Yellow highlighted area represents current credit policy

Each element range in '**financial information**' is analyzed

Current underwriting criteria

Monthly income	**Range**	**$0**	**$1 – $1,499**	**$1,500 – $2,999**	**$3,000 – $3,999**	**$4,000 +**
	Loss %	3.20%	3.10%	2.00%	1.90%	1.70%
Time at job	**Range**	**< 6 Mo**	**6 – 11**	**12 – 35**	**36 – 71**	**72+**
	Loss %	8.00%	5.00%	2.50%	2.01%	1.25%
Maximum debt ratio	**Range**	**70%+**	**60% – 69%**	**50% – 59%**	**40% – 49%**	**< 40%**
	Loss %	16.00%	9.50%	3.50%	2.50%	1.50%

NOTE: Yellow highlighted area represents current credit policy

Each element range in '**product parameters**' is analyzed

Current underwriting criteria

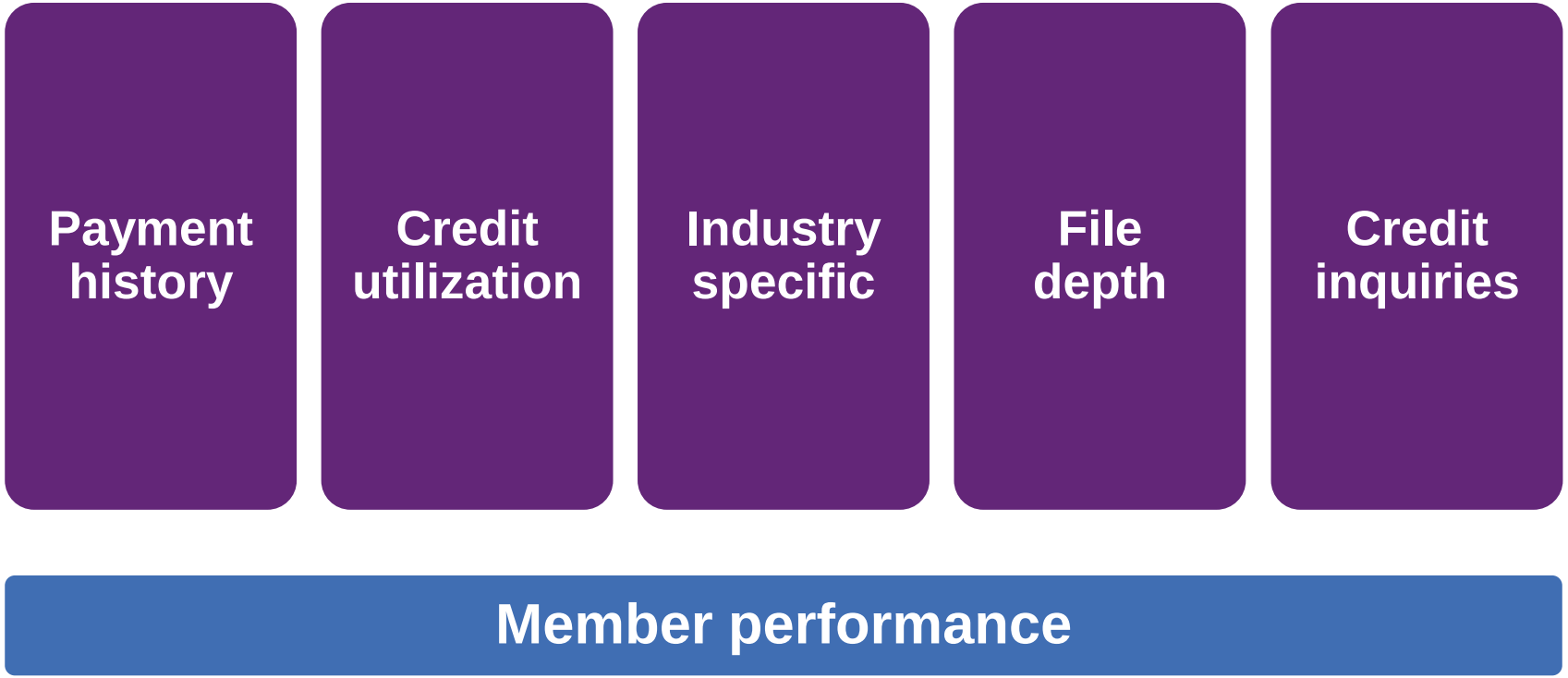
Max loan amount	**Range**	**$75,000 +**	**$50k – $75K**	**$35k – $50k**	**$20k – $35k**	**< $20,000**
	Loss %	4.20%	3.10%	2.30%	1.90%	1.70%
Vehicle age	**Range**	**+10**	**7 – 9**	**3 – 6**	**1 – 2**	**New**
	Loss %	25.00%	14.00%	5.00%	2.10%	1.25%
Loan to value	**Range**	**120%+**	**110% – 119%**	**100% – 109%**	**90% – 99%**	**< 90%**
	Loss %	7.00%	5.50%	2.95%	2.00%	1.75%

