Guidelines for Speech Interactions Between Pilot & Cognitive Assistant

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Augment, not replace
"Digital Copilot, set my destination to Hotel Echo Foxtrot."

Destination is set for Manassas.

"Digital Copilot, report visibility below 1000 feet at destination."

Will do.

"Digital Copilot, will the tower be open?"

Manassas tower will be open. It closes at 2300 local.

"Digital Copilot, destination summary."

You are 12 miles from Manassas. The ATIS frequency is 125.175. Winds are...
Single pilot rated turbine vs aircraft requiring two pilots
Accident rate 3.4 times higher
Fatal rate 13 times higher
On-Demand Assistance
Contextual Notifications
“Digital Copilot, will the tower be open?”

Manassas tower will be open. It closes at 2300 local.
General Notification
Reminder to do GUMPS check on short final

Safety Notification
Runway remaining issued on takeoff/landing

500’ runway remaining
Sound in the Cockpit

• Radio
• Weather
• Alerts
• Ambient
1. Favor Limited Grammar
2. Mimic Aviation Phraseology
3. Distinct, no look gesture
4. Readback
5. Interruptable
6. Earcons
7. Visual Redundancy
8. Provide Feedback
9. Careful with conversational interfaces
10. Alternative Inputs