How Do We Find
The Right Person
For The Right Job?

The traditional approach:

Cloud Native Infrastructure Engineer / Architect at

📅 Post Date: June 27, 2020   Full Time

Required Technical and Professional Expertise

Minimum **12 years' experience in Kubernetes administration** and management

Hands-on experience on setting up Kubernetes platform, deploying microservices and other web applications, and managing secure secrets along with container orchestration using Kubernetes

Problem: Kubernetes is 6 years old...

pymetrics

How Do We Find
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Data
Quality & Scale

Machine Learning

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pymetrics

How Do We Find
The Right Person
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pymetrics: Behavior, Reasoning, and Communication

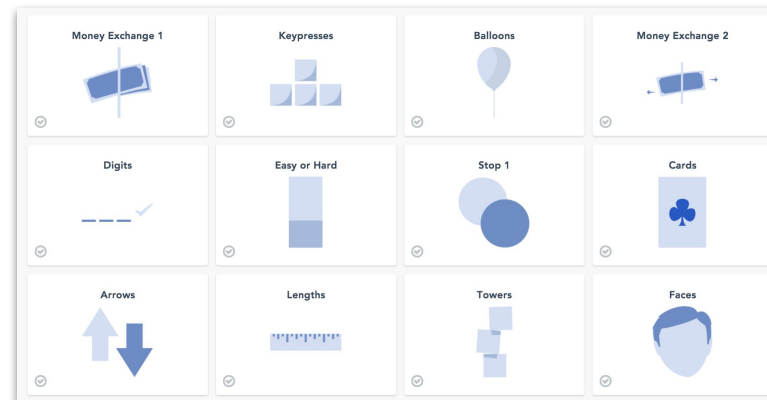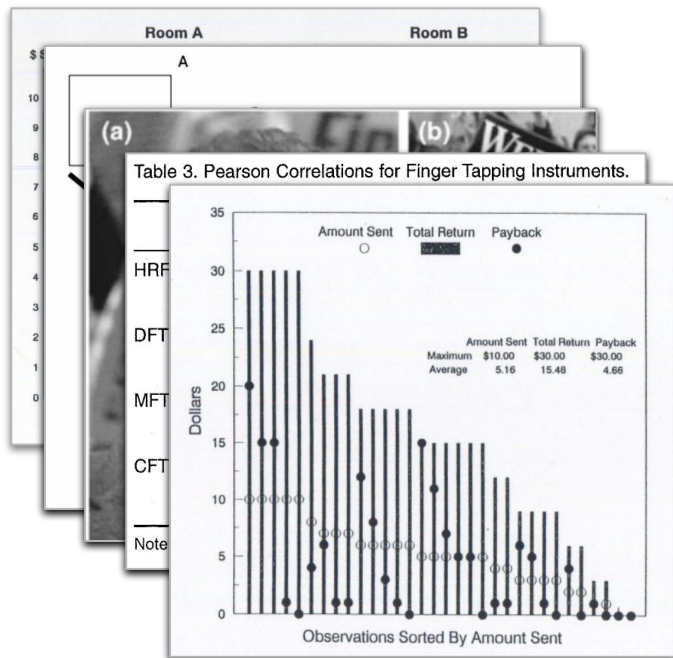| Behavioral Aptitudes	12 games that measure **cognitive and emotional attributes**	Effort, Attention, Focus, Emotion, Fairness, Generosity, Risk Tolerance, Decision Making, Learning
Numerical Reasoning	4 games that specifically measure **numerical and logical reasoning**	Quantitative Reasoning, Numerical Agility
Communication	Communications assessment that replaces the early phone screen	**Content** What people say, **Context** How they say it