NOTE: Yellow highlighted area represents current credit policy

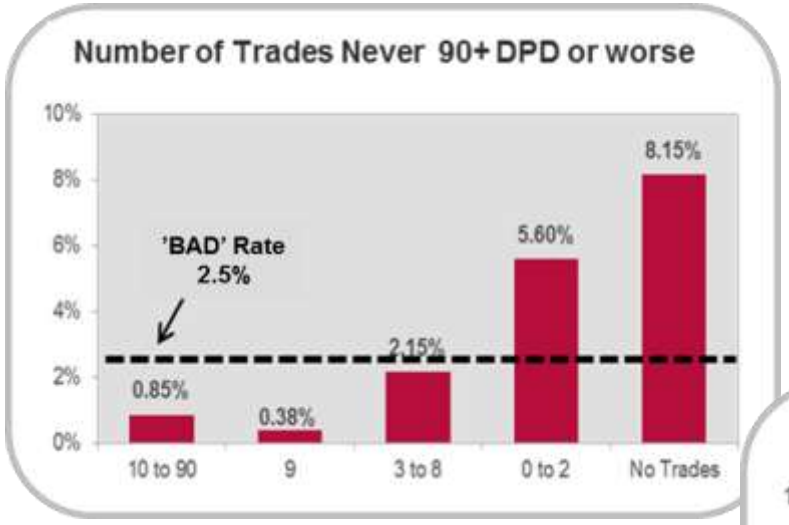
In addition to current data, Premier Attributes^{SM} are introduced

