Flight Test Safety Workshop

Charleston, SC

7 May 2019

Safety Assurance and Safety Culture

Using Climate Assessments to Monitor Performance and Support the SMS

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FUTRON AVIATION

Background

Ken Neubauer

Safety Experience

Squadron Safety Officer
Squadron Commander
Operations Officer – USS Constellation

Naval School of Aviation Safety
Naval Safety Center

Futron Aviation Corporation

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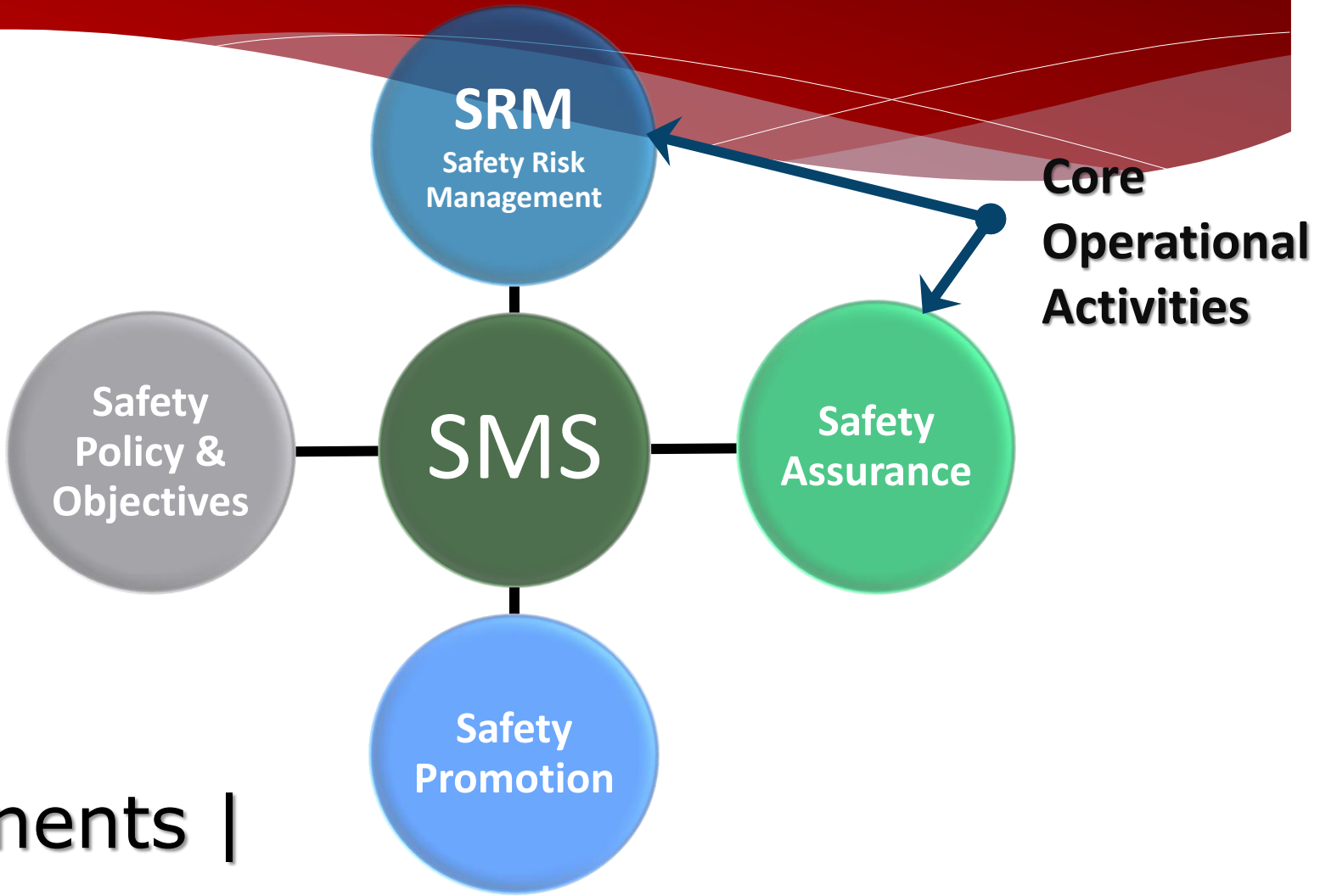
Safety Management

Safety Management

The act of understanding and making decisions and taking actions to lower risk, inherent in all human activity, to acceptable levels.

