The contribution of pilots to resilience in normal operations.

Part II : A closer look at briefings:

Anticipation and Monitoring
Also known as Planning and Coordination

we'd love to hear from you

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Presentation at InfoShare November 12-15, 2024

The survey

- Found that flights varied from original plan:

  Resilience IS need in normal flight!

- Asked about both what you can and cannot control
  - monitoring **current** controlled airplane states and environment and
  - **future**-thinking – plan for actions and expectation about the world

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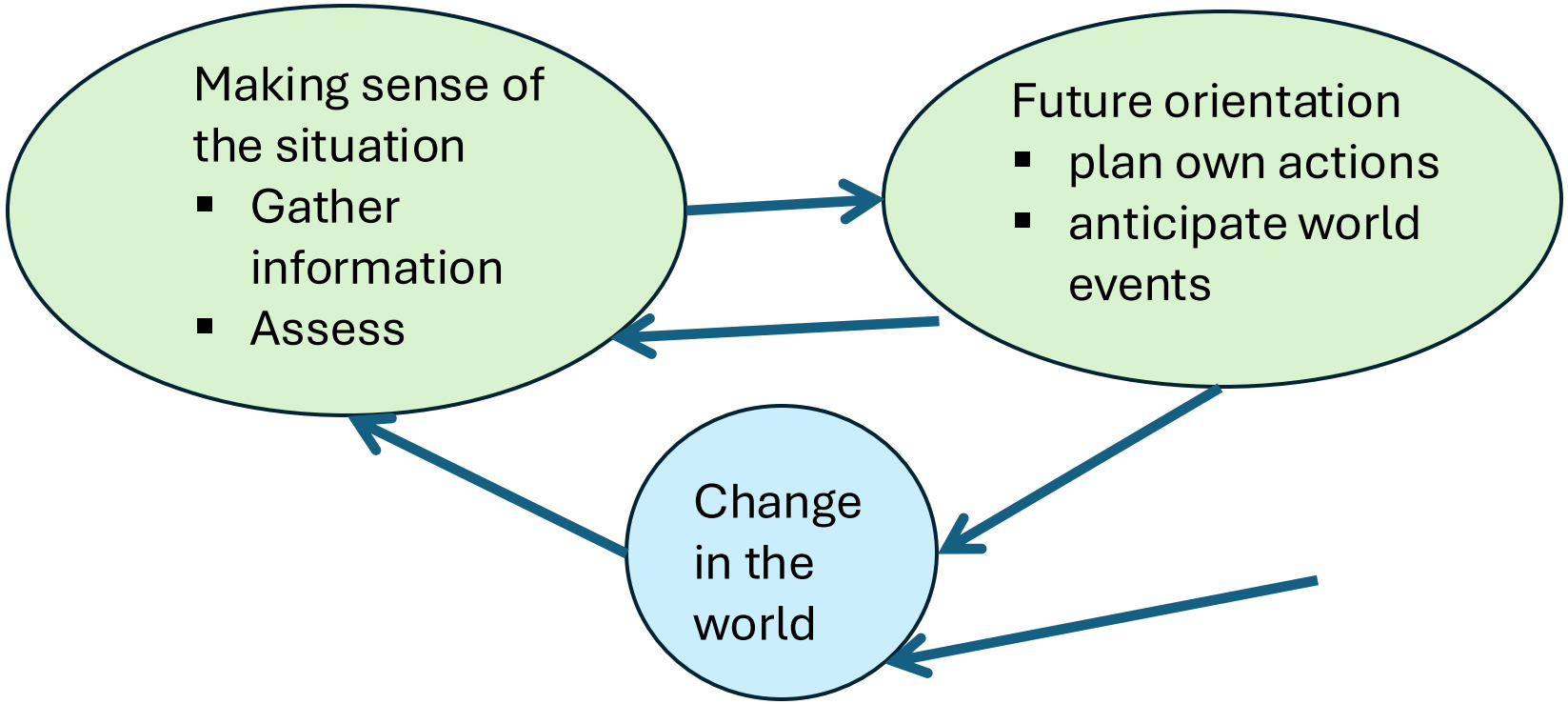
Anticipation/Planning and Monitoring/Coordination are closely related