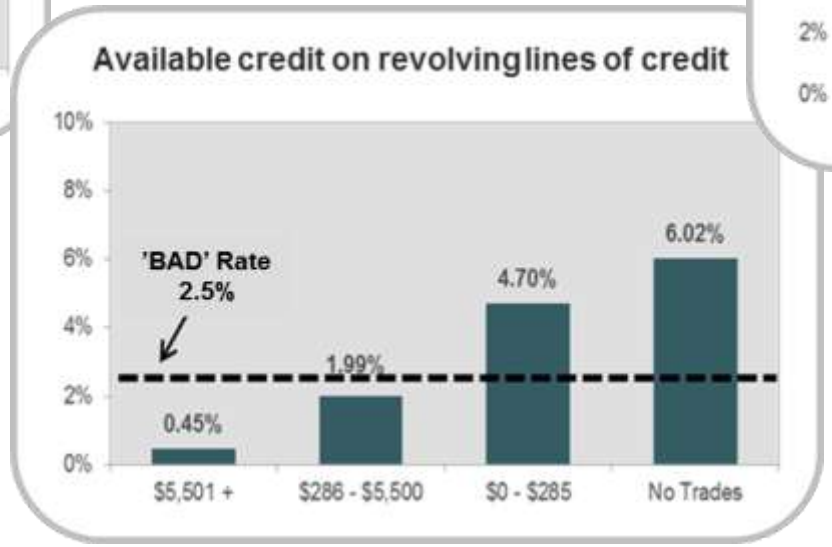
Experian Premier Attributes^{SM}

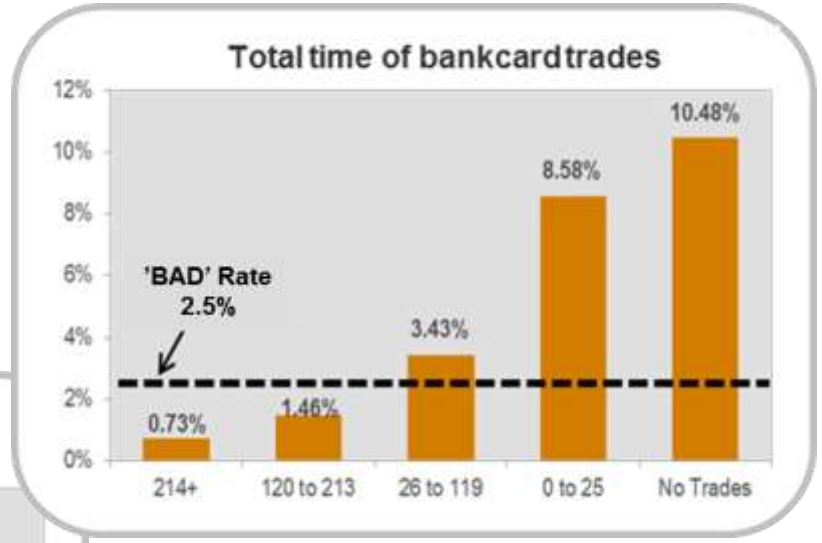
- More than 1,700 credit attribute
- Tri-bureau leveled attributes
- Enable organizations to make more strategic and data-driven decisions



Determine the value of the predictive Premier Attributes[SM]







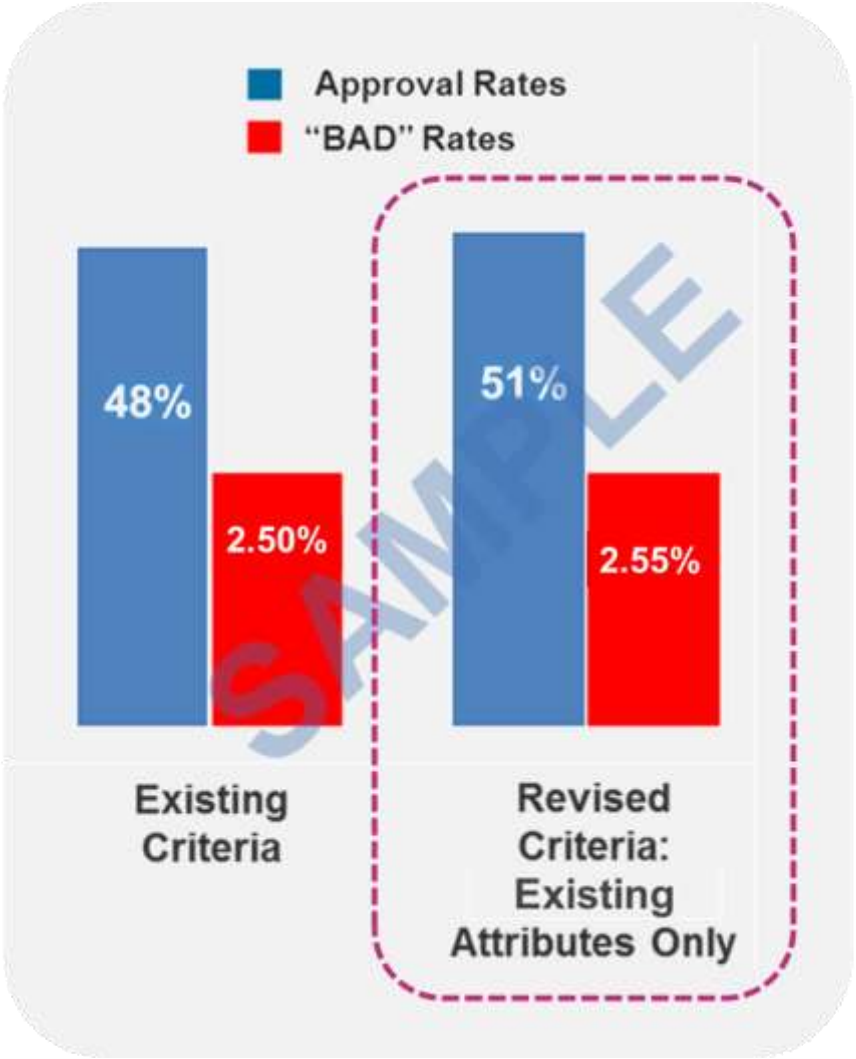
Recommend / quantify criteria adjustments