pymetrics
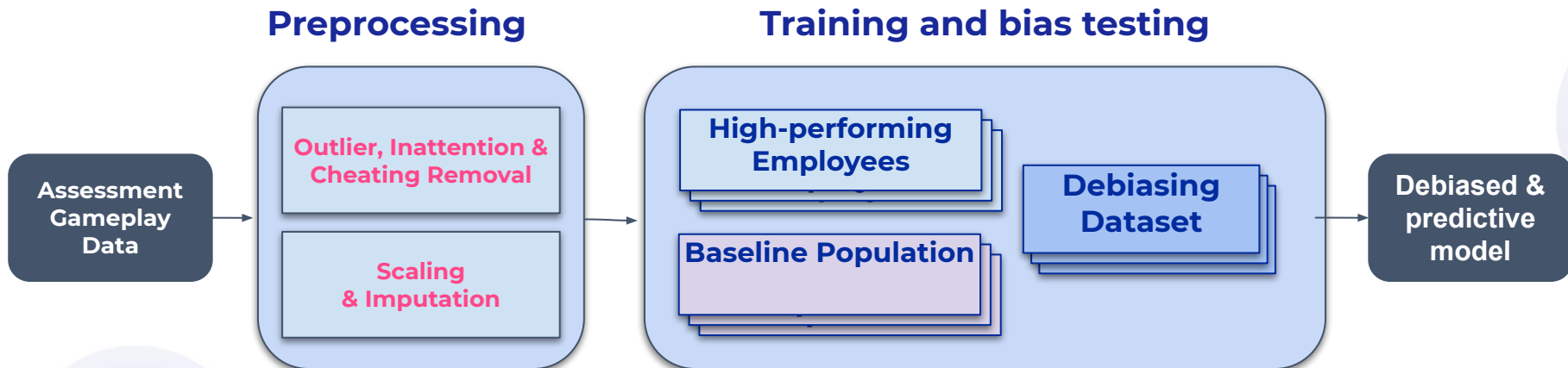
pymetrics centers on a set of core assessments rooted in cognitive science

Our algorithmic platform optimizes for performance **and** fairness.

pymetrics

Preprocessing

Training and bias testing

Assessment Gameplay Data

Outlier, Inattention & Cheating Removal

Scaling & Imputation

High-performing Employees

Baseline Population

Debiasing Dataset

Debiased & predictive model

Business value arises from three key features.

PREDICTIVE

Our assessments predict key factors driving performance: **attention, focus**, **communication** and **numerical skills.**

Our assessments are **continuously tested for predictive value**, before and after deployment.

FAIR

Fairness first approach for all assessments.

For new video assessments we have a special obligation to avoid fairness arising from facial recognition / audio fingerprinting.
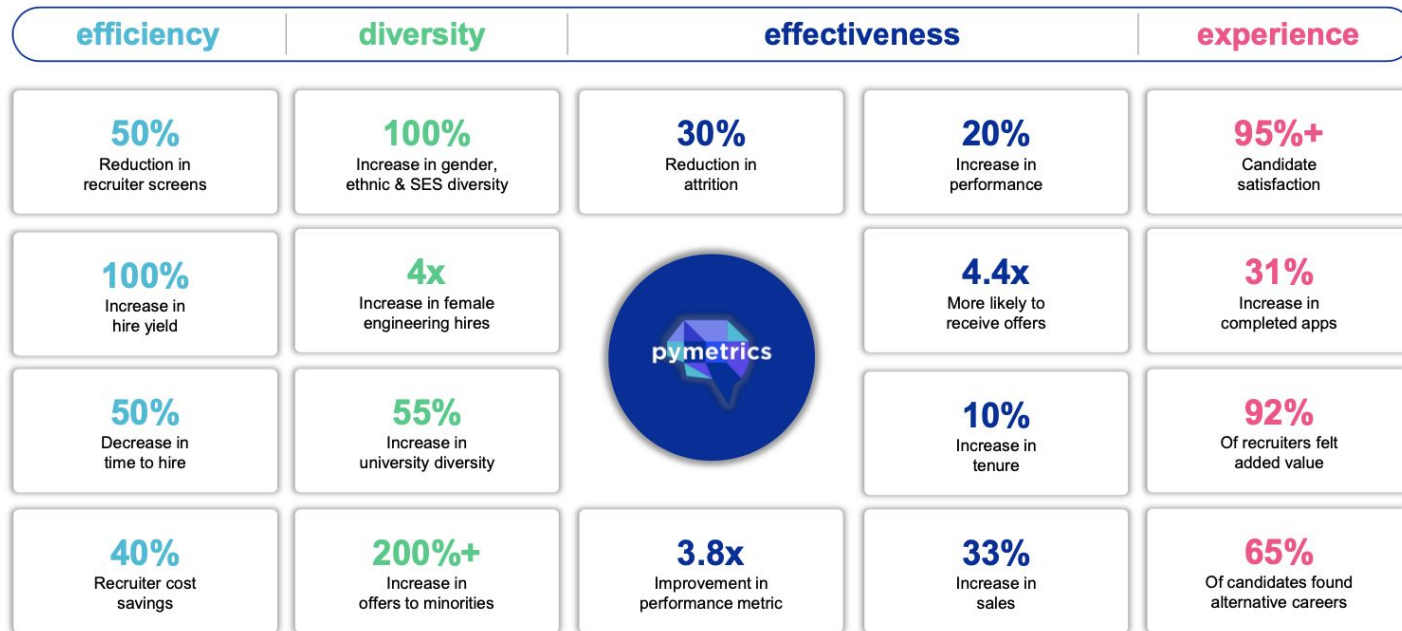
EXPLAINABLE

Reports for recruiters **explaining each model** as well as **explaining each decision**.

