



# Go Around Decision Making

FLIGHT SAFETY FOUNDATION

**Bill Curtis**  
**Project Co-Chair**

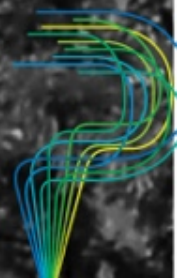
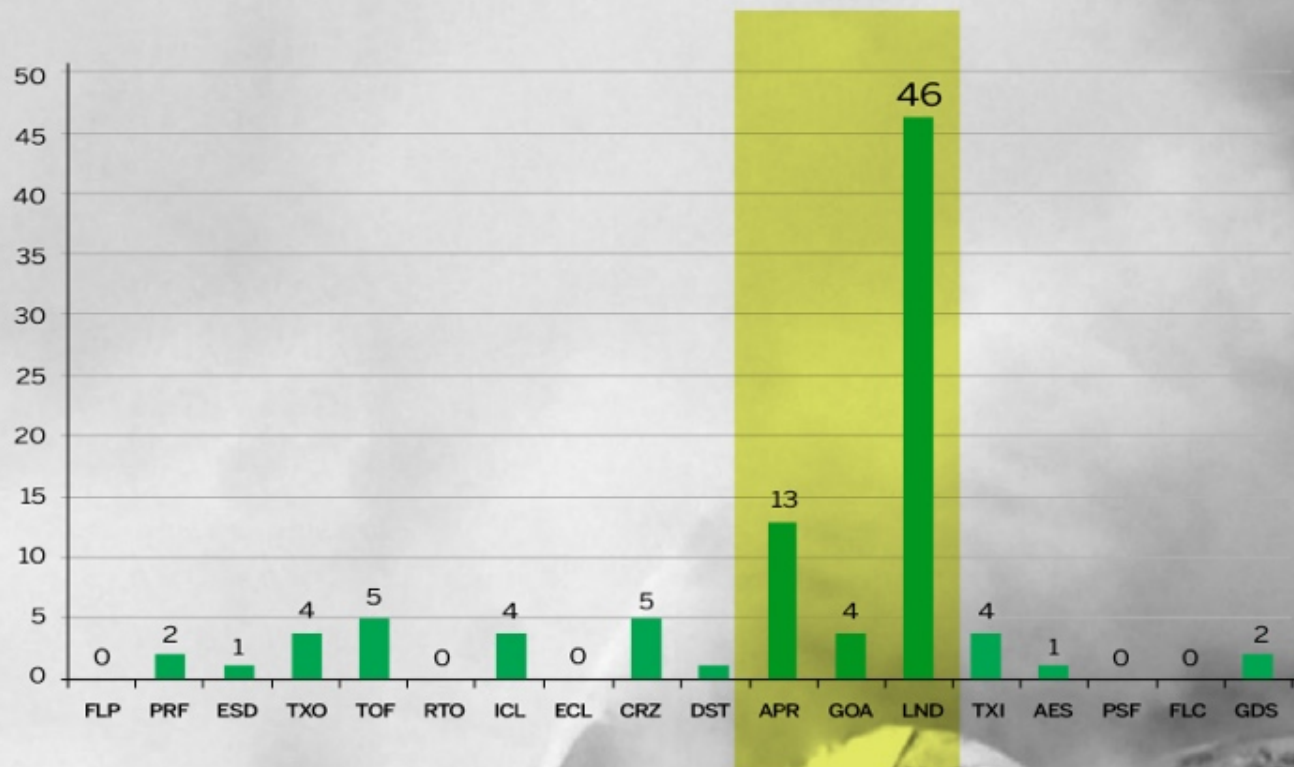
I acknowledge receipt of your message  
and attached file.

Thank you very much.

