Massive Disruption: AI to Optimize Fairness and Job Relevance in Employment Selection

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ANALOG EMPLOYMENT SELECTION IS NOT GREAT

FINDING EMPLOYEES IS A GAMBLE

40-50%
Failure rate for new hires

66%
Of hiring managers regret their decisions

30%
Of an employees first year earnings = turnover costs

Source: Sullivan (2017), *ERE Media*

FINDING A JOB IS MISERABLE

65%
Of applicants never hear back

60%
Rate experience as poor

36%
Fewer callbacks for Black applicants

Sources: Florentine (2017) *CIO*; Quillan et al (2017) *PNAS*

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ANALOG EMPLOYMENT SELECTION IS NOT GREAT

CHARGES FILED

76,418
total in 2018

32%
race/ethnicity based

32%
sex based

https://www.eeoc.gov/eeoc/newsroom/release/1-25-18.cfm

MONETARY RELIEF

$505M
secured by EEOC in 2018

$39M
secured by OFCCP in 2017-2018

https://www.dol.gov/ofccp/BTN/index.html

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CA ACR 125

Bias and discrimination in hiring reduction through new technology

- WHEREAS, Innovative technologies for hiring and promotion, including artificial intelligence and algorithm-based technologies, have the potential to reduce bias and discrimination in hiring and promotion …

- WHEREAS, California should be the leader in the appropriate standards that are necessary to ensure that the technologies being developed and used will reduce employment bias and discrimination, while achieving better employment outcomes and ensuring equal opportunity to economic mobility; now, therefore, be it

- Resolved by the Assembly of the State of California, the Senate thereof concurring, That the Legislature urges policymakers in federal and state government to explore ways to promote the development and use of new technologies that will reduce bias and discrimination in hiring, help employers find the best-suited candidates based on objective factors, and help ensure that all persons who seek, obtain, and hold employment in this state are able to do so free of discrimination…

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CA ACR 125

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NY S03971B/ AO1746C

A temporary state commission, to be known as the New York state artificial intelligence, robotics and automation commission is hereby created to study and make determinations on issues including but not limited to:

- (a) current law within this state addressing artificial intelligence robotics and automation;
- (b) comparative state policies that have aided in creating a regulatory structure for artificial intelligence, robotics and automation, and whether such measures would be similarly effective in this state;
- (c) criminal and civil liability regarding violations of law caused by entities equipped with artificial intelligence, robotics and automation;
- (d) the impact of artificial intelligence, robotics and automation on employment in this state;
- (e) the impact of artificial intelligence, robotics and automation on the acquiring and disclosure of confidential information;
- .....

IL HB2557

Video Interview Act

Disclosure of the use of artificial intelligence analysis. An employer that asks applicants to record video interviews and uses an artificial intelligence analysis of the applicant-submitted videos shall do all of the following when considering applicants for positions based in Illinois before asking applicants to submit video interviews:

(1) Notify each applicant before the interview that artificial intelligence may be used to analyze the applicant's video interview and consider the applicant's fitness for the position.

(2) Provide each applicant with information before the interview explaining how the artificial intelligence works and what general types of characteristics it uses to evaluate applicants.

(3) Obtain, before the interview, consent from the applicant to be evaluated by the artificial intelligence program as described in the information provided. An employer may not use artificial intelligence to evaluate applicants who have not consented to the use of artificial intelligence analysis.


