

Evaluating the Impact of AI-based Noise Suppression on Call Centre Metrics and Agent Wellbeing

Designed by Gagandeep Sharma | Supervisor: Dr. Yoram Chisik

Abstract

The pervasive issue of background noise in call centers hinders communication and elevates stress among agents. This research evaluates the efficacy of AI-based noise suppression through IRIS Clarity at the Greenwich Council Customer Service Centre.

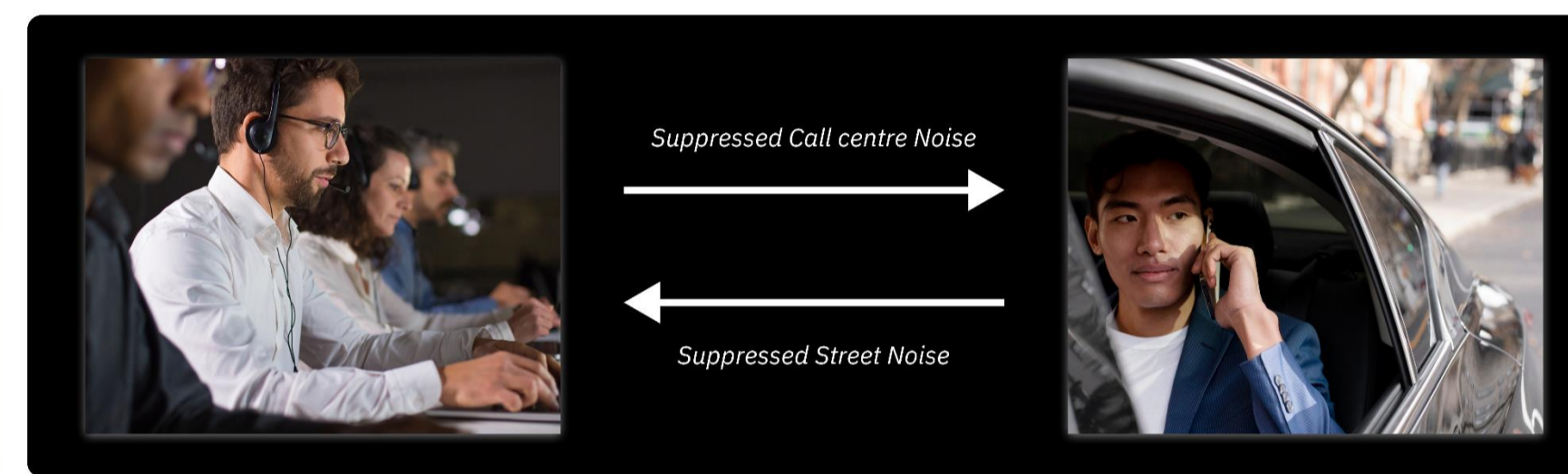
Using a combination of agent surveys, conversational analysis, and simulated call center pilots, we observed reduction in Average Handle Time and decrease in repetitive clarifications due to background noise.

Additionally, a significant improvement in agent well-being post-implementation was noted. The study underscores the tangible benefits of integrating AI-driven noise suppression in real-world call center scenarios. Keywords: Call centers, IRIS Clarity, Noise Suppression, AI, AHT.

Introduction & Background

Call centers, crucial for customer relations, often face communication challenges due to background noise, affecting both call quality and agent stress. Leveraging AI, tools like IRIS Clarity promise improved noise suppression. This study at the Greenwich Council Customer Service Centre evaluates IRIS Clarity's efficacy by addressing:

1. Its impact on Average Handle Time.
2. The reduction in repetitive clarifications during calls.
3. Effects on agent well-being and stress levels



