BEYOND ROOT CAUSE:
Using CAST in Airline Operations

2025 STAMP Workshop (Virtual)

Randall Braganza
(Formerly Aviation Safety Manager with Sunwing Airlines)

DISCLAIMER

This presentation does not necessarily represent the views of the presenter's current employer.

INVESTIGATION RESULTS
(without CAST)

TIMELINE

Flight ETA
30min prior to scheduled runway closure (NOTAM issued)

Delayed push-back from gate
Crew contacted Operations Control Centre (OCC) concerned about ATA

Email approval
OCC communicated they had receipt of email extending operations for the flight

Flight Departed
Based on the email and in consultation with a pilot manager

No landing authorization
ATC advised crew during descent they did not have authorization due to NOTAM

Crew unable to divert to planned alternate
A NOTAM for closure of the alternate airport was issued just before flight departed.

Flight diverted
With ATC assistance, flight diverted to suitable alternate. Aircraft landed safely

RESULTS FROM ORIGINAL INVESTIGATION

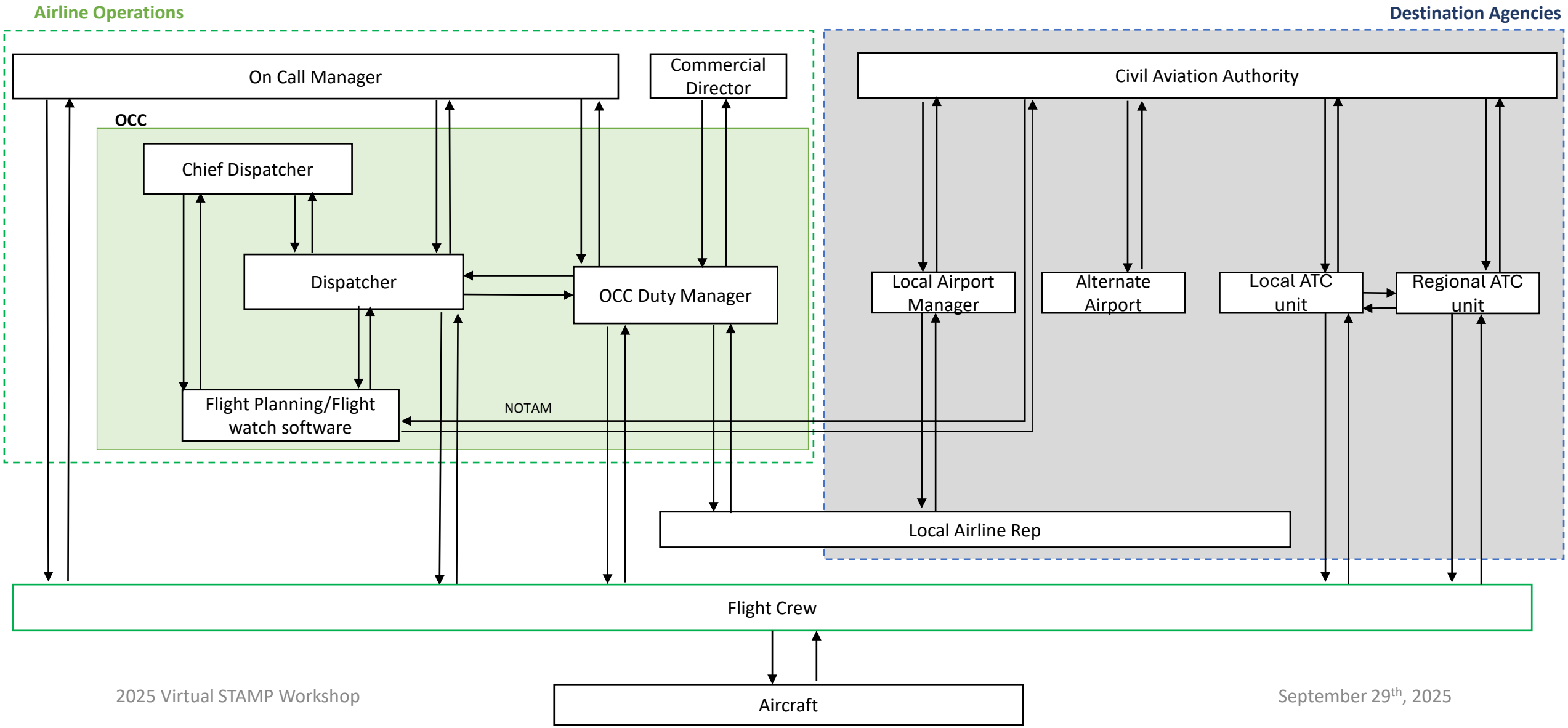
1. Arrested descent to planned destination:
   - Investigation determined that either (a) the extension was never granted OR (b) was granted and subsequently rescinded
   - Email was not from an appropriate authority at destination airport
   - Email was ambiguous – did not confirm extension approval nor time limit