Kind regards,

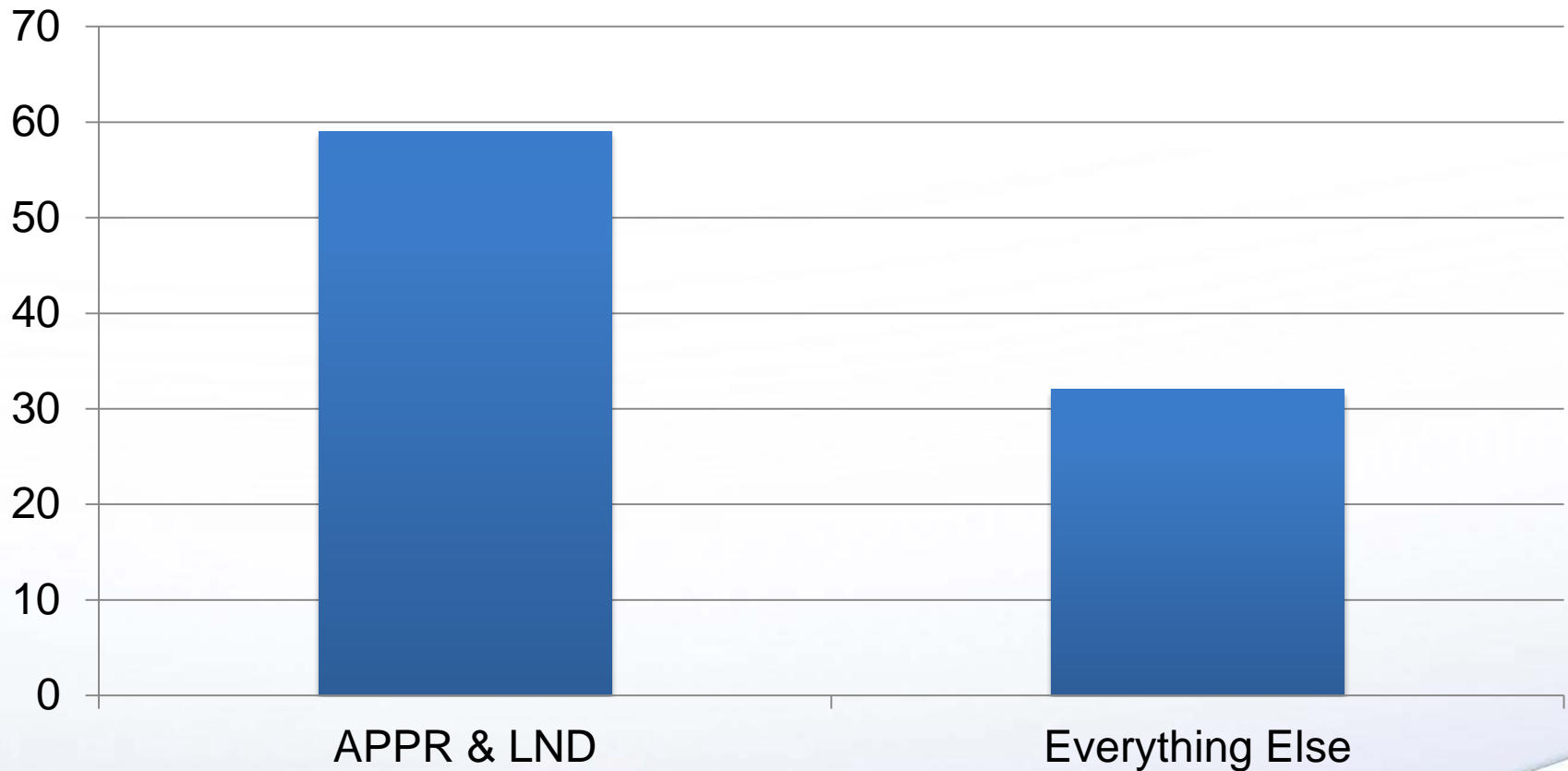
# The Issue – Ineffective Go-Around Policies