Below are **short-term** recommended criteria changes

Underwriting element	Adjustment	Volume	'Loss" rate
Credit score	Decline <580	- 100	12.00%
Number of trades presently delinquent	Increase to 1	+ 40	3.10%
Age of oldest trade	Lower to 19 months	+ 10	3.50%
Monthly income	Eliminate	+ 300	3.15%
Time at Job	No change	No change	No change
Maximum debt ratio	Increase to 55%	+ 100	3.00%
Maximum loan amount	Increase to $75,000	+ 100	3.10%
Vehicle age	No change	No change	No change
Loan to value	Increase to 109%	+ 20	2.95%
		+ 470	3.00%

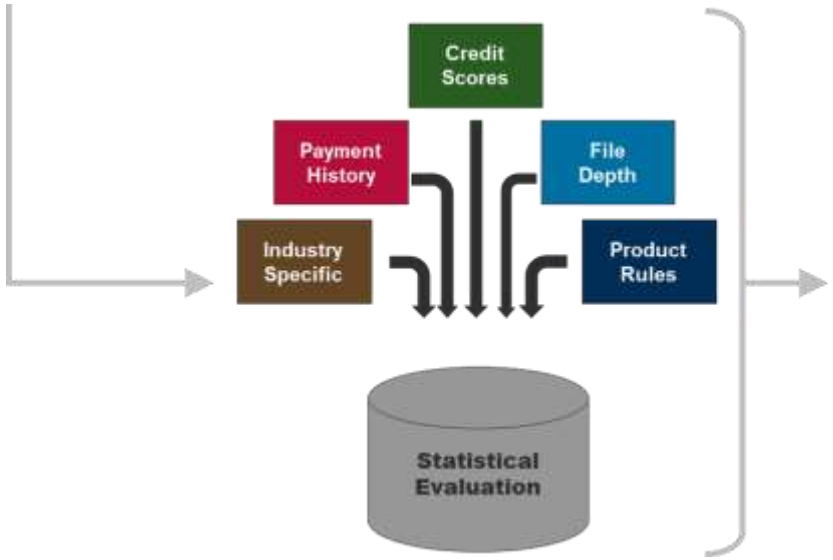
Current criteria compared to the **short-term** recommendations