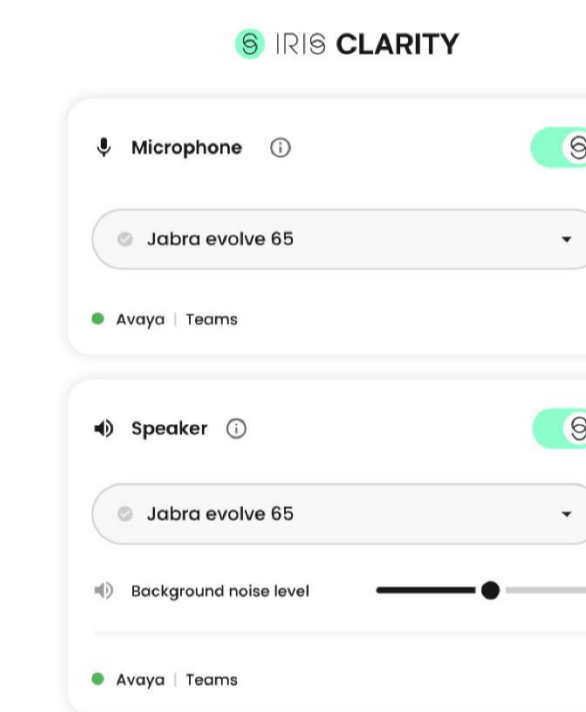
Above: Noise comes from both calling sides. IRIS Clarity filters it out for both callers

Study Methodology, Testing, and Evaluation

This comprehensive UX study utilized a multi-faceted approach to discern the influence of background noise in call centers and the potential remediation offered by AI-driven noise suppression tools.

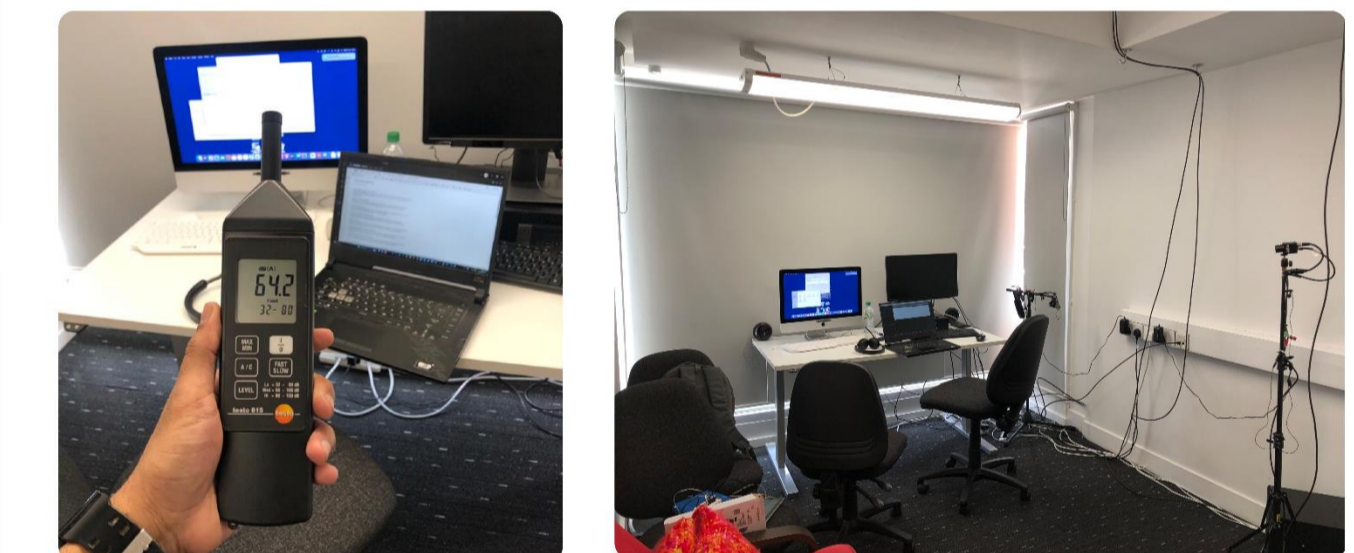
- Surveyed agent perspectives on background noise and its effects on call handling.
- Analysed 50 calls to observe noise impact, comparing repetitions with and without IRIS Clarity.
- Measured communication quality in a simulated environment using PESQ before and after deploying IRIS Clarity.
- Evaluated agent well-being and changes in AHT after extended use of IRIS Clarity.