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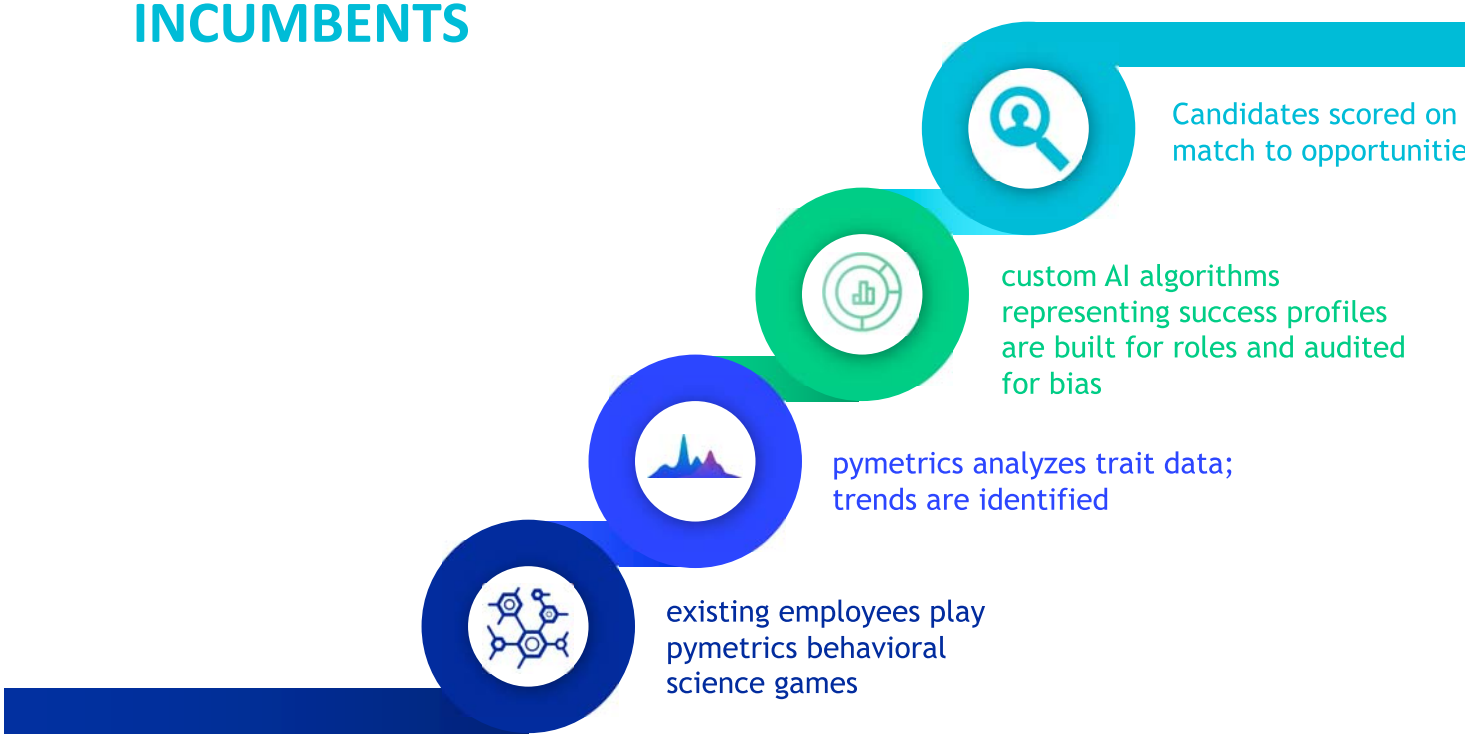
CUSTOM AI TRAINED ON A COMPANY'S OWN SUCCESSFUL INCUMBENTS



pymetrics is a Netflix-like recommendation algorithm.

we build a custom profile for each role + company, and match candidates to success profiles.

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ASSESSMENTS + SUCESS PROFILES

Decision Making
Approach to making decisions
(deliberative/instinctive)

Generosity
Tendency to prioritize the needs of others above your own
(sharing/frugal)

Risk Tolerance
Comfort with risk-taking
(adventurous/cautious)

Learning
Tendency to change behavior based on new information
(adaptive/consistent)

Focus
Concentration style for one or more tasks
(focused/multi-tasking)

Emotion
Strategy for interpreting others' emotions
(expression-oriented/context-oriented)

Effort
Effort invested based on size of reward and probability of success
(hard-working/outcome-driven)

Fairness
Perception of the fairness of social situations
(accepting/critical)

