

Empowered *workforce*, Thriving *workplaces*

AI Revolution in the Conduct of Labour Force Surveys

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MANPOWER RESEARCH AND
STATISTICS DEPARTMENT

Manpower Research and Statistics Department (Singapore)

As Singapore's national labour market statistics agency, the Manpower Research and Statistics Department (MRSD) delivers robust and timely data to provide labour market intelligence for policy formulation and research.



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**1. Forecasting Model
on Employment Status**
”

“
**2. Speech Analytics in
Data Collection**
”

Open Discussion

1. Towards a Smarter Labour Force Survey

MRSD conducts a **monthly Labour Force Survey**, engaging approximately **22,000 households**. Each household participates over **six consecutive months**, providing valuable insights into the labour market.



"Our employment status doesn't change that quickly..."

**As MRSD, how can we reduce respondents' burden?
Without compromising data quality.**

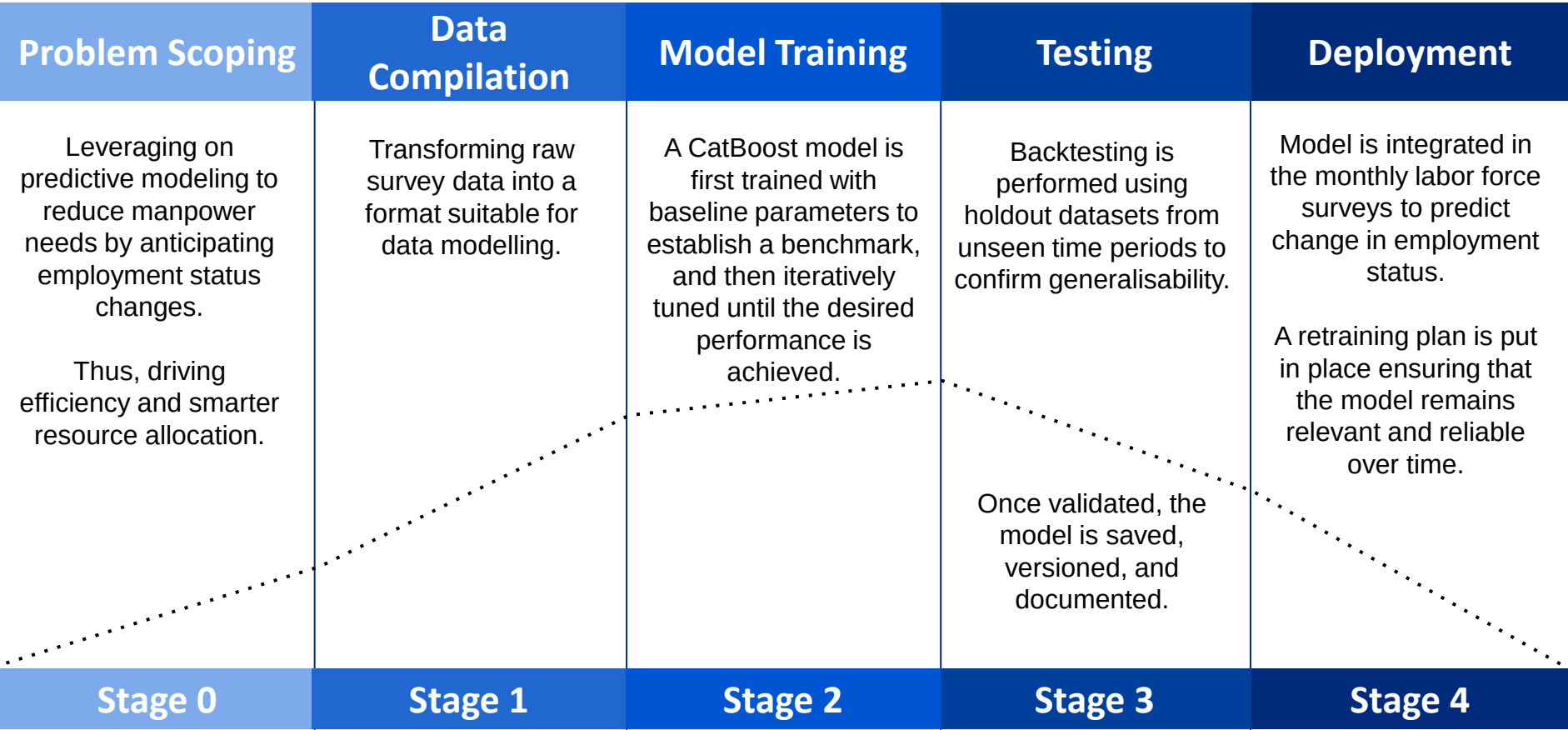
Based on the Analysis...