2. Alternate airport runway closure:
   - Dispatcher was not monitoring for NOTAMs after releasing the flight plan due to belief (based on experience) that changes do not occur
   - NOTAM alert feature was not activated – reported not knowing of the feature

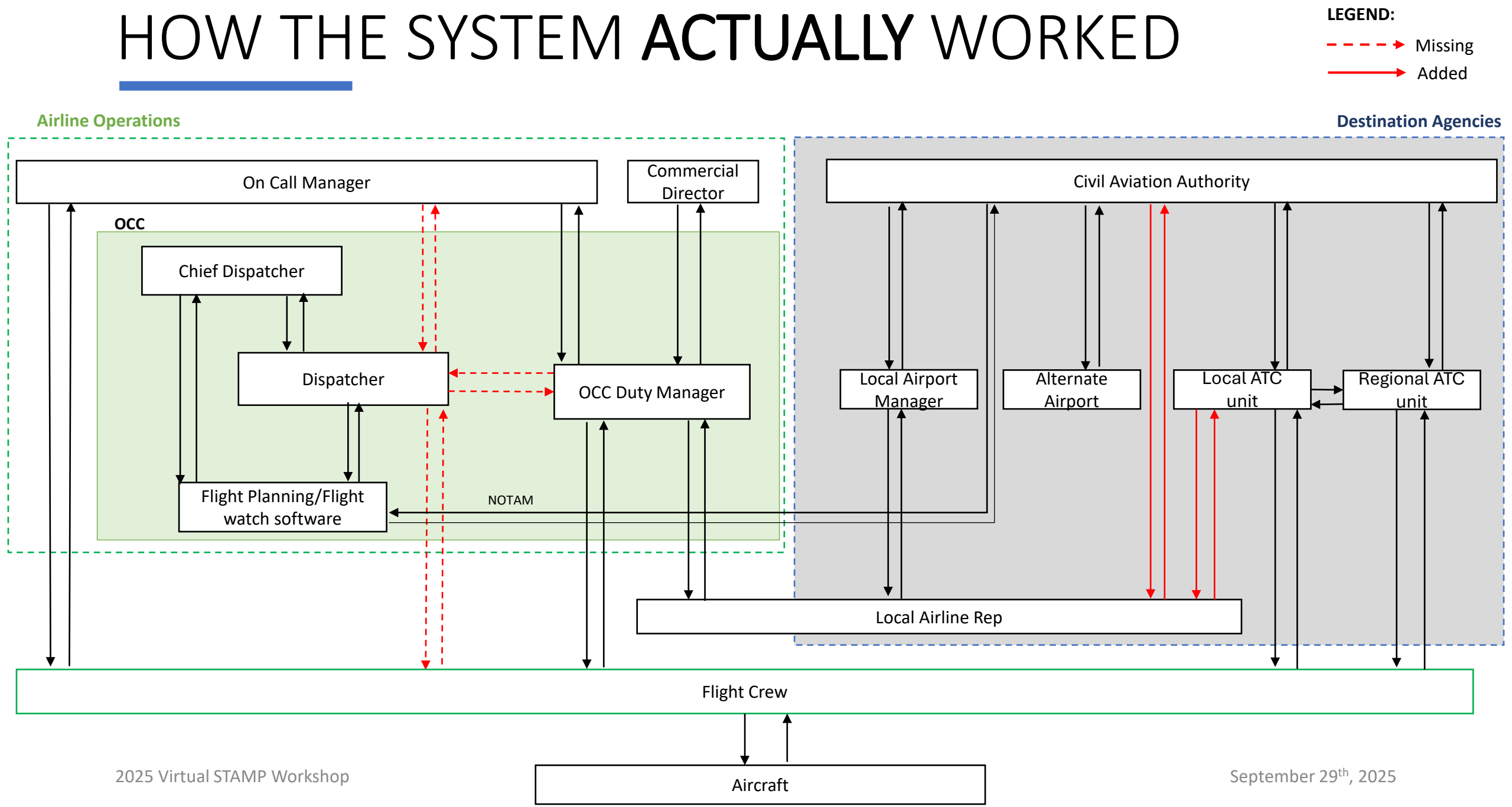
3. Other areas:
   - Dispatcher was not involved in discussions about whether to depart
   - Multiple phone calls prior to departure, but only 1 retrievable

