

VR-2026-002 / STUDY PROTOCOL | 07 OCT 2026 | v1.0

Voice AI vs. Human Front Desk: 10,000 Call Analysis

A proposed comparative study of response time, qualification accuracy, appointment show-rates and customer satisfaction.

Publication status

Research protocol v1.0. The 10,000-call sample is a study target. No actual call dataset, performance comparison or superiority finding is published in this paper.

Research question

Under comparable business conditions, how do AI-assisted and human front desks perform on intake speed, accurate qualification, appointment conversion and customer experience?

Design and recruitment

Target 10,000 eligible inbound calls across consenting UK service businesses. Prefer randomized routing within businesses when feasible. Otherwise use matched cohorts with explicit limitations. Stratify by business, opening hours, call intent, language and enquiry complexity.

Human and AI conditions

Document human staffing, training and scripts. Record the AI model, prompt, telephony stack, escalation policy and version. Keep qualification definitions and booking eligibility consistent. Exclude emergency or unsuitable scenarios according to a published policy.

METHODS / METRICS / LIMITATIONS

Outcome definitions

Response time: seconds to intake start. Qualification accuracy: agreement with independent human review on pre-defined criteria. Appointment conversion: eligible calls resulting in a booked appointment. Show-rate: attended / scheduled eligible appointments. Satisfaction: response rate and a consistently administered rating.

Quality and analysis plan

Blind reviewers to condition where feasible. Audit a stratified sample of calls for errors and escalation quality. Account for calls clustered within firms and repeat customers. Pre-specify primary outcomes, report confidence intervals and distinguish material from statistical differences.

Failure modes and limitations

Track caller abandonment, latency, incorrect details, booking errors, failed handoffs and unanswered escalations. Call mix, missing satisfaction responses and changing staff or model configurations may confound comparisons.

Affiliation and references

Vertex Research is group-funded by SJ Vertex Group. Twilio Voice and Vapi documentation describe technical capabilities, not evidence of conversion performance. <https://www.twilio.com/docs/voice> | <https://docs.vapi.ai/>

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