

ANALYZING

PURPOSE

The Analyzing stage can involve both exploratory and targeted analysis, the application of algorithms, and other means for generating quantitative insights.

Conducting Targeted Analysis

1. Creating a Protected Processing Environment: Have you created a protected processing environment for the analysis, if necessary, to limit access and guard against unauthorized data extraction?

- Key Stakeholders: Data Engineering, Partner

2. Implementing Targeted Analysis: Have you determined if the analysis techniques are targeted and in alignment with the problem statement?

- Key Stakeholders: Data Science/Analytics

3. Documenting Analysis: Have you documented relevant data, algorithms, assumptions, statistical techniques, and findings to enable replicability and internal or external audit?

- Key Stakeholders: Data Science/Analytics

4. Testing Multiple Techniques: Have you tested multiple analysis techniques and/or algorithms to determine which is most accurate, relevant, and scientifically rigorous?

- Key Stakeholders: Data Science/Analytics

5. Making Corrections: Have you defined processes to adjust incorrect or flawed analyses?

- Key Stakeholders: Data Science/Analytics

Considering Algorithmic Implications

6. Vetting Training Data: Have you vetted any training datasets that will be fed into algorithms or machine learning models?

- Key Stakeholders: Data Science/Analytics

7. Considering Proxy Bias and Blindspots: Have you assessed whether the analysis relies on proxies that might introduce bias or blindspots, e.g., using number of arrests as a proxy for prevalence of criminal activity?

- Key Stakeholders: Data Science/Analytics

8. Avoiding Reproducing Inequalities: Have you considered whether algorithmic analysis could reproduce existing inequities and data biases?

- Key Stakeholders: Partner, Data Science/Analytics

9. Ensuring Algorithmic Interpretability: Have you determined whether you can you interpret and articulate how algorithmic decisions are made?

- Key Stakeholders: Partner, Data Science/Analytics

10. Testing Model Predictions: Have you tested model predictions against real world quantities to identify and correct deficiencies?

- Key Stakeholders: Data Science/Analytics

Keeping Humans in the Loop

11. Introducing Human Evaluation: Have you ensured that humans are able to scrutinize algorithmic or computational results and retain ultimate control over decision-making?

- Key Stakeholders: Partner, Operations/HR, Data Subjects, Intended Beneficiaries

12. Avoiding Monolithic Evaluation: Have you taken steps to avoid evaluating models based on a single accuracy score or metric?

- Key Stakeholders: Partner, Data Science/Analytics, Marketing/Communications, Operations/HR

13. Educating Engaged Parties: Have you educated all engaged parties about the algorithmic and machine learning techniques used in the data collaborative to avoid improper use, applications, or incorrect conclusions?

- Key Stakeholders: Partner

14. Transforming Results into Action: Have you presented the findings of the analysis in a way that is clear and actionable?

- Key Stakeholders: Marketing/Communications