Attention
Approach to managing incoming information and distractions
(methodical/biased towards action)

https://github.com/pymetrics/audit-ai

DEBIASING

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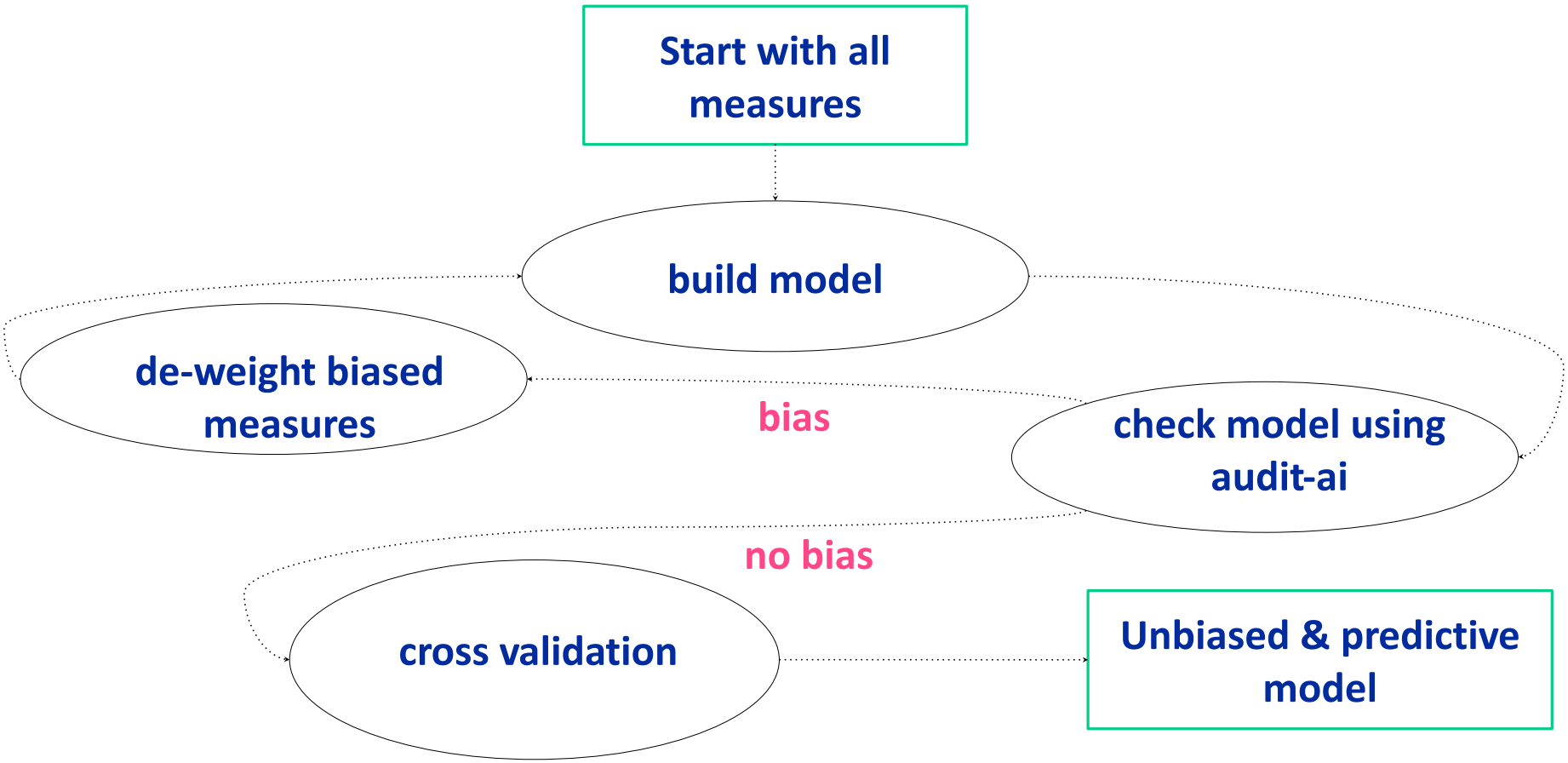
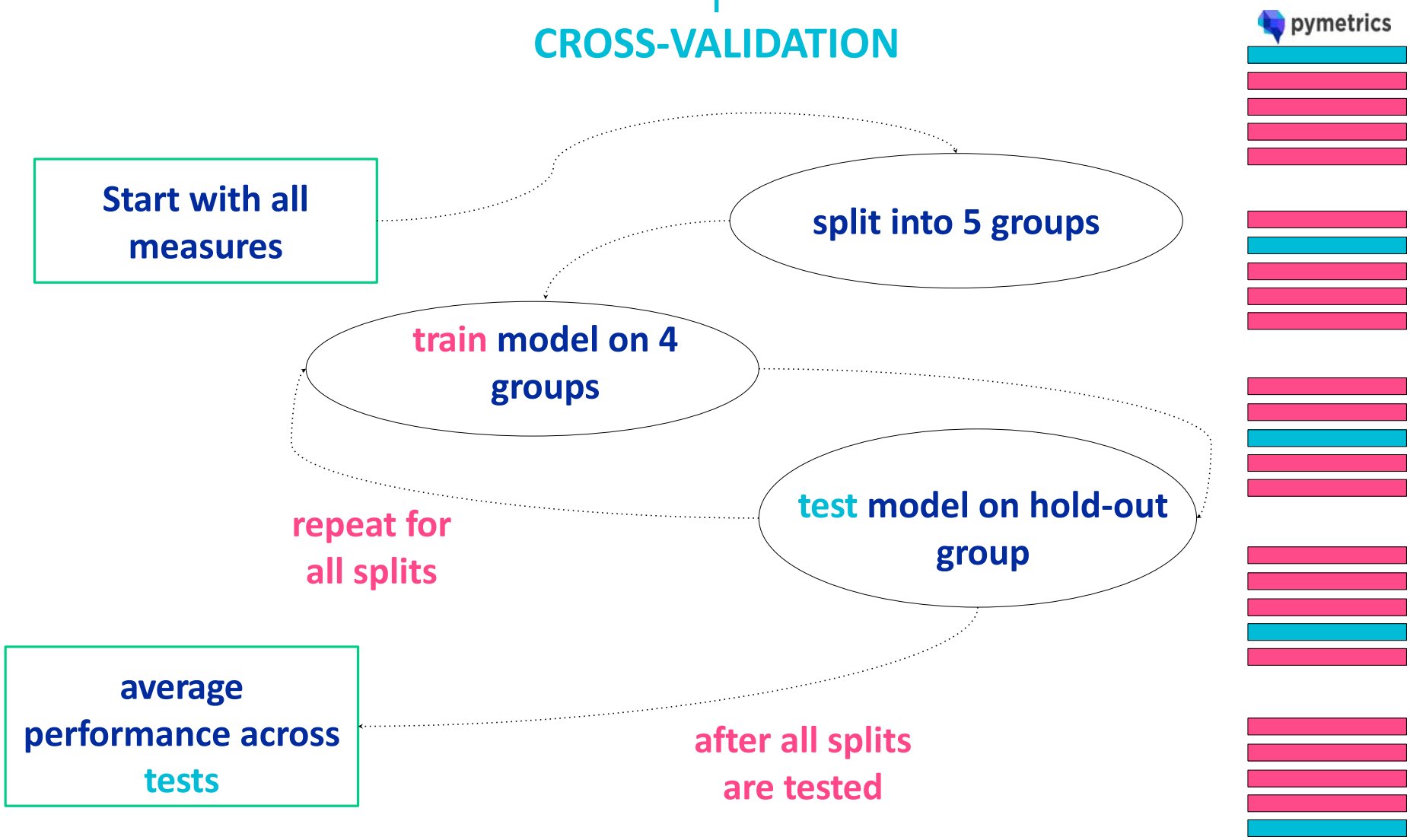