Below: User Interface of IRIS Clarity noise suppression



Below Left: dB meter measurement in a room with intentional noise generated via multiple speakers.

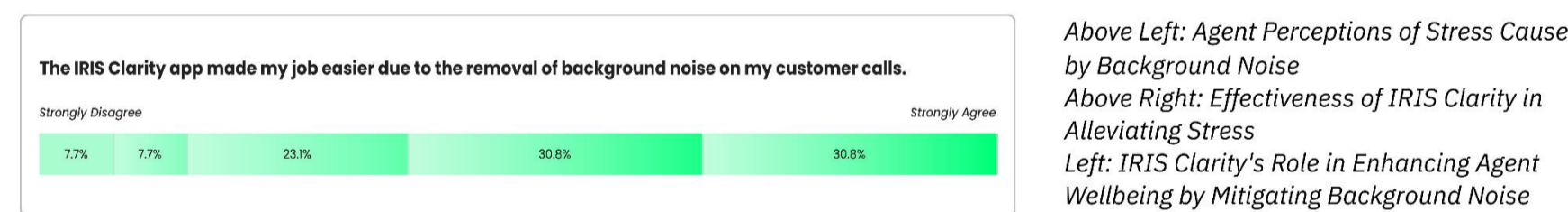
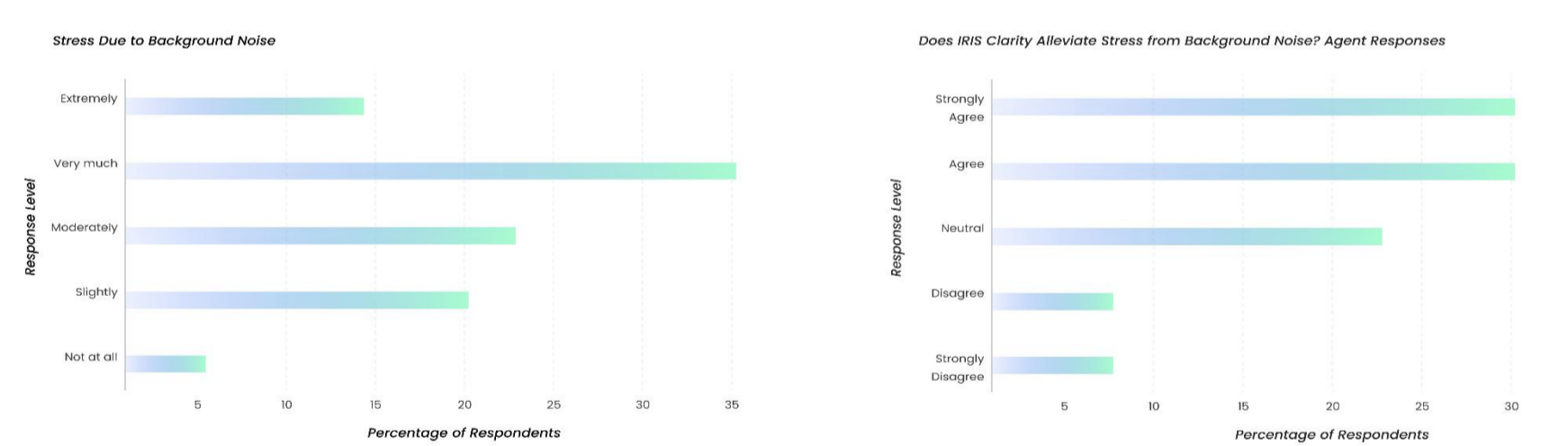
Below right: The setup of a simulated call centre environment



Performance Metrics Analysis

Metrics	Without IRIS Clarity	With IRIS Clarity
Average Call Duration (In seconds)	322.2	198.8
Average Repetitions per call	1.36	0.88
Average Repetition Score	6.84	3.76
Average PESQ Score	2.51	3.67
Average MOS	3.101	3.78