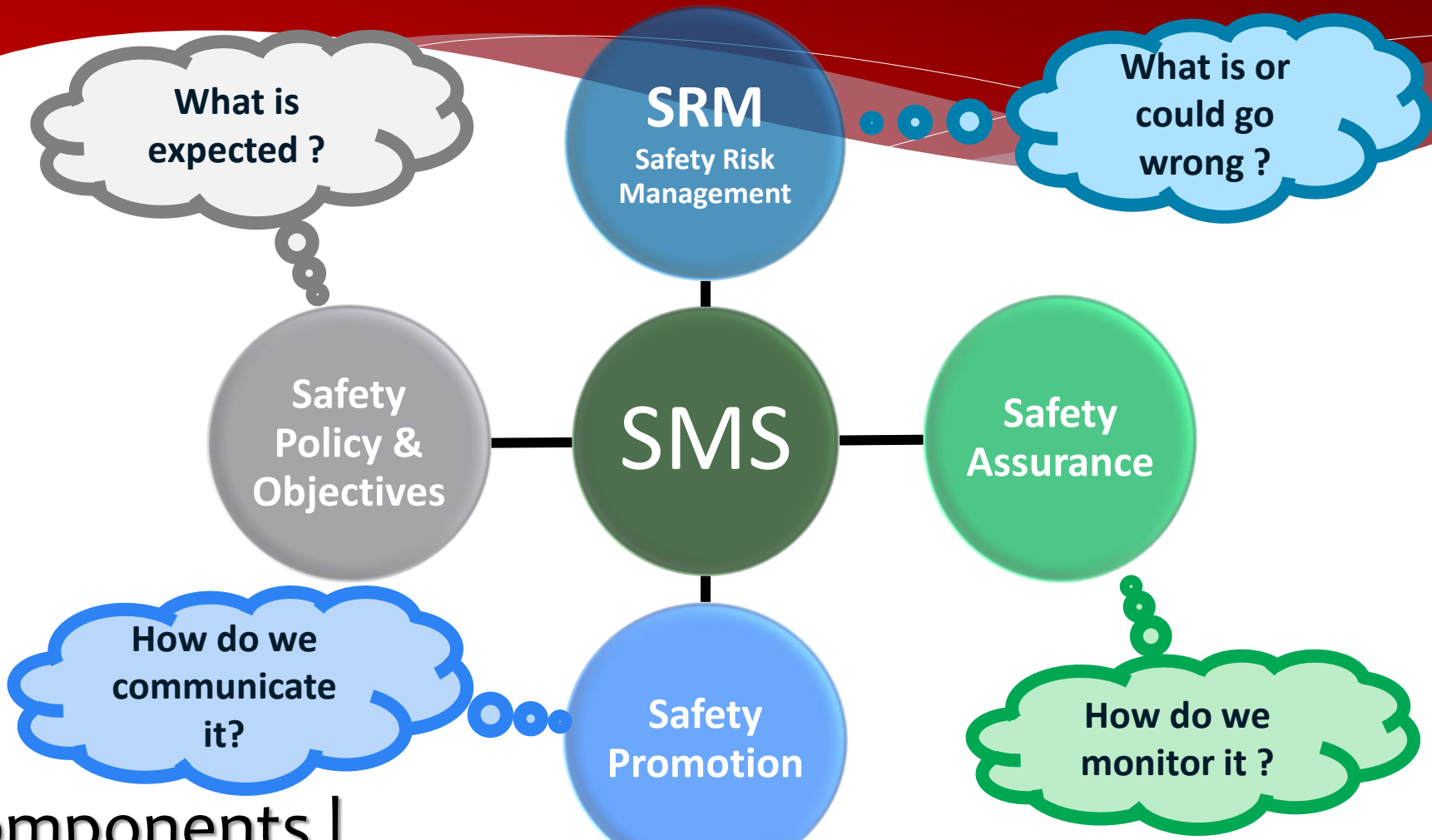
~ FAA Order 8000.369: SMS Guidance

Safety Management



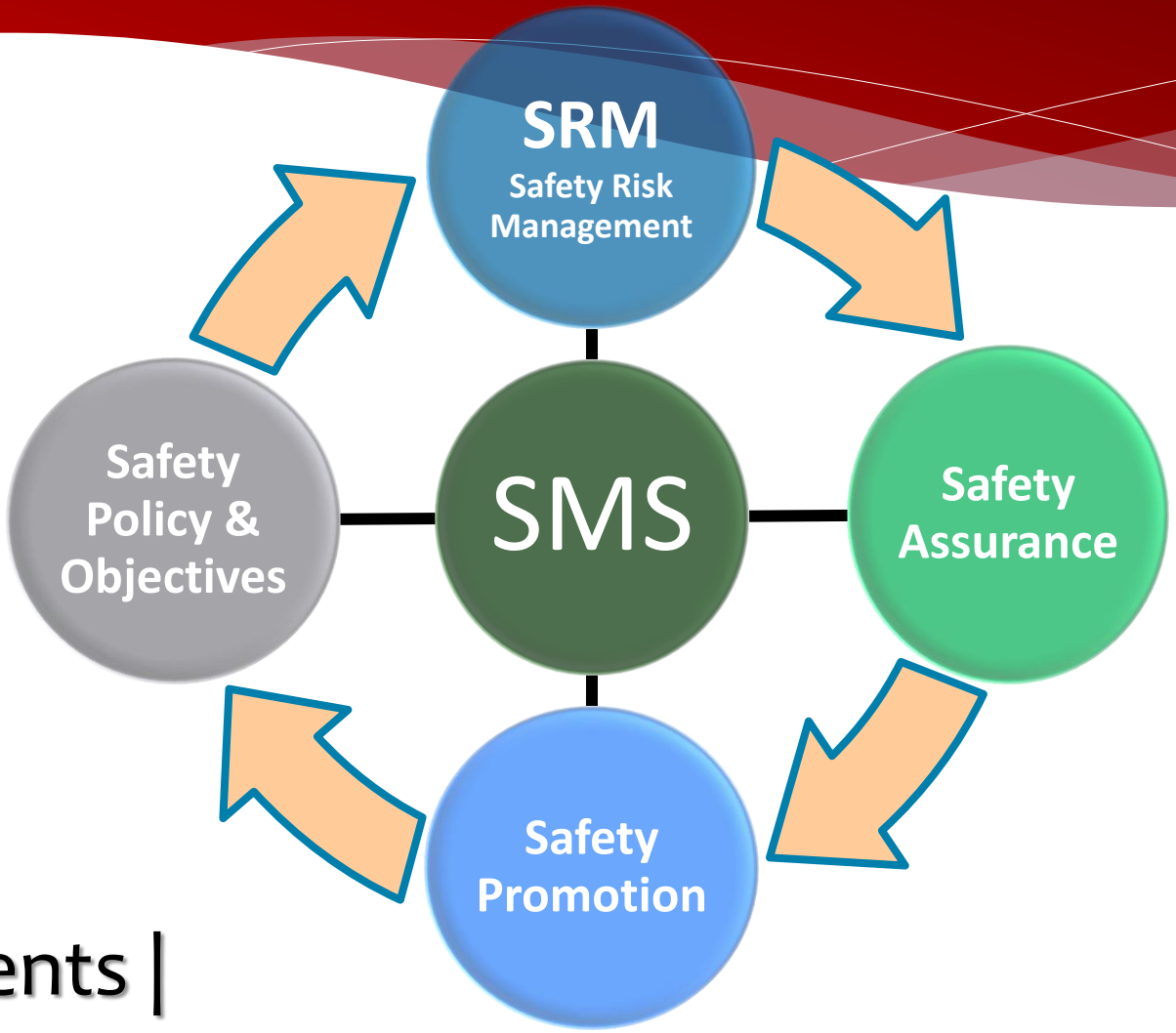
Components | of a SMS

Safety Management



Components |
Relationships

Safety Management



Components |
Relationships

Safety Management

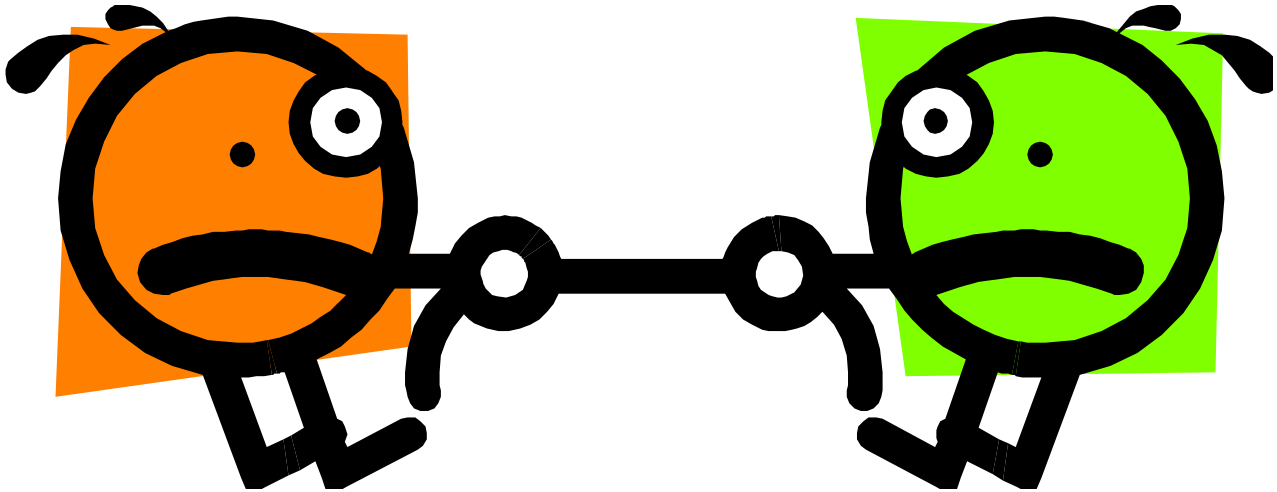
SMS

. . . a systematic approach to improving safety performance

Safety Management

Dilemma of the Two P's

Protection Goals



Production Goals

The Safety System

What are the bounds of the system ?

What is your function within the system ?

What is the focus of the system ?

Safety Management

Safety Management

"Hazard identification and safety risk management are the core processes involved in the management of safety."

~ ICAO – SMM 4th Edition

So what is Safety Assurance and why should I care?

Safety Assurance

Safety Assurance

. . . processes and activities to determine whether the SMS is operating according to expectations and requirements, which involves continuously monitoring its processes as well as its operating environment to detect changes or deviations that may introduce safety risks or the degradation of existing safety risk controls.

~ ICAO – SMM 4th Edition

Safety Assurance

Safety Assurance

. . . goal is to watch what is going on and review what has happened to ensure that your objectives are being met.

. . . requires monitoring and measuring safety performance.

. . . will yield information used to maintain the integrity of risk controls.

. . . a means of assuring the safety performance of the organization, keeping it on track, correcting it where necessary and identifying needs for rethinking existing processes.

~ FAA - AC 120-92B

Linking Safety Assurance and Safety Culture

Culture

Climate

Safety Culture

What is important

about safety

How things work

"Shared values and beliefs that interact with an organization's structures and control systems to produce behavioral norms."

"The way we do things around here"