CROSS-VALIDATION



AGGREGATE MODEL RESULTS TO DATE

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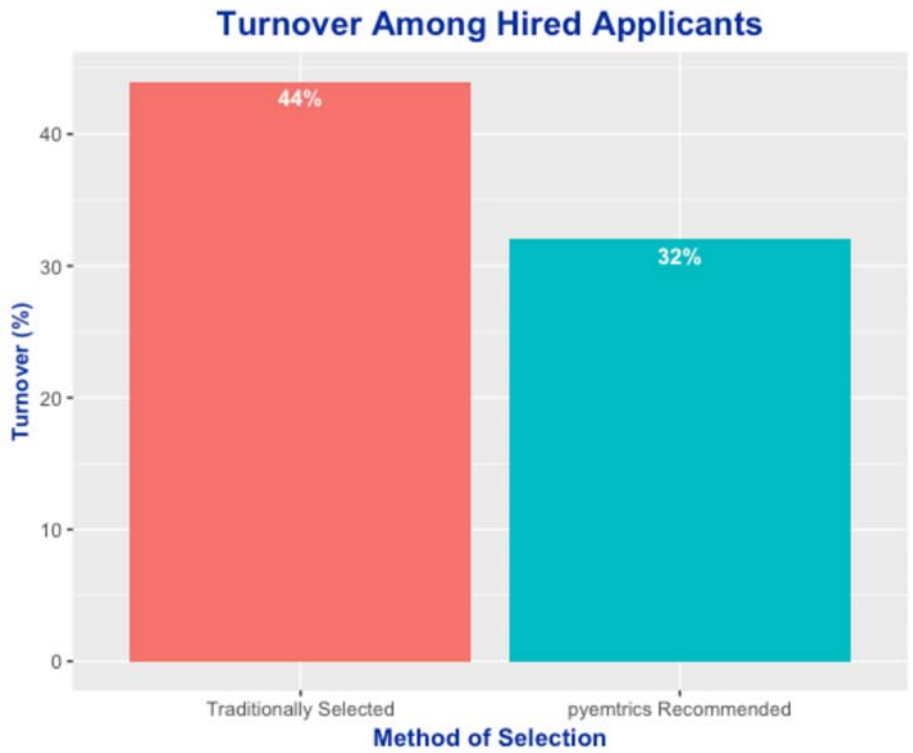
- Recall = The average success rate of the model at identifying successful incumbents across trials
- Accuracy = The average success rate of the model at distinguishing successful incumbents + baseline participants across trials
- Biserial Correlation = Strength of the model at predicting group membership (ingroup v baseline)
- Fairness = Adverse Impact Ratios for lowest-performing demographic to highest
- Across 187 models built in the past 5 years, mean results are:

Recall	Accuracy	Biserial Correlation
.79	.74	.40

Gender Fairness	Race/Ethnicity Fairness
.93	.85

PYMETRICS RELATED TO DECREASED ATTRITION – CONSUMER GOODS



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28%

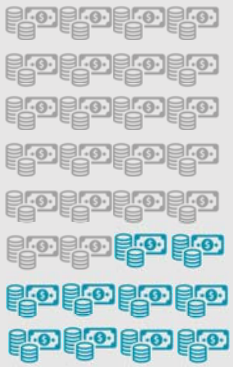
less attrition

among employees recommended by pymetrics compared to traditional selection means

Multi-national consumer goods company contracted with pymetrics to build seven function-specific success models for a leadership-training program

Candidates went through pymetrics, and the company evaluated the predictive results of those hired