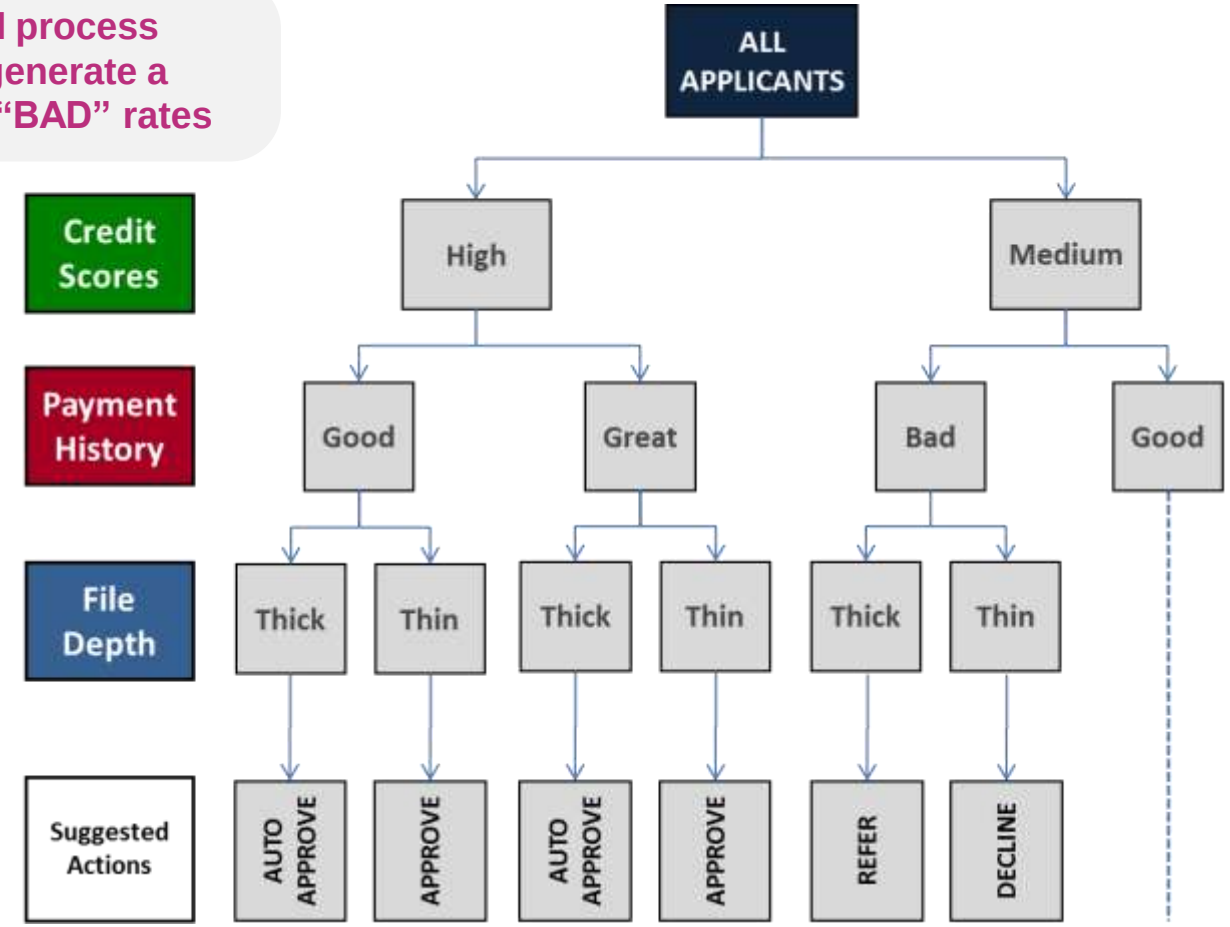
- By making specific adjustments to the existing criteria, new results are generated
- Approval rates may improve from 48% to 51%
- The “BAD” rates increases slightly from 2.50% to 2.55%