Reports for candidates explaining what **makes them unique and how to improve**
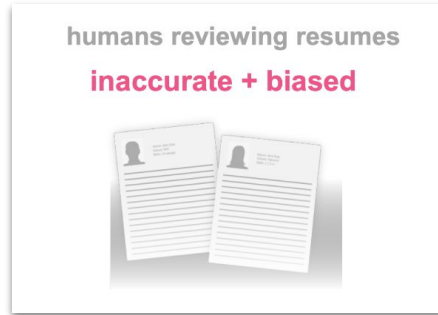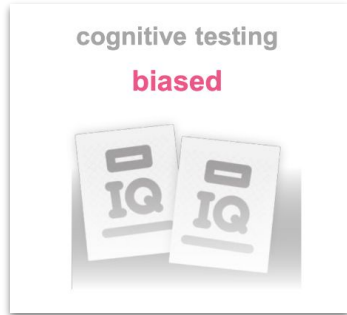
pymetrics

Demonstrated ROI for pymetrics clients.

Proven and quantifiably better outcomes for clients, candidates, and the world

Selection of real results from pymetrics customer engagements

efficiency	diversity	effectiveness		experience
50% Reduction in recruiter screens	**100%** Increase in gender, ethnic & SES diversity	**30%** Reduction in attrition	**20%** Increase in performance	**95%+** Candidate satisfaction
100% Increase in hire yield	**4x** Increase in female engineering hires		**4.4x** More likely to receive offers	**31%** Increase in completed apps
50% Decrease in time to hire	**55%** Increase in university diversity		**10%** Increase in tenure	**92%** Of recruiters felt added value
40% Recruiter cost savings	**200%+** Increase in offers to minorities	**3.8x** Improvement in performance metric	**33%** Increase in sales	**65%** Of candidates found alternative careers

pymetrics

Three short lessons from the pymetrics journey.

1. Fairness is a performance criterion.

cognitive testing
biased

humans reviewing resumes
inaccurate + biased

EEOC regulations require that all assessments used in hiring be fair within an 80% margin.

EEOC Measure of Fairness

100

80

60

40

20

0

Legal Standard
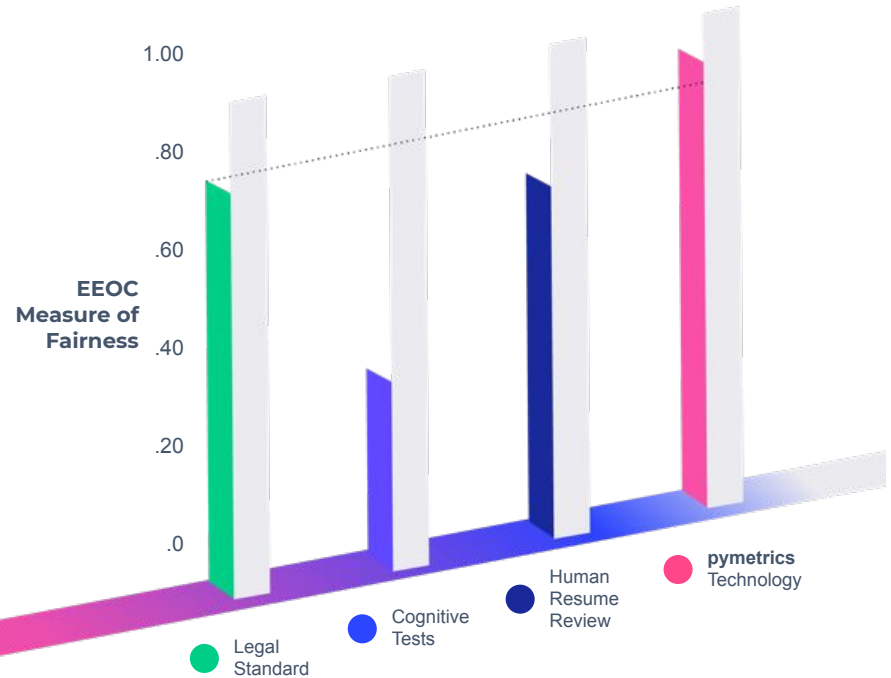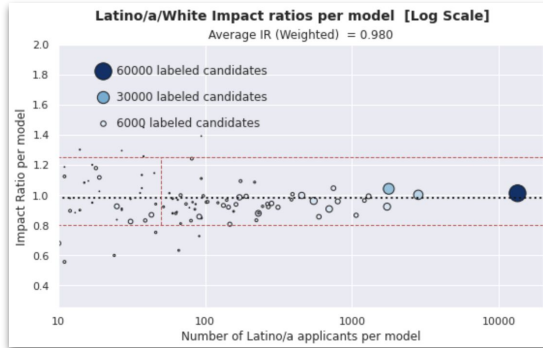
Cognitive Tests