Employment status tends to remain stable month-to-month for many individuals.

By leveraging predictive models and incorporating additional variables, we can estimate the likelihood of change without needing to recontact every respondent.



Forecasting Model Development



Note: The graph illustrates the relative time allocation across each stage of the modeling process.



Process

22,000 households
(Round 1 to 6)

Survey carried out on all households in Round 1

Data was cleaned to exclude individuals retrenched, retired, unemployed, etc, to ensure the model is used only on the active workforce.

Round 1
– 3,700 cases⁵

Model Prediction for households for round 2 - 6

Using **past** and **current** information to predict whether their **employment status** will change next month.

- Historical survey data was used for training the ML Model.

Round 2 onwards
- 18,300

Outcome

Contact only response that are likely to change their employment status.

Secondary Checks

- Random Call Audits to check for False Negative.
- Validation calls to check for False positive.

~4,000 Cases left to contact

2. Interviewers in Focus

Sustaining high data quality and response rates in the Labour Force Survey requires that respondents feel engaged, respected, and valued throughout their participation.

However, **temporary interviewers** may lack the full set of skills needed to deliver a consistent, respondent-centric experience.

How do we ensure the following?

1. **Clarity of Speech** – clear, polite?
2. **Language and Word Choice** – neutral, non-leading?
3. **Question Delivery and Adherence to Script** – any paraphrase?
4. **Responsiveness and Adaptability** – any follow-ups?
5. **Engagement and Rapport-Building** – do respondents feel heard or seen?



Speech to text Analytics

This product **automates** analysis on calls, optimise call agent monitoring and assessments while ensuring efficient operations within secured government environment.

1. Comprehensive Assessment on Performance of Call Agents

- Measure Compliance to Interview Protocols
- Assess Interviewer Service Quality

2. Real time case Monitoring and Resolution

- Detect Follow-up or Escalation
- Monitor Service Satisfaction
- Questionnaire Refinement & Operation Calibration