Develop **longer-term** criteria based on ALL attributes

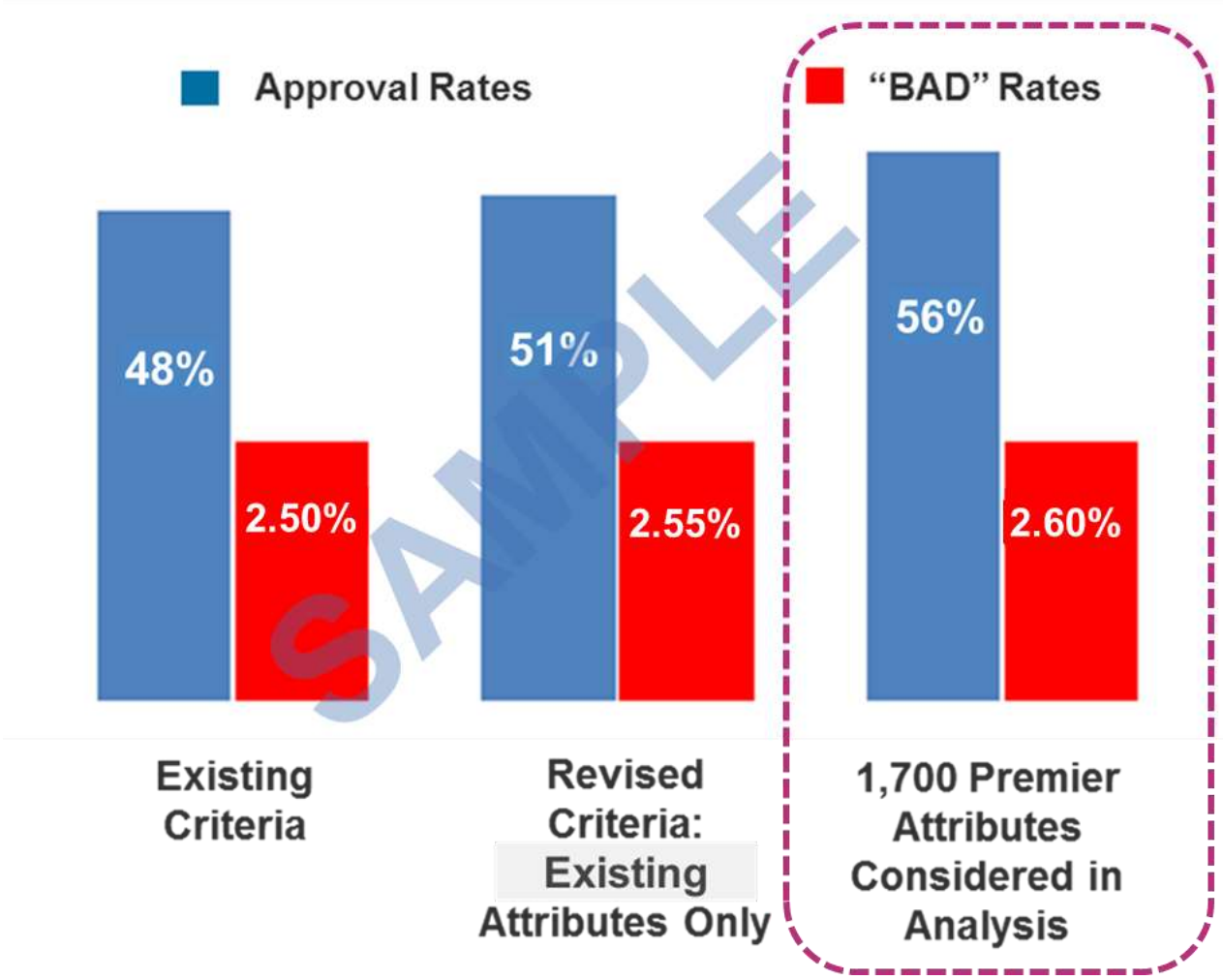
Available scores and credit data are evaluated with a statistical process to create relationships between variable. Those relationships generate a decision tree algorithm that allows us to identify the expected "BAD" rates





Current criteria compared to the **longer-term** recommendations

- By introducing more robust criteria, approval rates are increased from 48% to 56%
- Also, the ‘BAD‘ rate increases only slightly again - going from 2.50% to 2.60%



A higher degree of confidence allows for greater automation

Based on the historical performance of past applicants, a “confidence range” can be created to measure the ability to accurately predict those that actually become “good” or “bad”

In cases where the confidence value is very high (90% or higher), there is a greater certainty of the outcome – these applicants can be auto-decisioned

Grade	Historical “bad” %	Confidence range	Action
A	<1%	90%	Auto approve
B	1% – 5%	80%	Recommend approve
C	5% – 10%	50%	Refer
D	10% – 20%	70%	Recommend decline
F	20%+	95%	Auto Decline

Estimated changes in automation are shown by product

	Current underwriting criteria			GOAL for NEW underwriting criteria		
	% Automated	% Manual	Approval rate	% Automated	% Manual	**Approval rate [1]**
Secured	30%	70%	**60%**	50%	50%	**65%**
Unsecured	25%	75%	**50%**	50%	50%	**60%**
Card	40%	60%	**55%**	75%	25%	**65%**

[1] Improvements in approval rates are based on the underwriting criteria adjustments and the client's threshold for risk

The time is now!

- The environment is ripe for growth
- Data and analytics can uncover patterns
- Off-load some of the work to your partners at Experian!

Questions and answers

Experian contact:

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