Table 1: A Comparative Analysis of Call Metrics



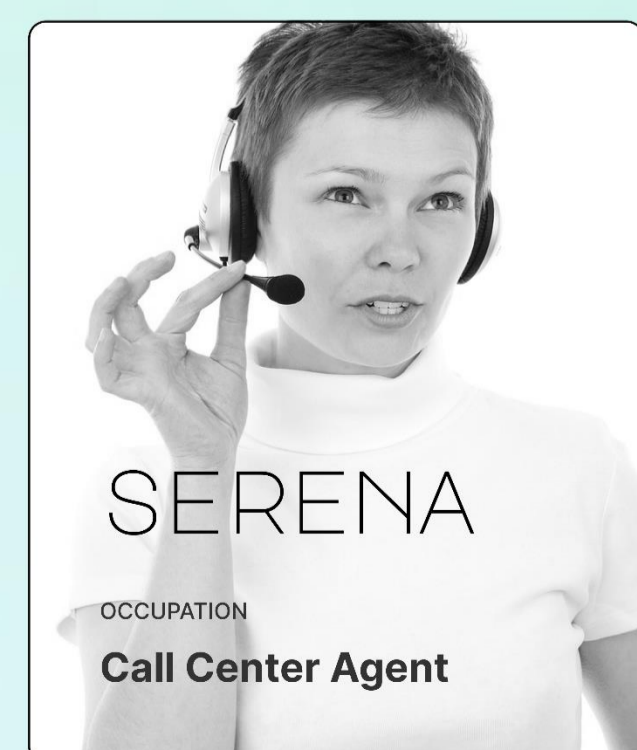
Above Left: Agent Perceptions of Stress Caused by Background Noise
Above Right: Effectiveness of IRIS Clarity in Alleviating Stress
Left: IRIS Clarity's Role in Enhancing Agent Wellbeing by Mitigating Background Noise

Conclusions & Future Work

- There was a notable reduction of 38.2% in the Average Call Duration. This directly implies a significant decrease in Average Handle Time (AHT), primary factors contributing to this reduction is the decrease in repetitions with a 35.29% reduction in call repetitions it's evident that IRIS Clarity has effectively enhanced communication clarity.
- The tool contributed to a 45.03% decrease in time wasted due to repetitions, indicating a significant improvement in call clarity and reduced need for clarifications.
- Before IRIS Clarity's deployment, half of the agents cited high stress due to background noise. Post-implementation, about 2/3 of agents noticed enhanced focus and concentration, implying a potential reduction in stress.

For future investigations, it would be valuable to assess the long-term impacts of IRIS Clarity on agent turnover rates and overall job satisfaction. The application of more recent algorithms, such as POLQA, can be employed to provide a deeper understanding of call quality post-IRIS Clarity implementation. Additionally, expanding the research across a variety of call centers and diverse operational environments will be crucial to assess the consistency and broader applicability of the results.

User Persona



"Since starting to use 'IRIS Clarity,' I can hear that it almost feels like it's just me and the customer. It really helps."

KEY RESPONSIBILITIES:

- Answering approximately 50 calls daily.
- Handling diverse services: housing, school admissions, electoral services.
- Logging into various systems daily: bio system, housing system, etc.

PREFERENCES

- Prefers a quiet environment for effective communication.
- Appreciates tools that enhance call clarity and reduce background noise.

TOOLS

- Call handling systems.
- "IRIS Clarity" for improved call clarity.

KEY CHALLENGES

- Dealing with noise interference in approximately 22% of calls.
- Misunderstandings due to noise, leading to potential service errors.
- Ensuring clarity, especially when dealing with elderly callers.

MOTIVATIONS

- Providing accurate and efficient service to callers.
- Reducing misunderstandings and ensuring clarity in communication.
- Keeping stress levels minimal while handling challenging calls.