Phi-4

Whisper-
large
v3

Customised
AI Model

spaCy NLP

Avg. Call Duration

In minutes

9.64

Avg. Call Score

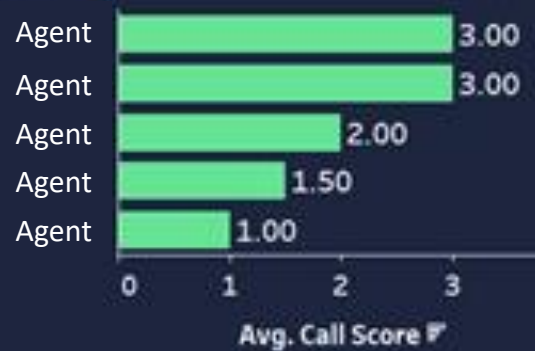
0.14

Avg. Call Satisfaction

%

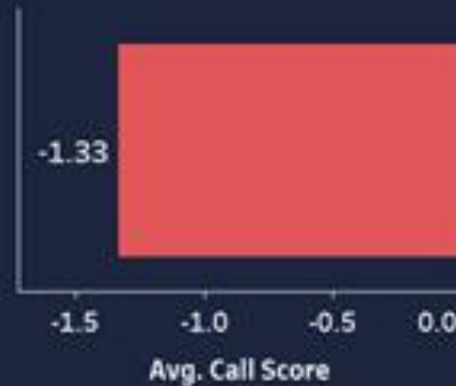
97%

Top Performing

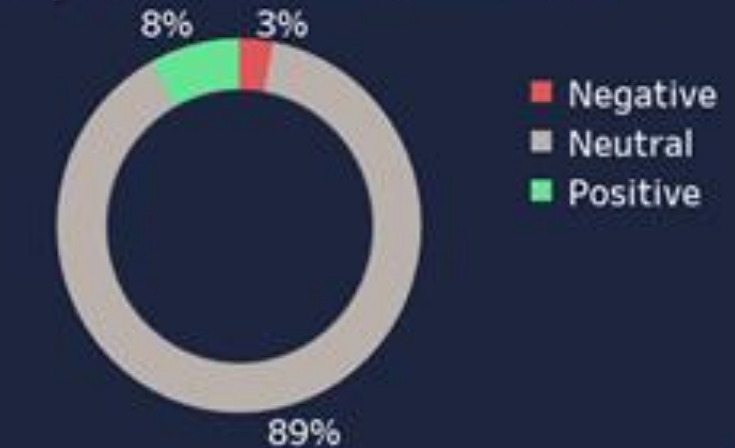


Under Performance

Agent



Respondent Satisfaction



Competency

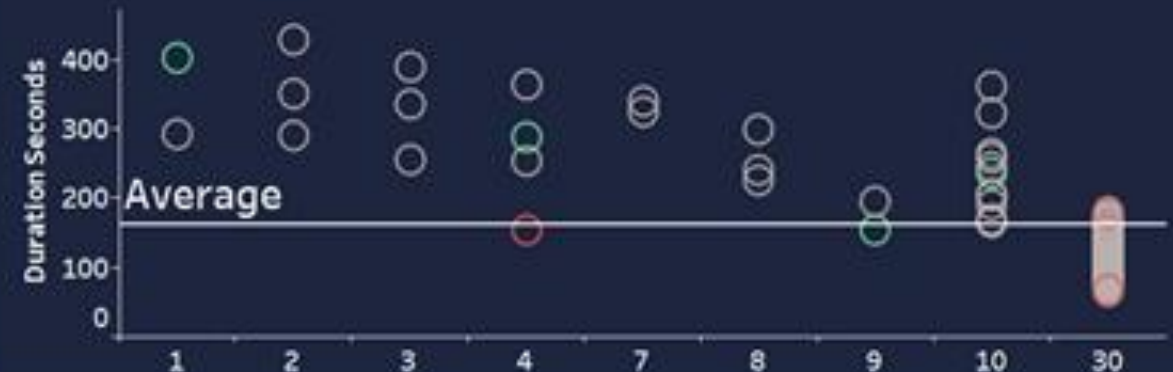
The call agent was unable to maintain a clear and coherent conversation, leading to confusion and frustration.

The call agent struggled to communicate effectively, leading to confusion and frustration for the respondent.

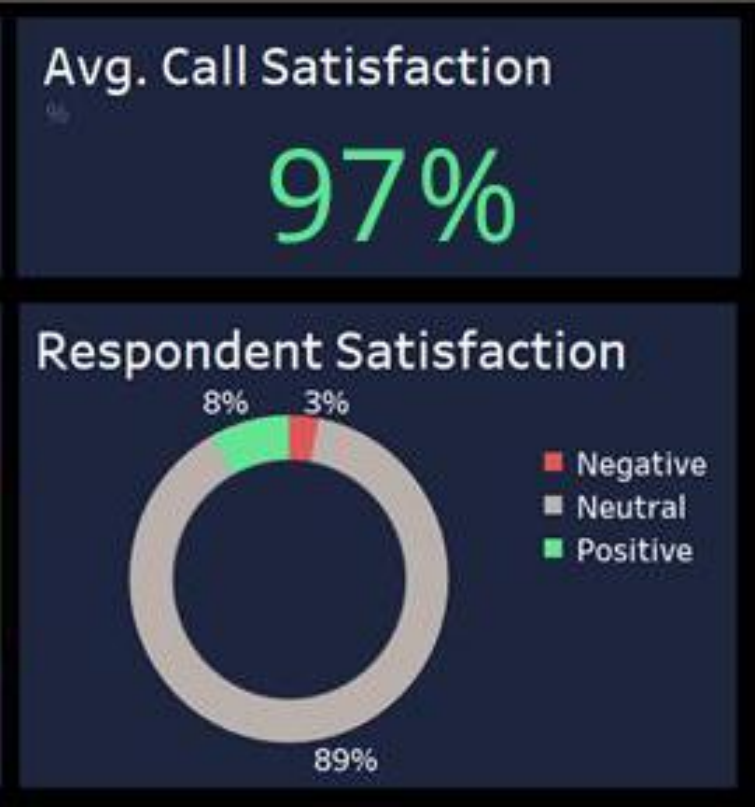
The call agent confused the respondent with questions about the company's name and address, and there was a lack of clarity in communication.

The call agent maintained a clear and polite conversation, ensuring the respondent understood the urgency of the survey submission.

Call Duration

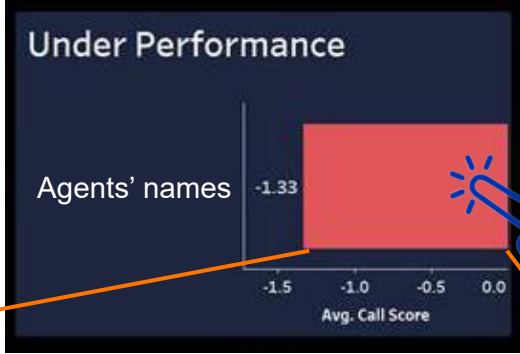


Dashboard Indicators



This dashboard provides insights into call interactions through sentiment-based indicators—**negative, neutral, and positive call satisfaction scores.**

Highlights top and bottom agents based on satisfaction scores (-3 to +3) for **targeted performance insights.**



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