# 2011 Aircraft Accidents



# Distilled down...

## 2011 Aircraft Accidents



# So how do we fix this?

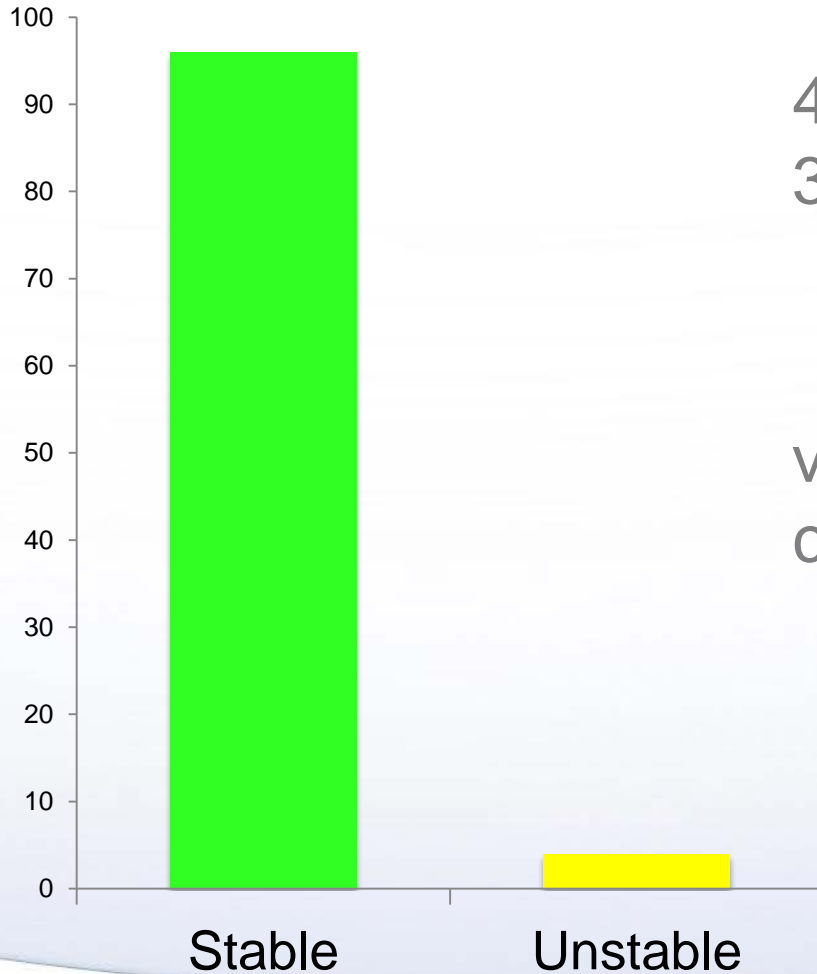
- Eliminate unstable approaches...
- But is it the best strategy?

# FSF ALA Study [SMS, Oregon]

## Runway Landing Excursions

- 53% Veer Offs: (277) [wind 40%] [cont. 39%]
  - 66% Stable approach
  - 44% Unstable approach
- 47% Overruns: (243)
  - 37% Stable approach
  - 63% Unstable approach
- 52% Stable Approaches
- 48% Unstable Approaches

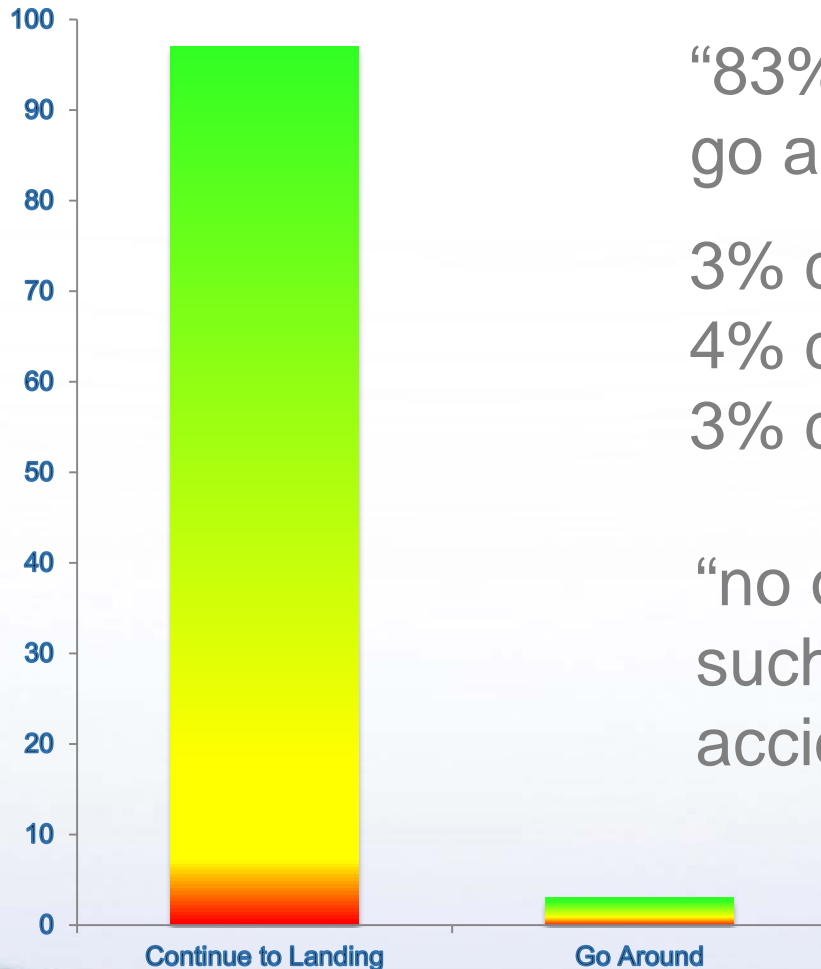
# How are we doing at preventing unstable approaches?