CAST ANALYSIS

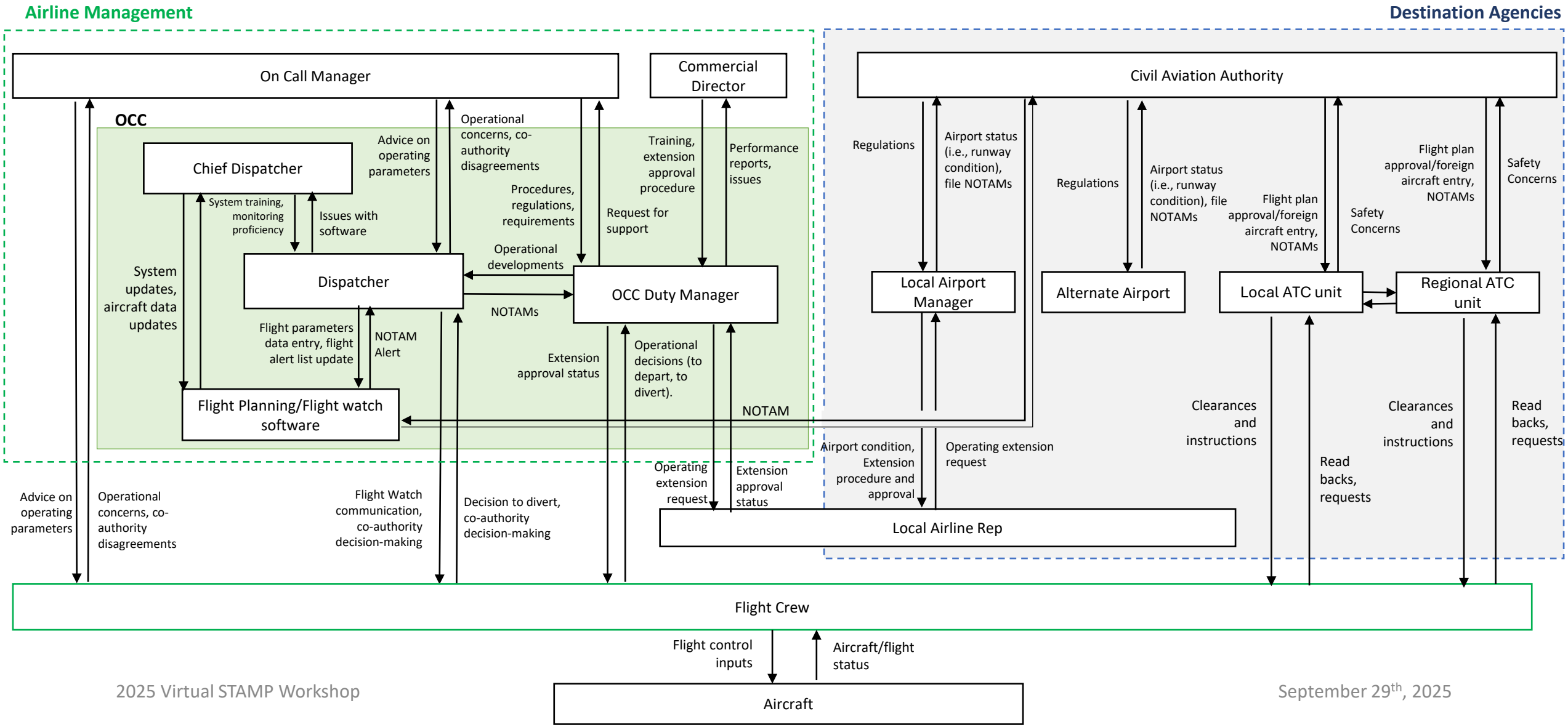
HOW THE SYSTEM **WAS EXPECTED** TO WORK



HOW THE SYSTEM **ACTUALLY** WORKED

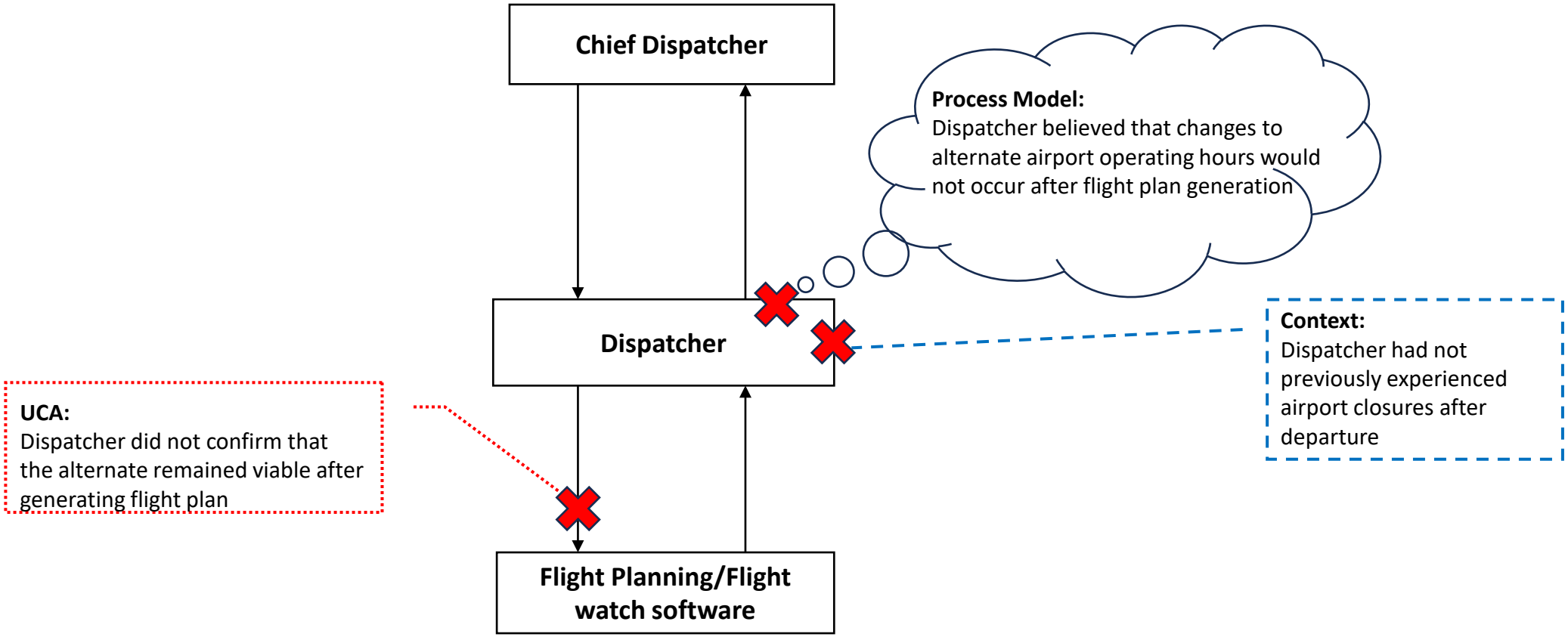


HOW THE SYSTEM **WAS EXPECTED** TO WORK



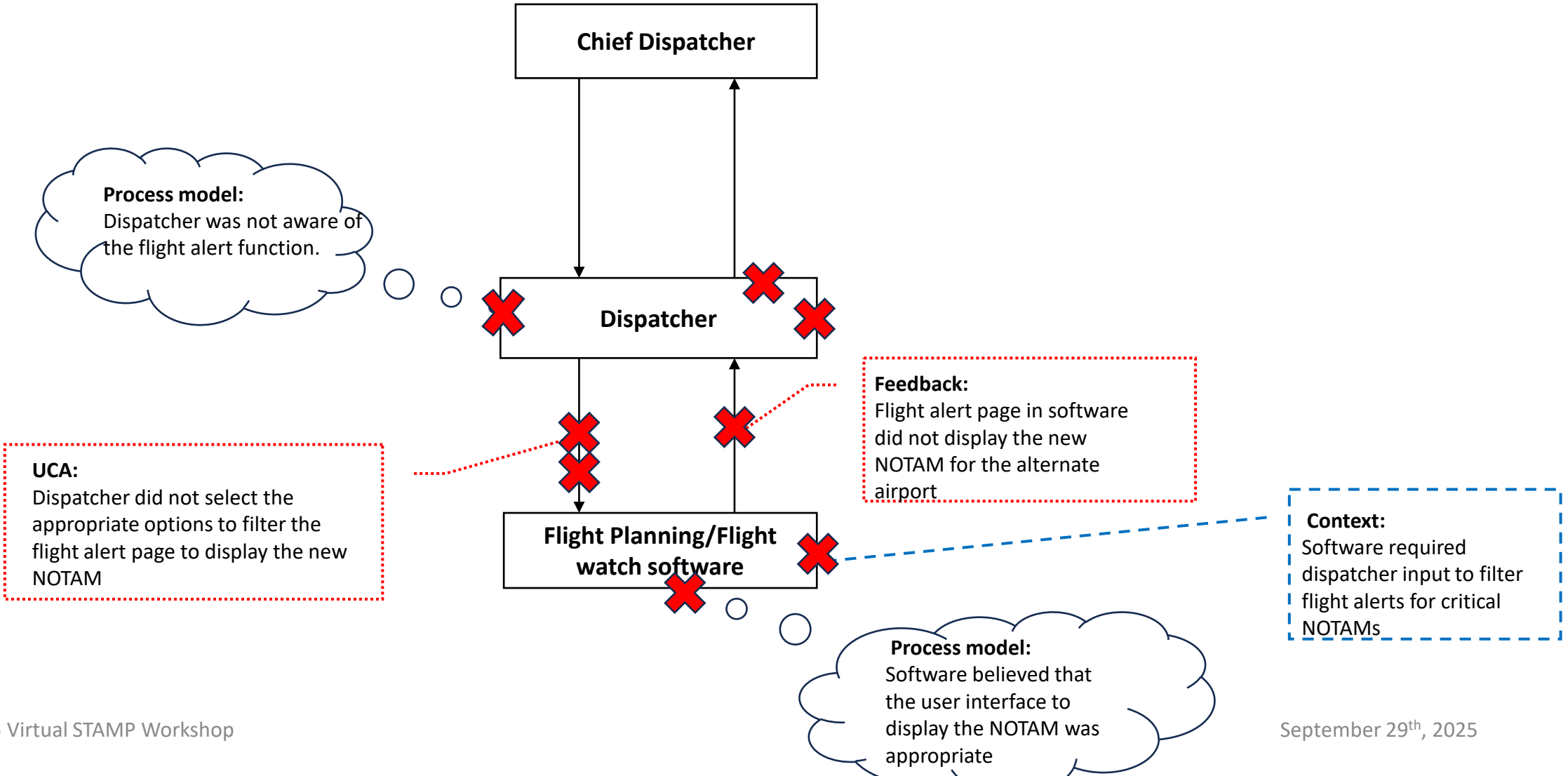
CAUSAL FACTORS

Example # 1