PYMETRICS RELATED TO DECREASED ATTRITION AND INCREASED PERFORMANCE – FINANCIAL SERVICES

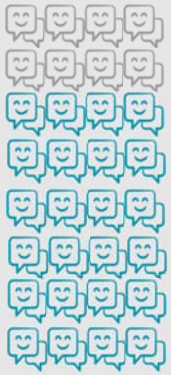


33%

more sales

30%

lower attrition



81%

positive feedback

92%

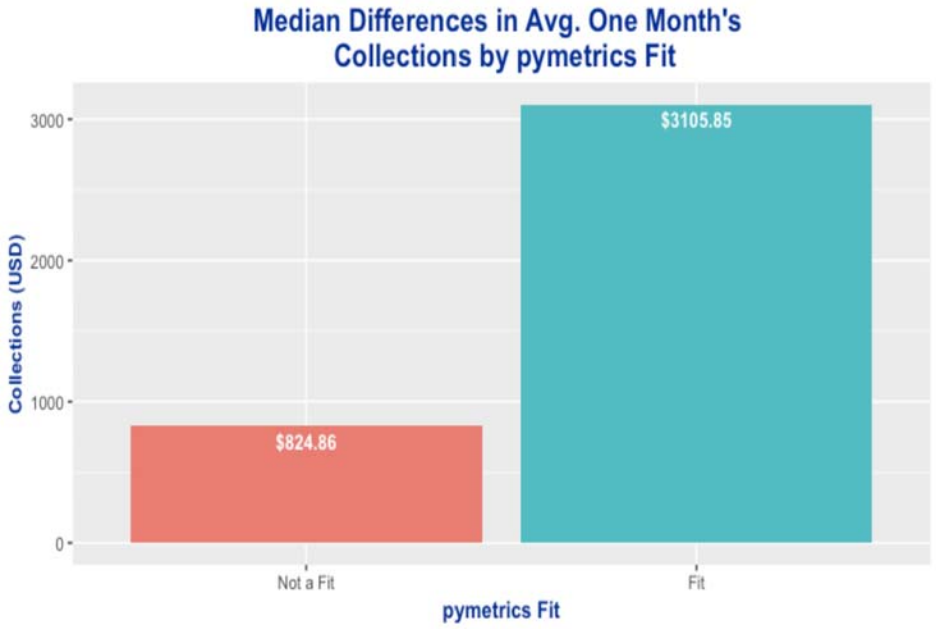
recruiters felt pymetrics added value

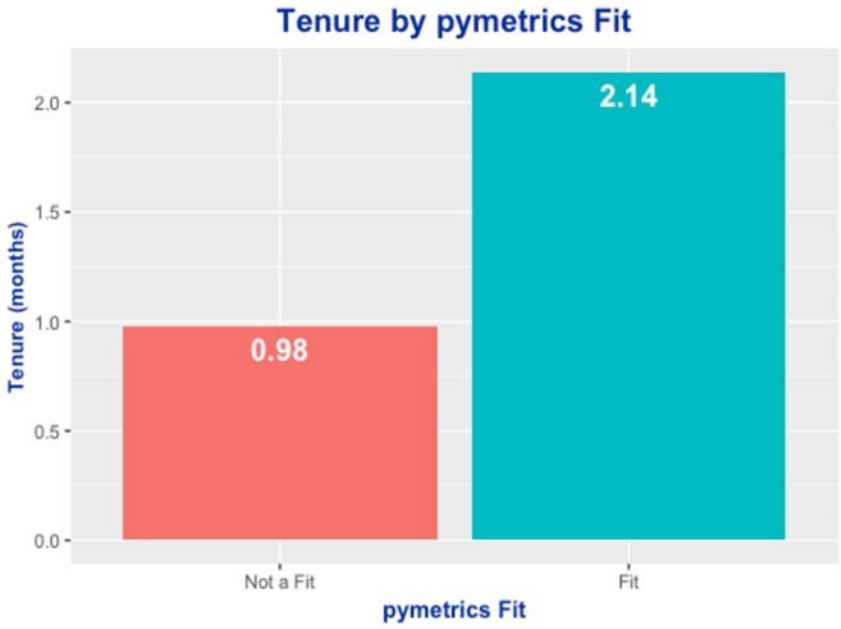
Multinational Financial Services firm launched 12 month study with pymetrics for its Insurance Sales business

pymetrics built a profile based on current high performing Sales Agents

All candidates went through pymetrics, and the company evaluated the predictive results of those hired