Elements of a Safety Culture

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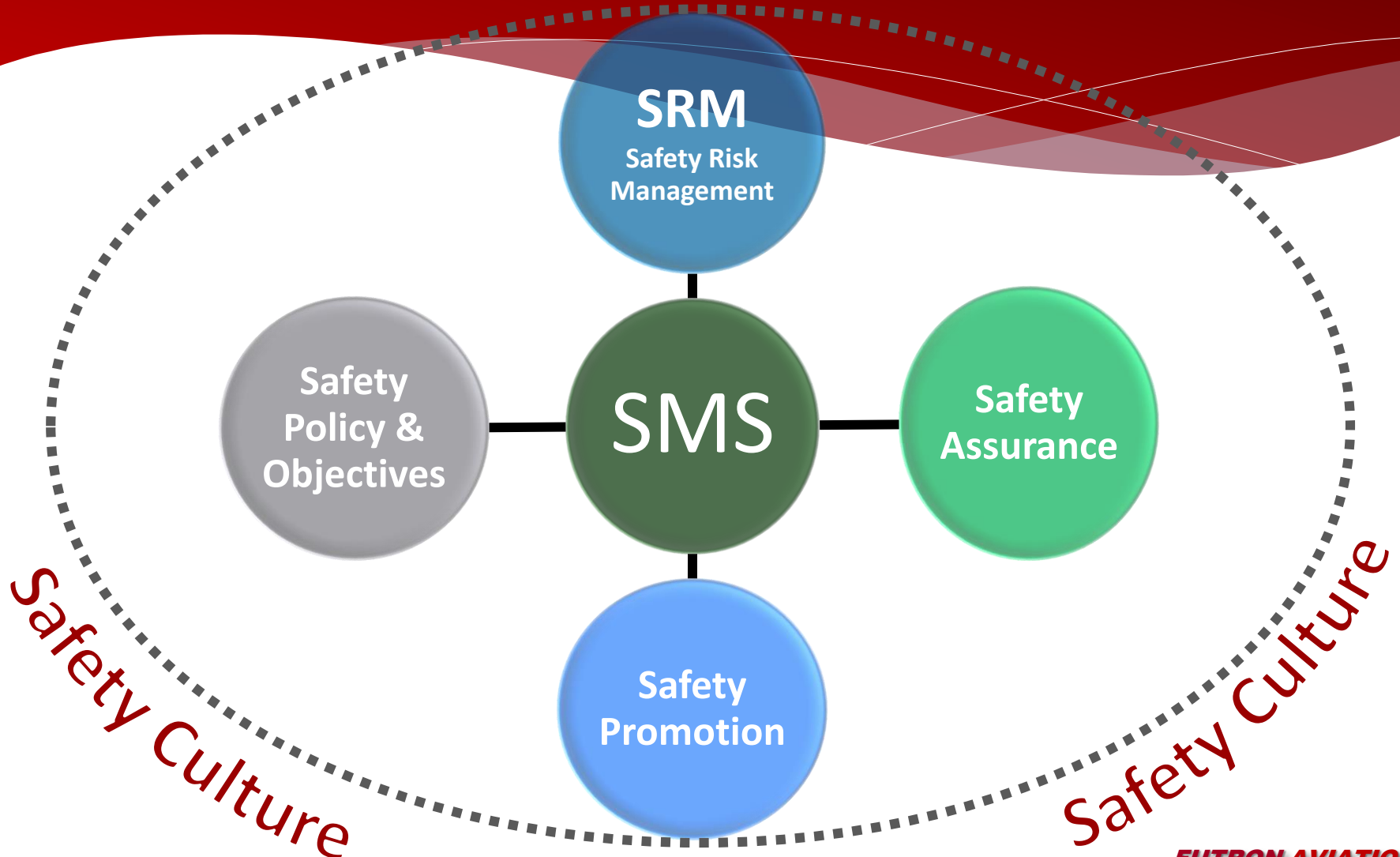
Safety Culture and SMS