4% unstable - Airbus study  
3.4 % unstable - LOSA study

very good...  
can we do better?

# What is the compliance rate of executing go around policies?



“83% of all ALAs preventable with a go around” [Jim Burin, IASS 2011]

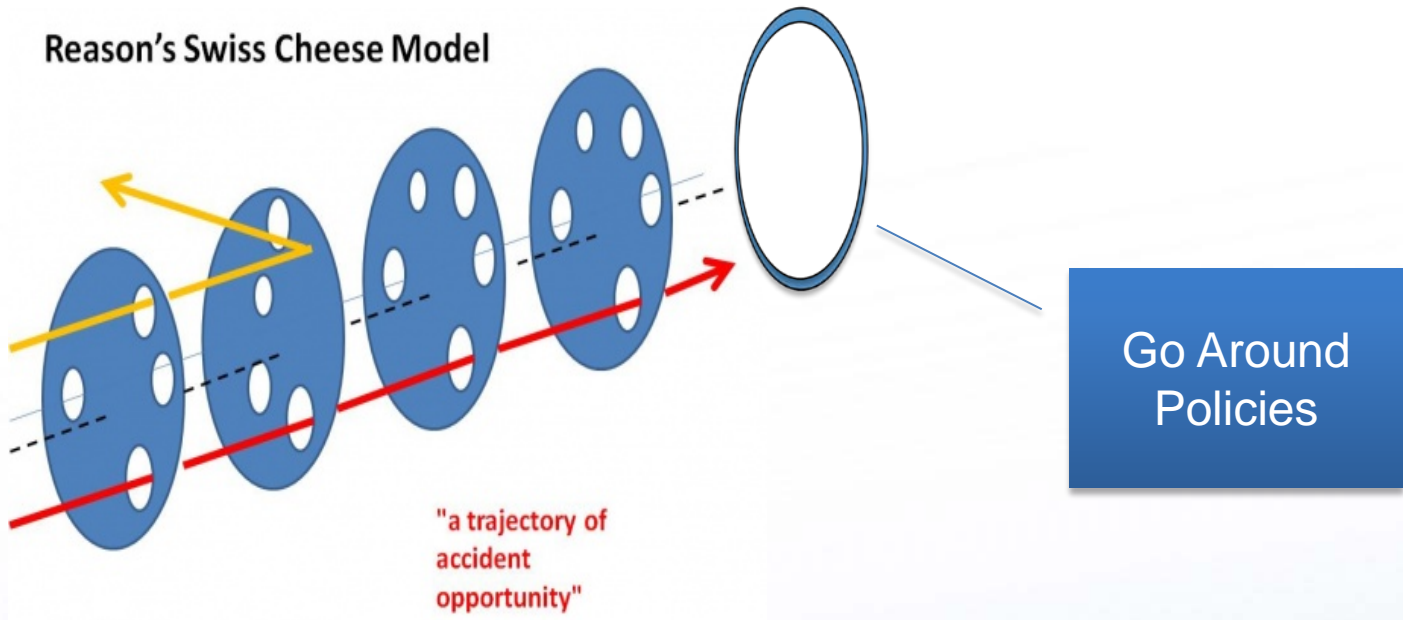
3% compliance - Airbus study

4% compliance - LOSA

3% compliance - ASIAs analysis

“no other single decision can have such an impact on the industry accident rate” [Curtis 2007]