PYMETRICS RELATED TO INCREASED TENURE AND PERFORMANCE – DEBT RECOVERY



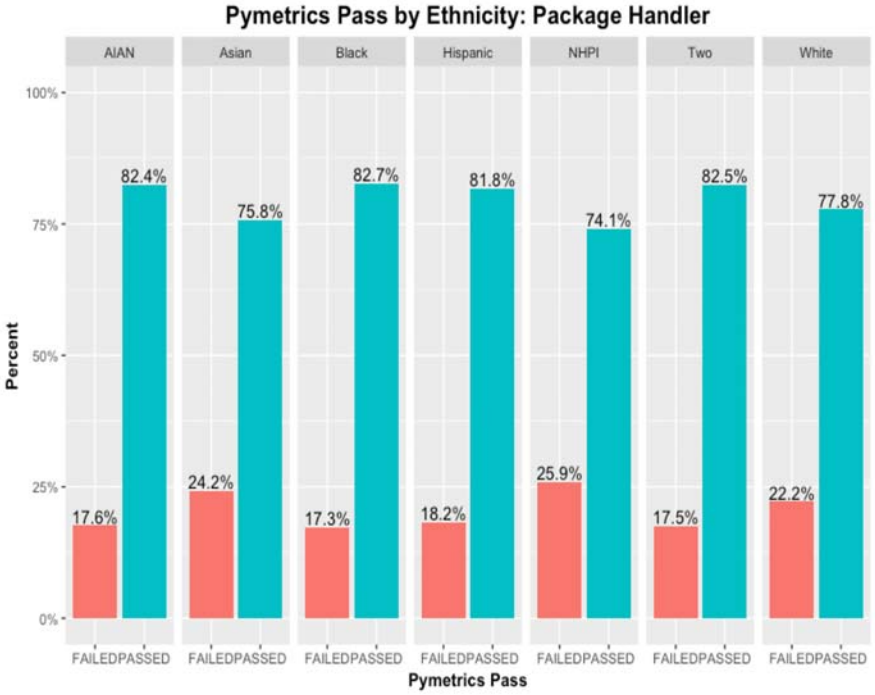


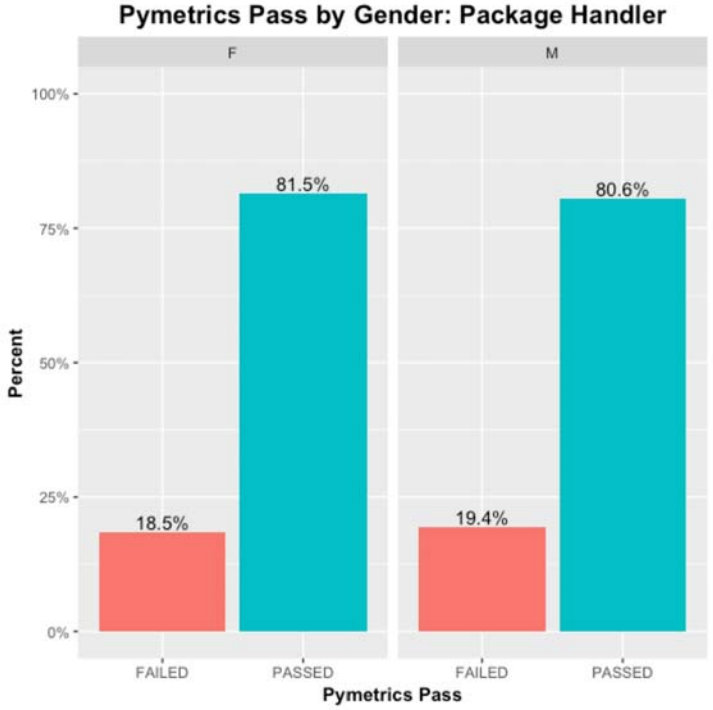
US-based Debt-recovery organization contracted with pymetrics to build an **Account Representative model**

High turnover role, main performance indicator is **collections**

Candidates went through pymetrics, and the company evaluated the predictive results of those hired