Briefings central to resilience

- Requirements to brief build resilience at the *organizational* level
- Judgement-based content expresses resilience at *pilot* level

Briefings are good target for survey investigation-

- use multiple processes to build resilience
- are in awareness, reportable, memorable, explicit

Briefing draws on Monitoring, Anticipation, and Communication

- Gather information

- Assess & Plan

- Share

Pilot Flying

Pilot Monitoring

What can we learn about briefing from the survey?

Q6 Sometimes pilots include additional information during a briefing **beyond what is standard or in SOPs.** During the preflight briefing, did you discuss any of the following topics in greater detail than usual, for example, concerning a particular challenge?

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Of 100 linecheck pilots,
how many do you think would check this topic?

	0-20	21-40	41-60	61-80	81-100
fuel planning					

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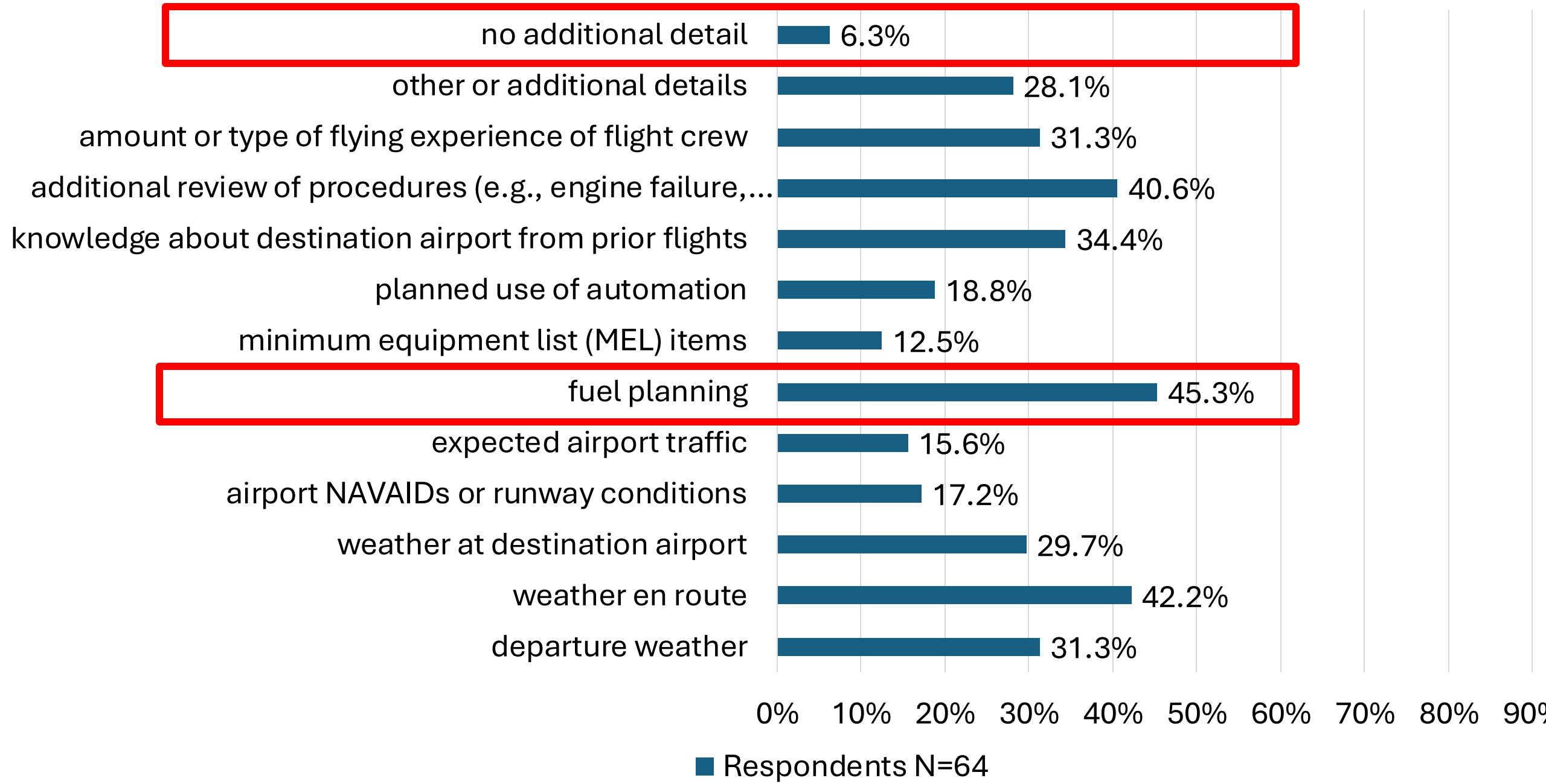
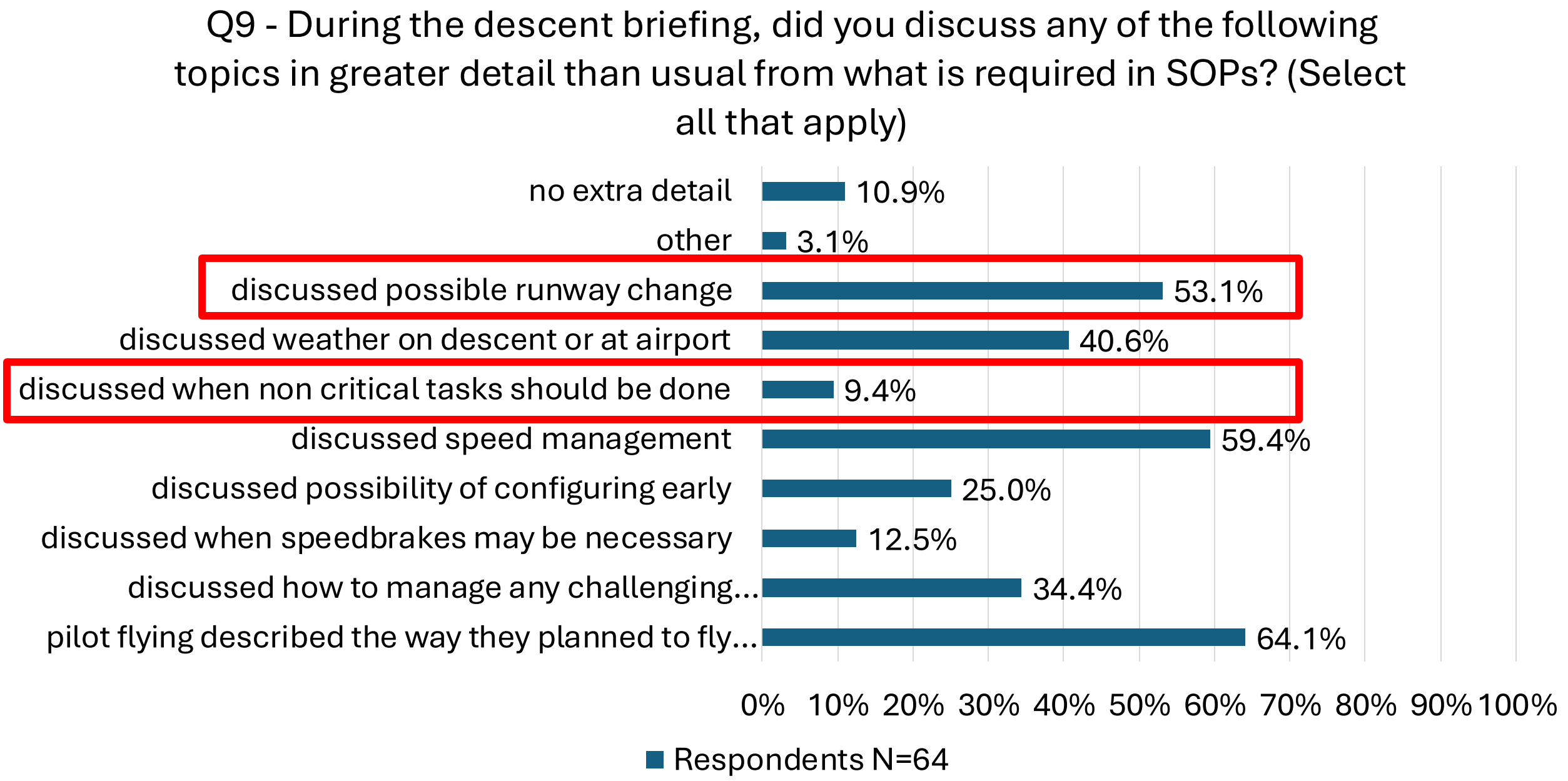