Human Resume Review
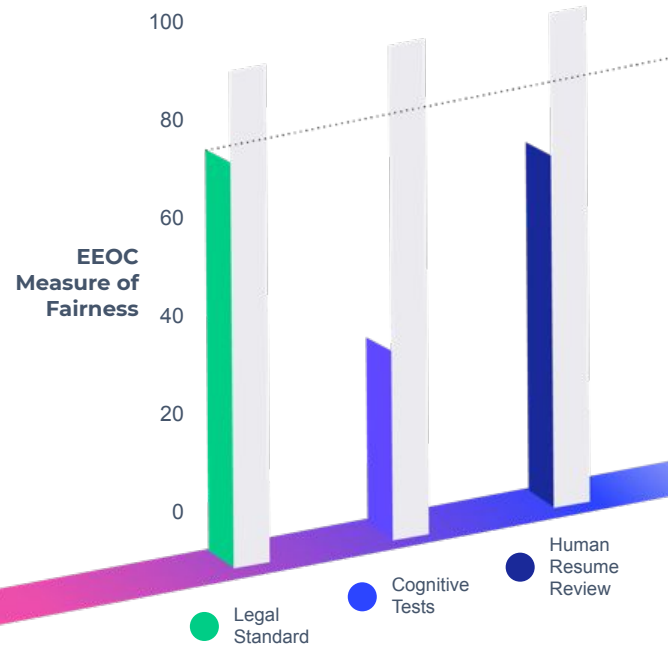
1. Fairness is a performance criterion.

pymetrics Audited AI passes the EEOC 80% rule.

EEOC standard Impact Ratio: 0.8

Gender
Average > .95

Race/Ethnicity
Average > .92

Latino/a/White Impact ratios per model [Log Scale]
Average IR (Weighted) = 0.980

- 60000 labeled candidates
- 30000 labeled candidates
- 6000 labeled candidates

Impact Ratio per model

Number of Latino/a applicants per model

EEOC Measure of Fairness

1.00
.80
.60
.40
.20
.0

Legal Standard

Cognitive Tests

Human Resume Review

pymetrics Technology

Results in preparation for peer-reviewed submission.

2. **Transparency is a collaborative process.**

Auditing the Pymetrics Model Generation Process

Christo Wilson   Alan Mislove   Avijit Ghosh   Shan Jiang
Khoury College of Computer Sciences, Northeastern University

Research team from Northeastern University published results from an **independent third-party audit**

Correctness: Does pymetrics' source code implement the four-fifths rule via the minimum bias ratio metric, using the process described in their documentation? ✓

No Direct Discrimination: Do models trained using the pymetrics source code directly incorporate demographic features, and/or do the models take demographic features as direct input? ✓