# Let's look at this another way...

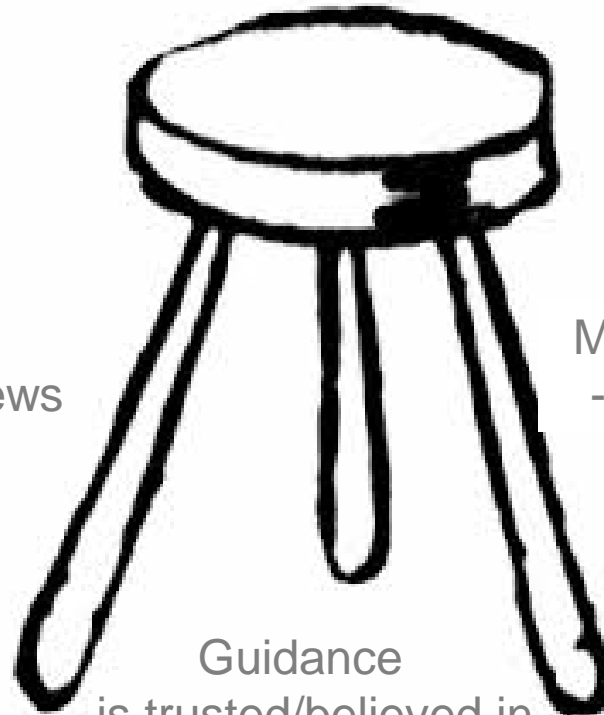


# Recap:

- 65+% of industry accidents are ALAs
- 83% of all approach and landing accidents are preventable with a “go-around” [Jim Burin, FSF/IASS 2011].
- $65\% \times 83\% \approx 54\%$  industry accidents could be prevented with a decision to go-around
- The go-around rate is less than 1 in 30
- Little data to explain why
- Why has the industry not been interested in this?

# What Makes an Effective Policy?

## Go Around Policy



Execute the Policy  
- accomplished by Flight Crews

Management of the Policy  
- Managed by managers

Guidance  
- is trusted/believed in

# The Research

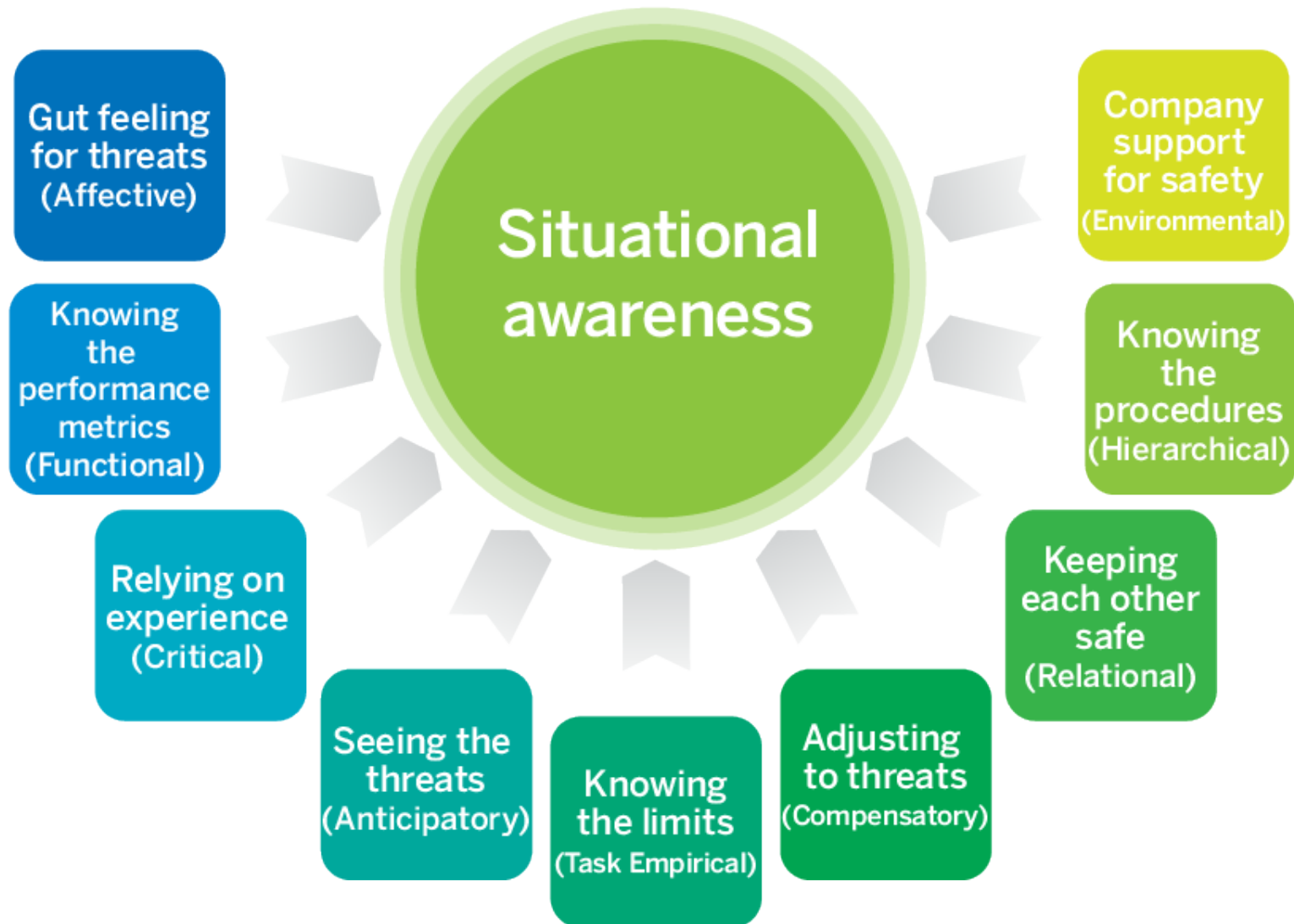
## Ability to predict compliance (logistic regression model):