no additional detail
6.3%
other or additional details
28.1%
amount or type of flying experience of flight crew
31.3%
additional review of procedures (e.g., engine failure,...
40.6%
knowledge about destination airport from prior flights
34.4%
planned use of automation
18.8%
minimum equipment list (MEL) items
12.5%
fuel planning
45.3%
expected airport traffic
15.6%
airport NAVAIDs or runway conditions
17.2%
weather at destination airport
29.7%
weather en route
42.2%
departure weather
31.3%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
Respondents N=64

Observations

- 94% of pilots reported doing more than SOP
  - strength?
  - weakness?
- Most popular additional detail was for fuel planning. Why?
- Planned use of automation 19%


Q9 - During the descent briefing, did you discuss any of the following topics in greater detail than usual from what is required in SOPs? (Select all that apply)
no extra detail
10.9%
other
3.1%
discussed possible runway change
53.1%
discussed weather on descent or at airport
40.6%
discussed when non critical tasks should be done
9.4%
discussed speed management
59.4%
discussed possibility of configuring early
25.0%
discussed when speedbrakes may be necessary
12.5%
discussed how to manage any challenging...
34.4%
pilot flying described the way they planned to fly...
64.1%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Respondents N=64

Self Assessment: anything ‘particularly helpful’

Fatigue and there are multiple runways in the same direction. Let us land on the proper runway

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Use of MCP modes other than VNAV if vectored off early. Discussed threats with making sure an altitude was given in an off vector clearance.

Discussed how NORCAL approach often changes altitude and airspeed constraints on the STAR and tend to keep you high.

Discussed alternate runways that could be assigned and prepared runway landing data for both.

Changing the arrival and runway to the Westerly landing direction, from filed Easterly….

Learning from multiple types of data

- Much faster with checklists
- Use own words for free text
- Limitations in any one method

Next up: a training study

- Ongoing research on measuring and learning
  monitoring and anticipation

- Web-based tutorial and pre-post web assessment (with associated simulator design)