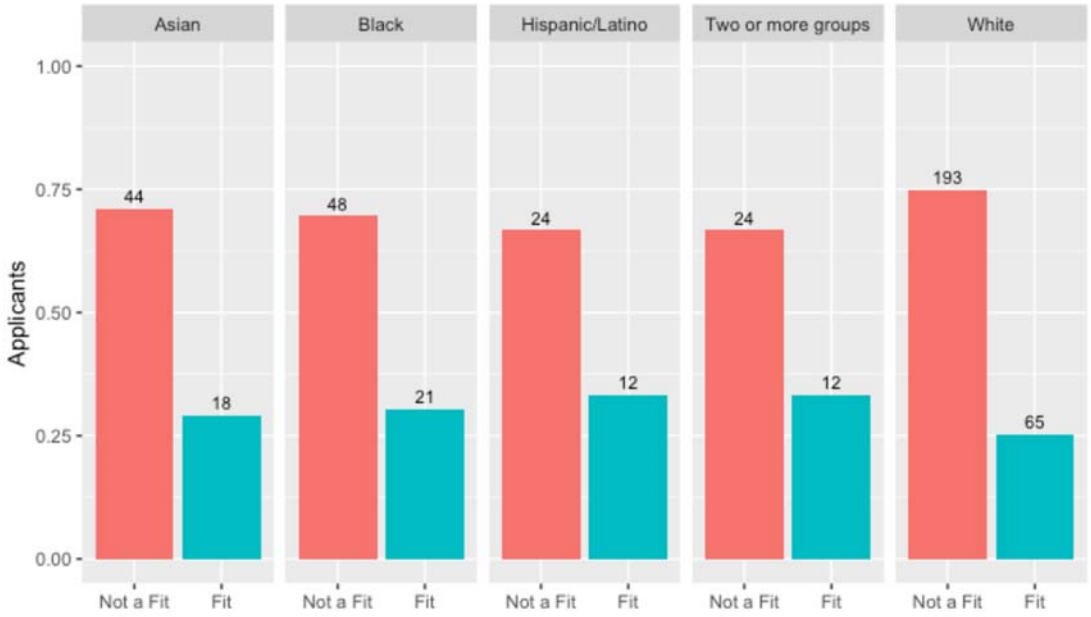
PYMETRICS UNRELATED TO RACE/ETHNICITY OR GENDER – PACKAGE DELIVERY + SUPPLY CHAIN



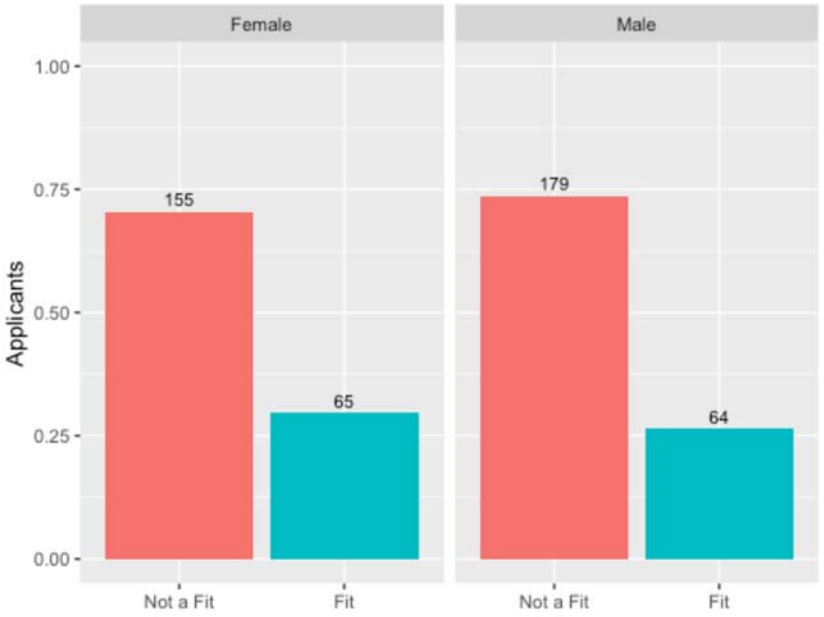


PYMETRICS UNRELATED TO RACE/ETHNICITY OR GENDER – QUICK SERVICE RESTAURANT

Pymetrics Pass by Ethnicity: Operations Associate



Pymetrics Pass by Gender: Operations Associate

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QUESTIONS