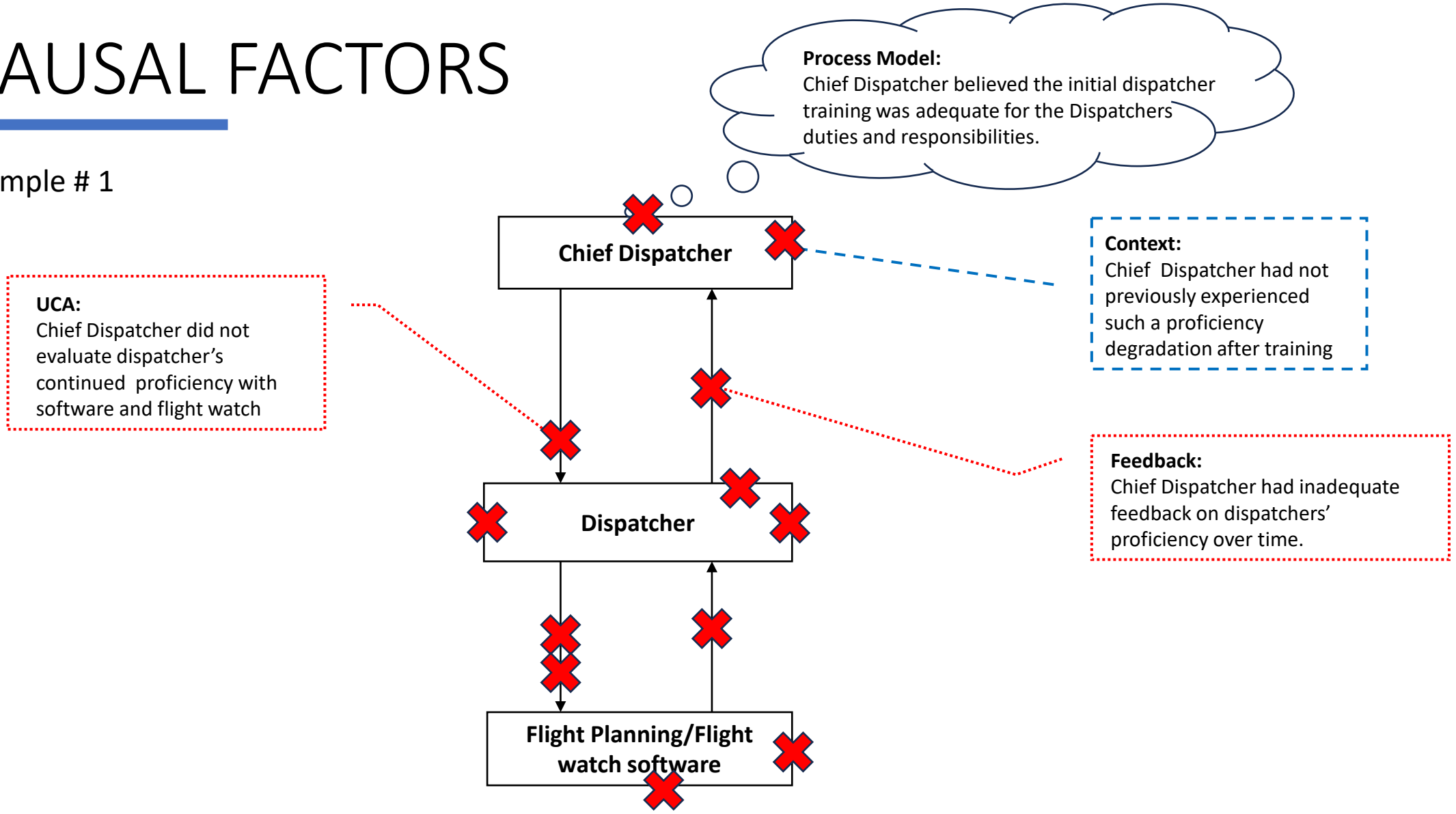
CAUSAL FACTORS

Example # 1



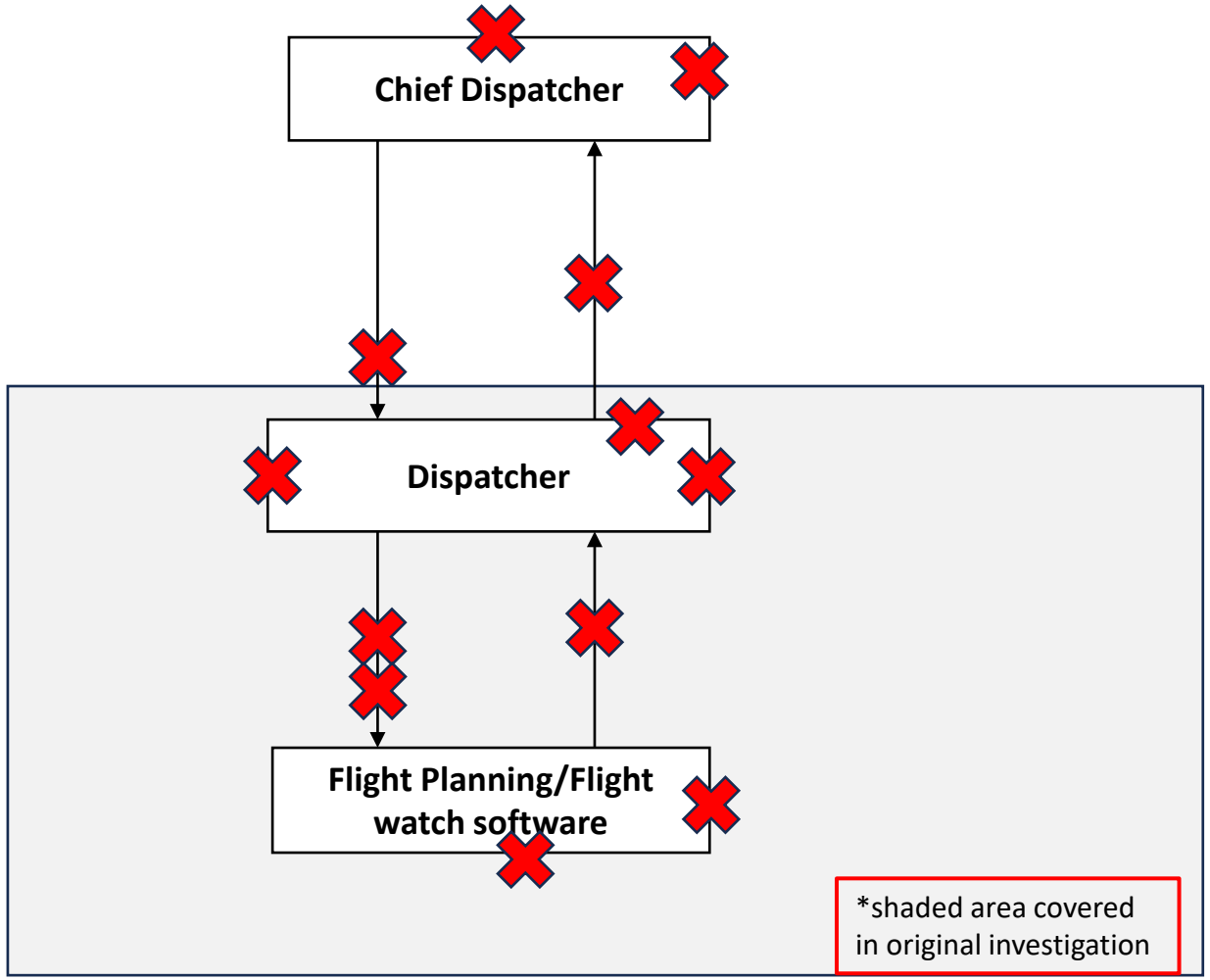
CAUSAL FACTORS

Example # 1



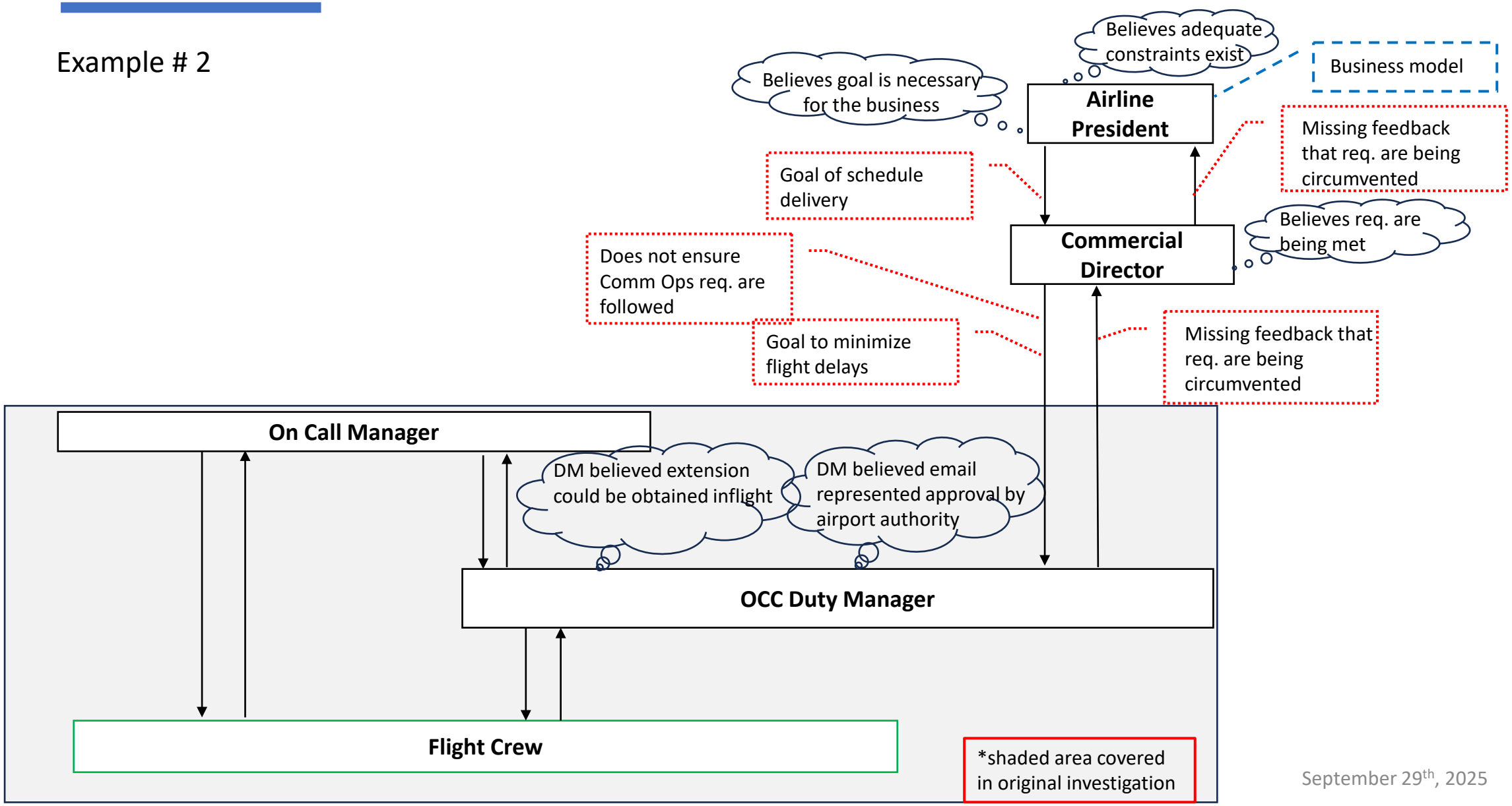
CAUSAL FACTORS

Example # 1

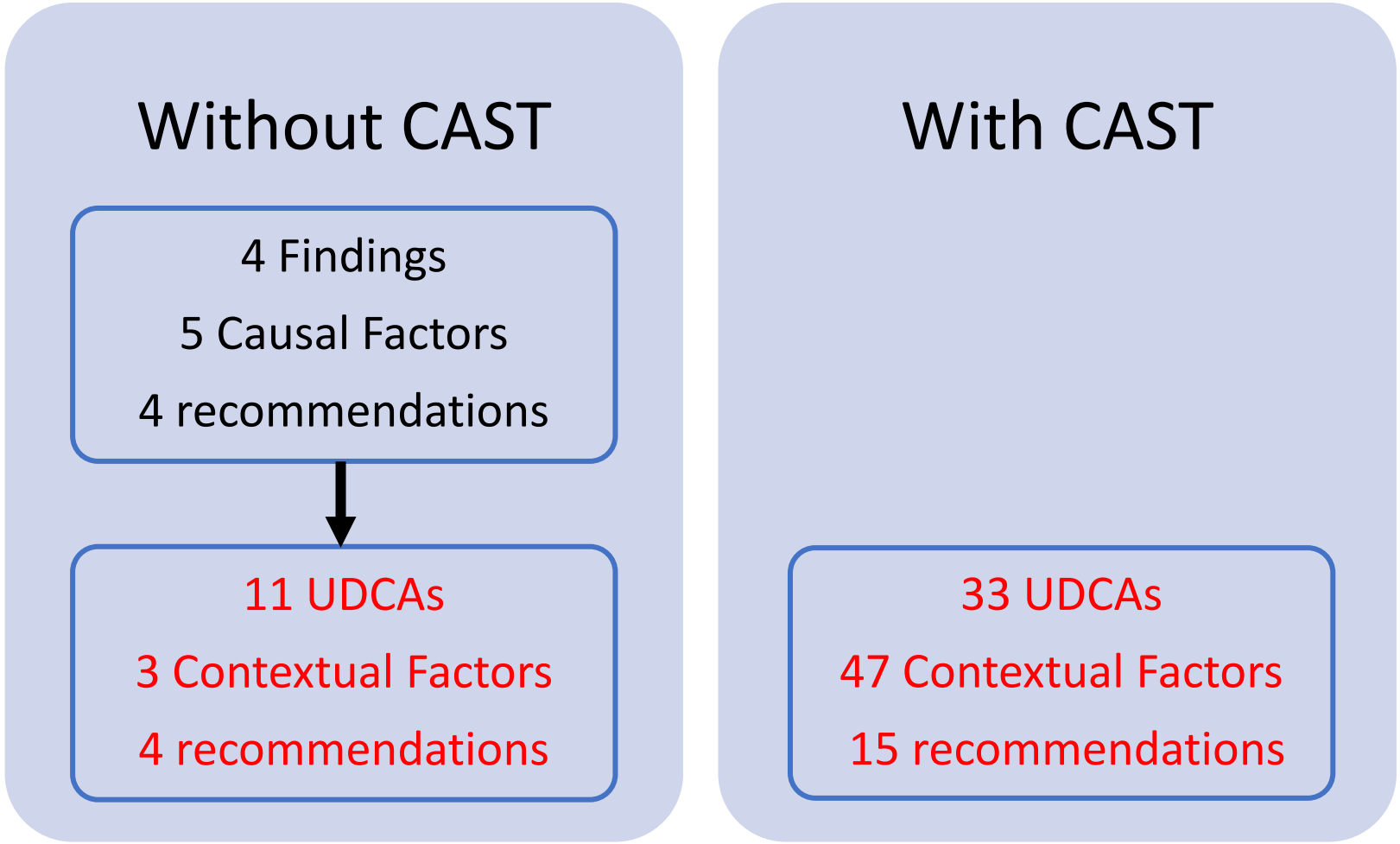


CAUSAL FACTORS