Debiasing Circumvention: Is there a way to manipulate the input data to the pymetrics source code in such a way that the fairness checks are circumvented? ✓
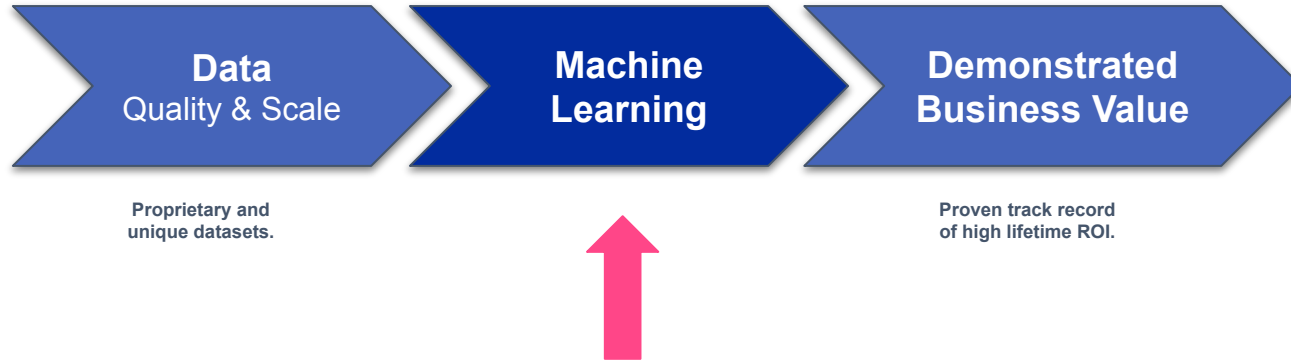
Deployment of AI in regulated spaces can accelerate the ethics life-cycle.

- Regulatory compliance is the first step, but not the last.

- There is a clear need for public-facing audits alongside traditional regulatory compliance.

- **Key learning**: trust is your most valuable asset, and transparency is the most powerful tool to build trust.

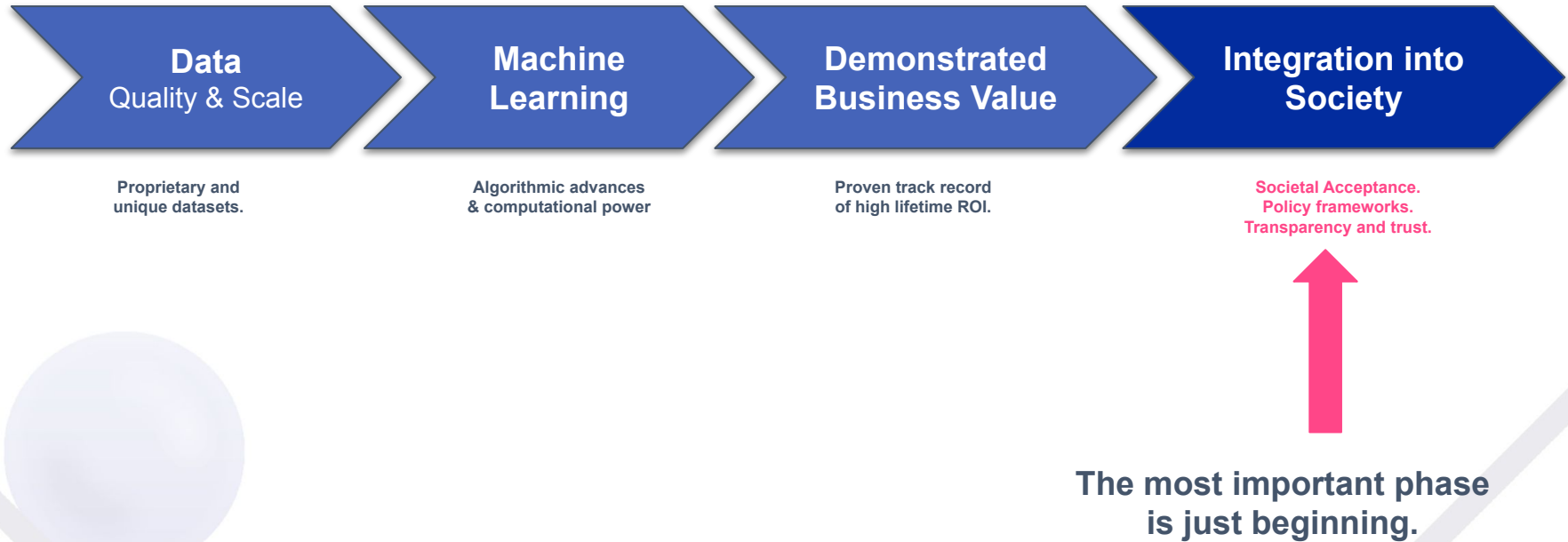# 3. The life cycle of AI deployment at a societal scale is complex.

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3. The life cycle of AI deployment at a societal scale is complex.

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Only one piece of the AI life-cycle has been (or can be) meaningfully commoditized.

3. **The life cycle of AI deployment at a societal scale is complex.**

Data Quality & Scale	Machine Learning	Demonstrated Business Value	Integration into Society

Proprietary and unique datasets.

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**Societal Acceptance.
Policy frameworks.
Transparency and trust.**

The most important phase is just beginning.