- Operational tasks with controlled information

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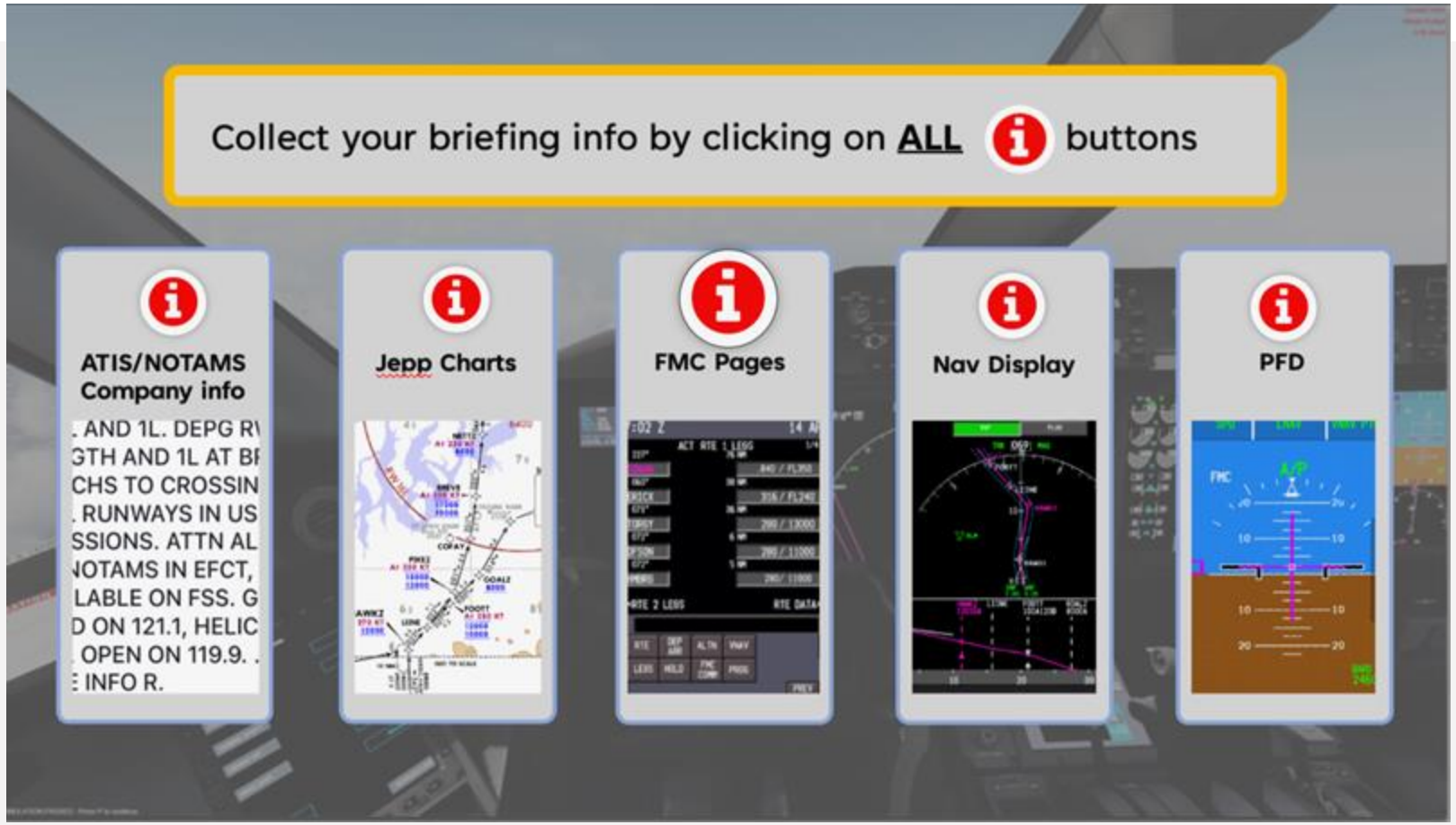
Scenario-Based, Web-Delivered Assessment Tasks



Generate
a descent briefing
for a given situation

Gather relevant information for your Descent Briefing in your notes.
Write the most important item to include in your briefing #1…#5

Questions about anticipation: projecting events, planning actions

- state of world: dangerous? predictable?
- impact of forming expectations
  - help if expectations happen?
  - help if expectations don’t happen?
- time on anticipation vs other activities?
- relation to workload
  - if high, use lower workload period?
  - if low, help pilot stay engaged;
    reduce ‘low load’ drop in awareness?

- Are you interested in the tutorial
- We’re looking for opportunity to evaluate in a simulator

- Your ideas, experiences, comments with briefing?

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