Predictor Variables	Predictive Accuracy of Go-Around Decision
Flight Instability Factors (flight path deviation, Vref+ 20, +1000ft/min sink rate, etc.)	60%
Environment Factors (weather, winds, runway conditions, ATC late vectoring, etc.)	61%
Psychological Drivers for Non-compliance	86%

# How situational awareness plays a role in decision making



# Breaking down situational awareness



# Significant Findings

## Psychology of Systemic and Chronic Non Compliance

- Unstable Approach (UA) pilots scored significantly lower on all SA components
- UA pilots communicate less in the flight deck
- UA pilots are more tolerant of missing, and less complaint in making, standard calls and checklist items
- Pilots feel go-around criteria is unrealistic
- Pilots feel there is no disincentive to not comply , i.e. management is not concerned
- UA pilots feel discomfort in challenging other crew members, particularly with a steep authority gradient in flight deck
- GA pilots reported by more than 4 times than UA pilots that someone in the flight deck prompted a go-around

# Significant Findings

## Psychology of Systemic and Chronic Non Compliance

- Management is disengaged from the issue and unaware of the risks and impact on accident rates
  - 68% of managers did not know the rate of compliance in the industry, 16% estimated a rate close to the actual rate of 3%
  - 55% did not know their company's rate of compliance, 12% estimated their companies' compliance rates as being <10%
  - 31% of respondents were dissatisfied with their company's rate
  - 20% saw their policies as ineffective
- Managers scored low on all SA components
- Of those who scored higher, they see their policies as unrealistic and definitions too narrow

# Significant Findings

## Psychology of Systemic and Chronic Non Compliance

- Managers perceive below a moderate level of support to manage GA non compliance, and little desire from senior management for change
- The industry tendency is to correct approach and landing accidents by a single focus on minimizing unstable approaches
- Safe landing guidelines, e.g. FSF guidelines, are not well known or published