Definitions

Culture

Climate

Organizational Climate

Safety

Perceptions

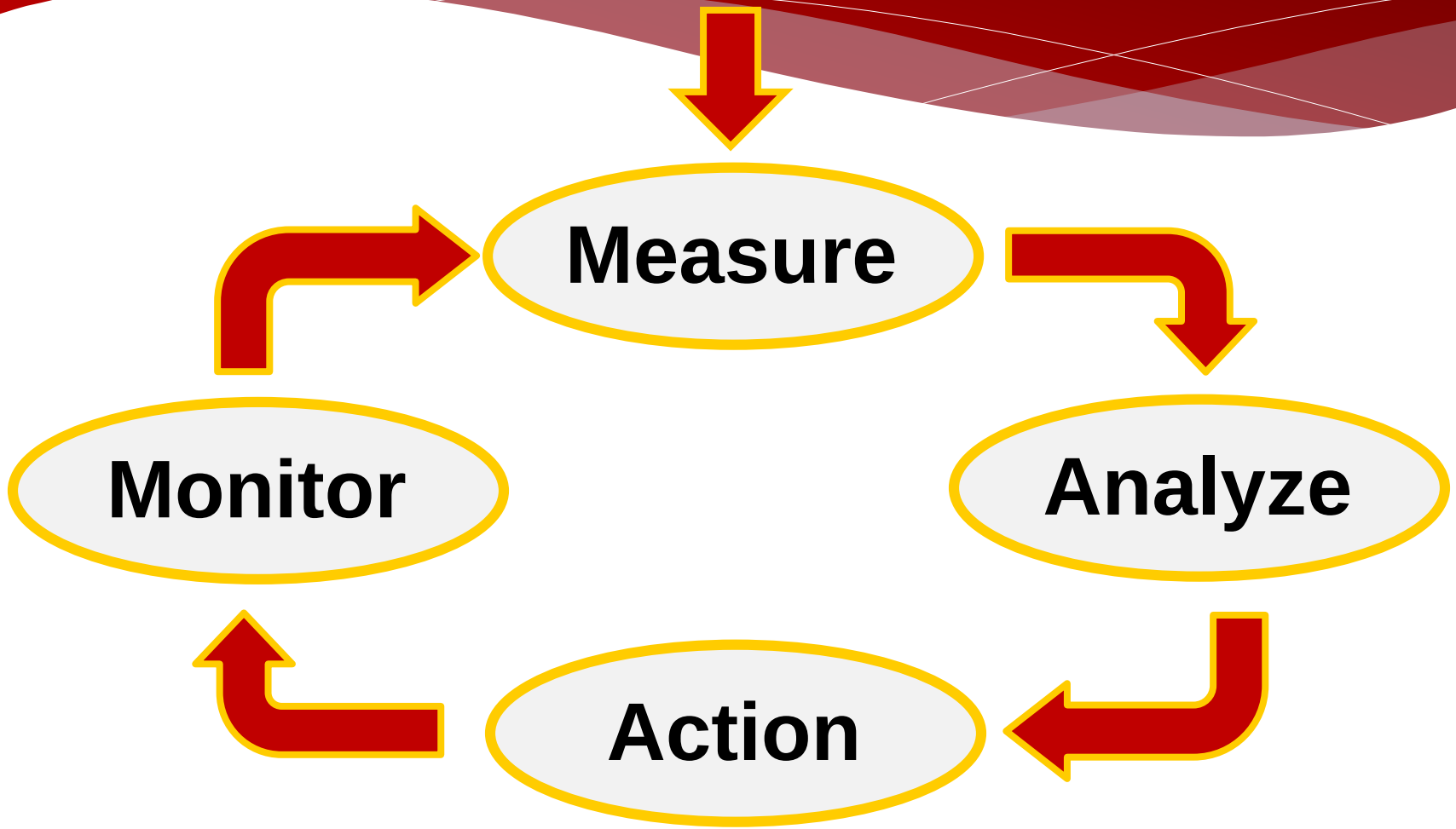
. . . the extent to which members of an organization share positive (or negative) views about their organization in terms of:

-- effectiveness of leadership
-- management of resources
-- quality of work environment
-- system of rewards
-- treatment of personnel

Impacts on Safety

and the influence these views have shaping patterns of "life" within the organization.