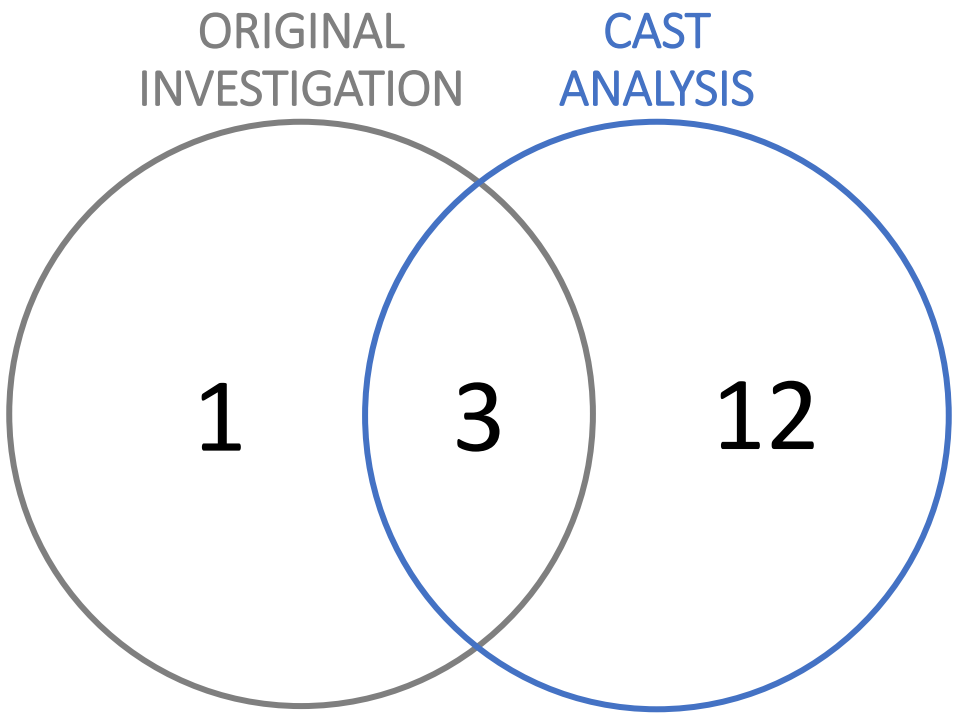
Example # 2



COMPARISON: Without CAST VS. with CAST



COMPARISON: **RECOMMENDATIONS**



FEEDBACK FROM ANALYSTS

Positive

- Systematically and comprehensively identifies areas to be probed (e.g. during interviews) and areas for improvement (recommendations/corrective actions)
- The control structure is valuable for presenting missing feedback or communication between various controllers
- Forces an understanding of ***why it made sense for a controller to execute a UDCA*** and pushes this mindset beyond the main "actors" in an incident to include higher level controllers in the organization
- Allows management to get a fuller picture of how the outcome was produced ***by the system***

Negative

- Steep learning curve*
- Requires good record-keeping during analysis to keep track of links between UDCAs, Context and Recommendations
- Labor-intensive for simpler events

ACKNOWLEDGEMENT

The CAST analysis supporting this presentation was completed by:

Sydney Hirsch
Christy Law

And facilitated by:

John Thomas (MIT)

THANK YOU

This presentation does not necessarily represent the views of the presenter's current employer.