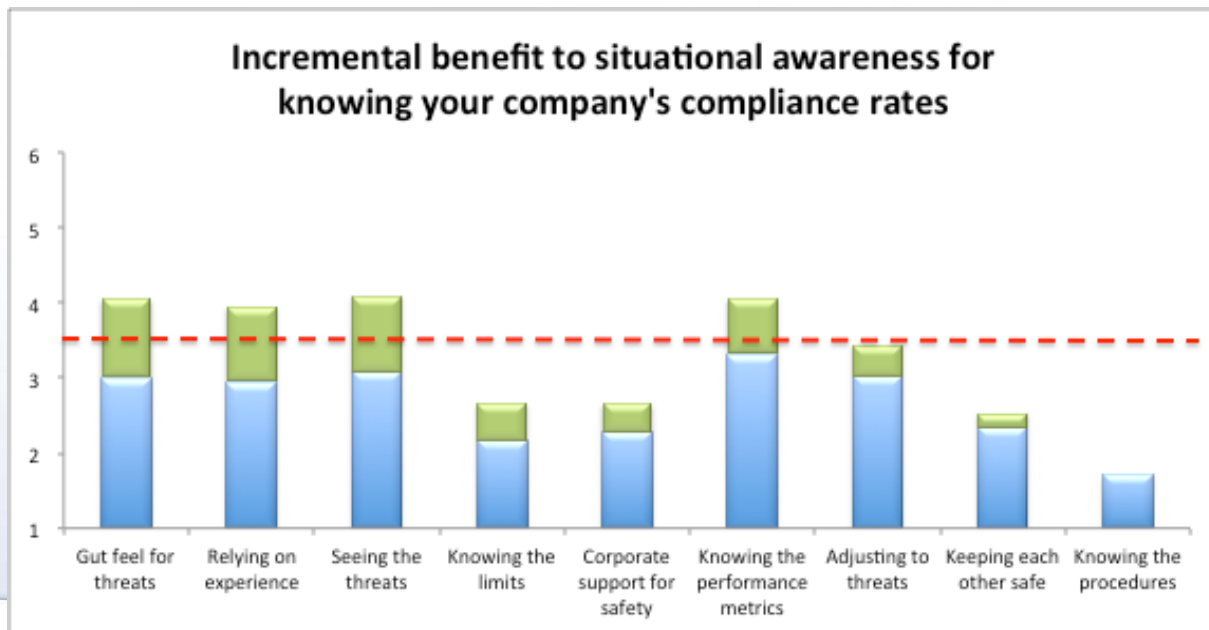
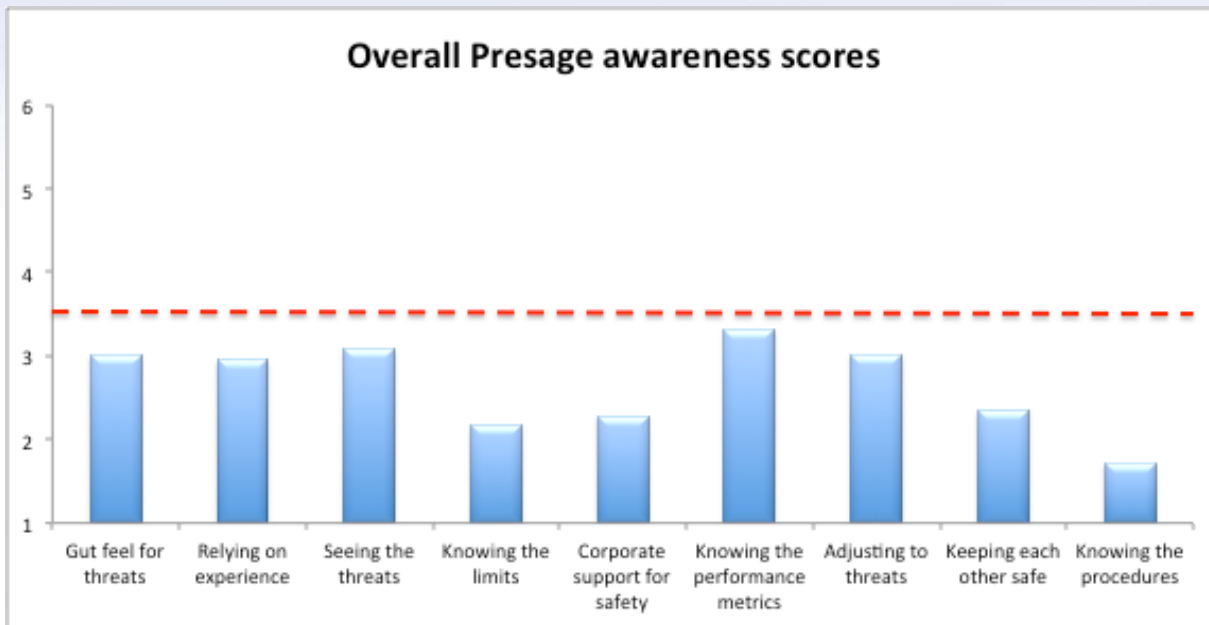
# Key Recommendations

1. Enhance awareness of go-around policy non-compliance (GANC), rates, and significant impact it has on accidents rates
  - Industry establish an identifiable 'label' that relates to go-around non-compliance, similar to CFIT, or LOC
  - Develop industry and operator communication initiatives
  - Annually track industry GANC rates
1. Minimize the subjectivity of the go-around decision
  - Install and train stable approach and energy management monitoring and alerting systems
  - Manufacturers continue to develop stable approach and energy management monitoring and alerting systems
  - Operators establish standard communication calls that;
    - Are active (vs passive for every approach)
    - Create shared responsibility for a stable approach
    - Continue and escalate when unstable conditions remain
    - Go deep into the approach and/or landing

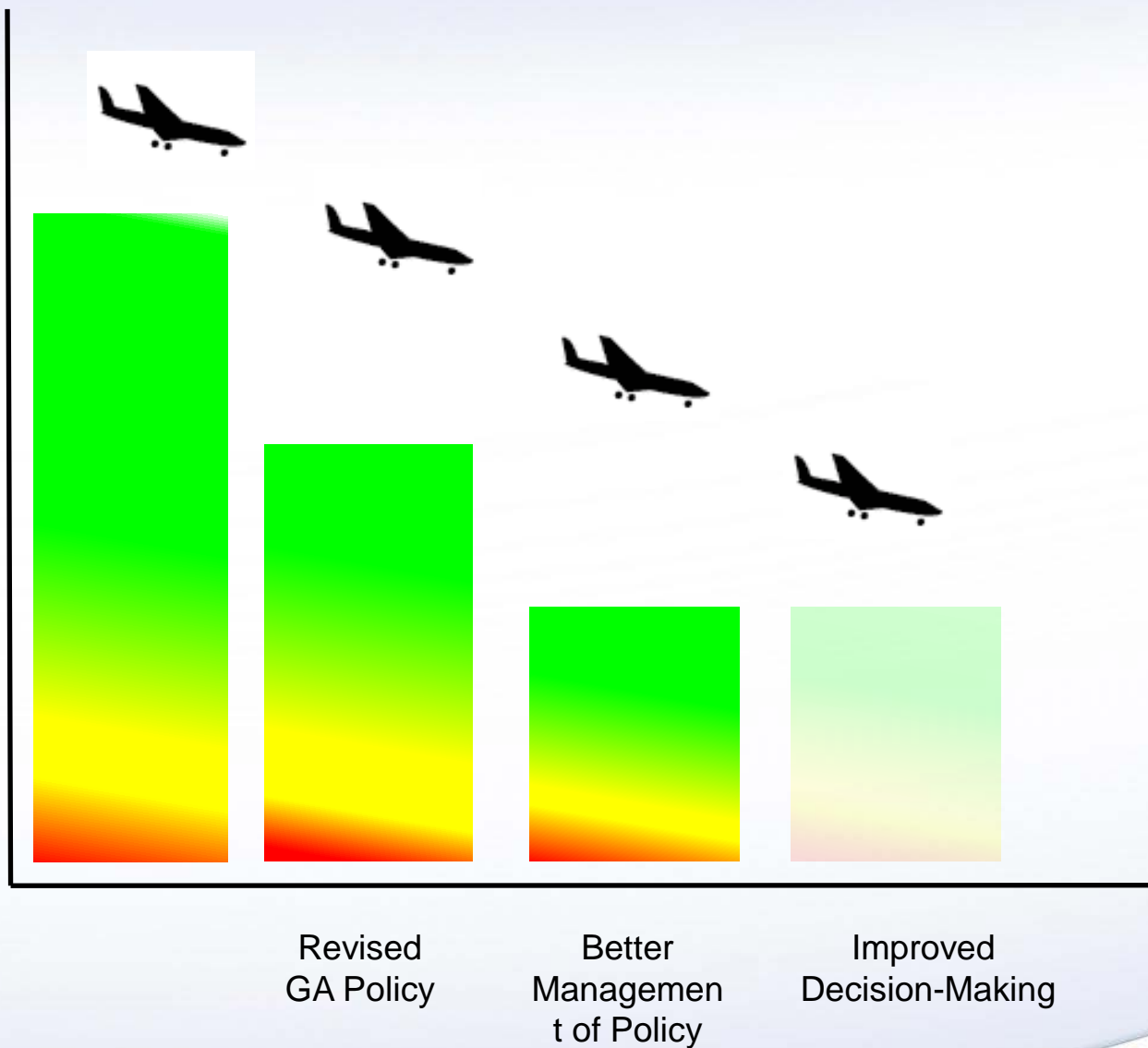
# Key Recommendations

3. Set go-around compliance rate targets and monitoring programs
  - Operators set GANC rate targets, and management processes to mitigate
  - State and industry audit programs include GANC standards and recommended practices
  
4. Optimize the stable approach definition and go-around policies to improve relevancy for flight crews and management
  - Re-define heights and criteria to exclude very low risk
  - Separate 'profile' heights and 'energy management' criteria heights
  - Separate stable approach definitions from decision point definitions
  - Allow for variable objective environments
  - Allow room for non-prescriptive, but guided decision making
  
5. Operators include Safe Landing Guidelines in operating manuals and go-around policies

Let us look at a simple example of a change in just one variable



*% of Unstable Approaches Continued to landing*



*Mitigation*

# Crosswind Landing Video - Dusseldorf



**Thank You**