Shaping Safety Culture



Shaping Safety Culture

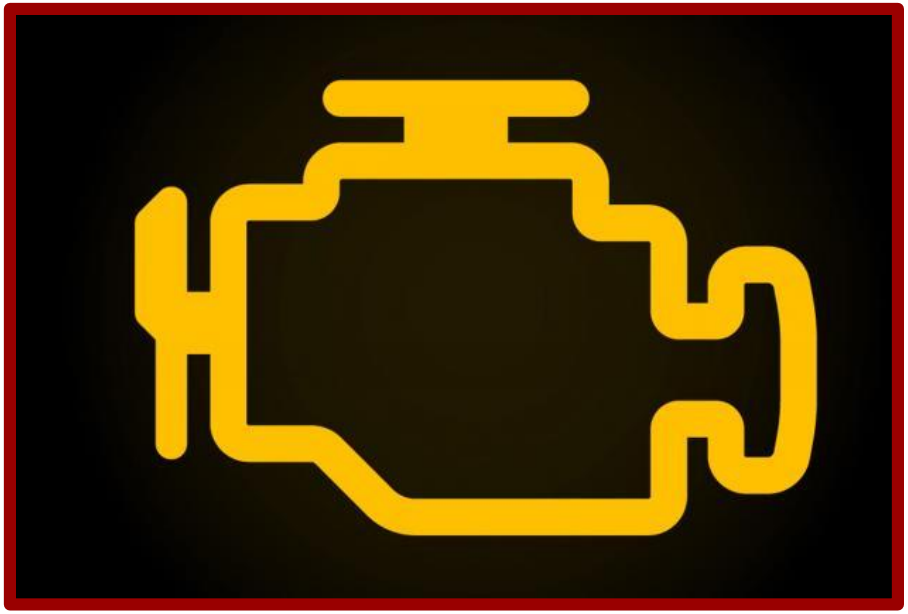
Safety Climate Assessments

Purpose:

Measure an organization's ability to safely conduct maintenance and flight operations in terms of leadership, culture, policies, standards, procedures, and practices.

The surveys examine the organizational climate using a human factors framework.

Safety Climate Assessments



SAFETY DIVISION
FORCE PRESERVATION

- 1 - TAKE A SURVEY
- 2 - SURVEY INFORMATION
- 3 - SAMPLE SURVEYS
- 4 - SET UP UNIT SURVEYS
- 5 - SAMPLE RESULTS
- 6 - VIEW RESULTS
- 7 - SURVEY ADMIN
- 8 - CONSIDERATIONS
- 9 - ISSUE PAPERS
- 10 - SUGGESTIONS
- 11 - HELP / FAQ
- 12 - LINKS
- 13 - CONTACT US
- 14 - HOME

For Official Use Only

Marine Corps Aviation Survey System

(MCASS)

FUTRON AVIATION

Department of Veterans Affairs
1 - TAKE A SURVEY
2 - SAMPLE SURVEYS
3 - QUICK COUNTS
4 - VIEW RESULTS
5 - SURVEY ADMIN
6 - SUGGESTIONS
7 - CONTACT US
8 - HOME
VA
NASA
1 - TAKE THE SURVEY
2 - SURVEY INFORMATION
3 - SAMPLE SURVEY
4 - SURVEY ADMIN
5 - HELP / FAQ
6 - CONTACT US
7 - HOME
What is this site?
Headquarters
ROYAL AIR FORCE
Royal Air Force Safety Environment Enhancement Tool
1 - TAKE A SURVEY
2 - SURVEY INFORMATION
3 - HIERARCHY VIEW
4 - SAMPLE SURVEYS
5 - SET UP UNIT SURVEYS
6 - VIEW RESULTS
7 - SURVEY ADMIN
8 - SUGGESTIONS
9 - LINKS
10 - CONTACT US
11 - HOME
RAF
1 - TAKE A SURVEY
2 - SURVEY INFORMATION
3 - SAMPLE SURVEYS
4 - SET-UP UNIT SURVEY
5 - SAMPLE CC ACCESS
6 - COMMANDER ACCESS
7 - SURVEY ADMIN
8 - INTERVENTIONS
9 - SUGGESTIONS
10 - HELP / FAQ
11 - CONTACT US
12 - HOME
Accessibility/Section 508
AFMA SCN AF14-1315E
For Official Use Only
USAF
Surface
1 - TAKE A SURVEY
2 - SURVEY INFORMATION
3 - SAMPLE SURVEYS
4 - SET UP UNIT SURVEYS
5 - SAMPLE RESULTS
6 - VIEW RESULTS
7 - SURVEY ADMIN
8 - INTERVENTIONS
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For Official Use Only
Navy A
USMC L
SAFETY DIVISION
1 - TAKE A SURVEY
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3 - SAMPLE SURVEYS
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5 - SAMPLE RESULTS
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9 - ISSUE PAPERS
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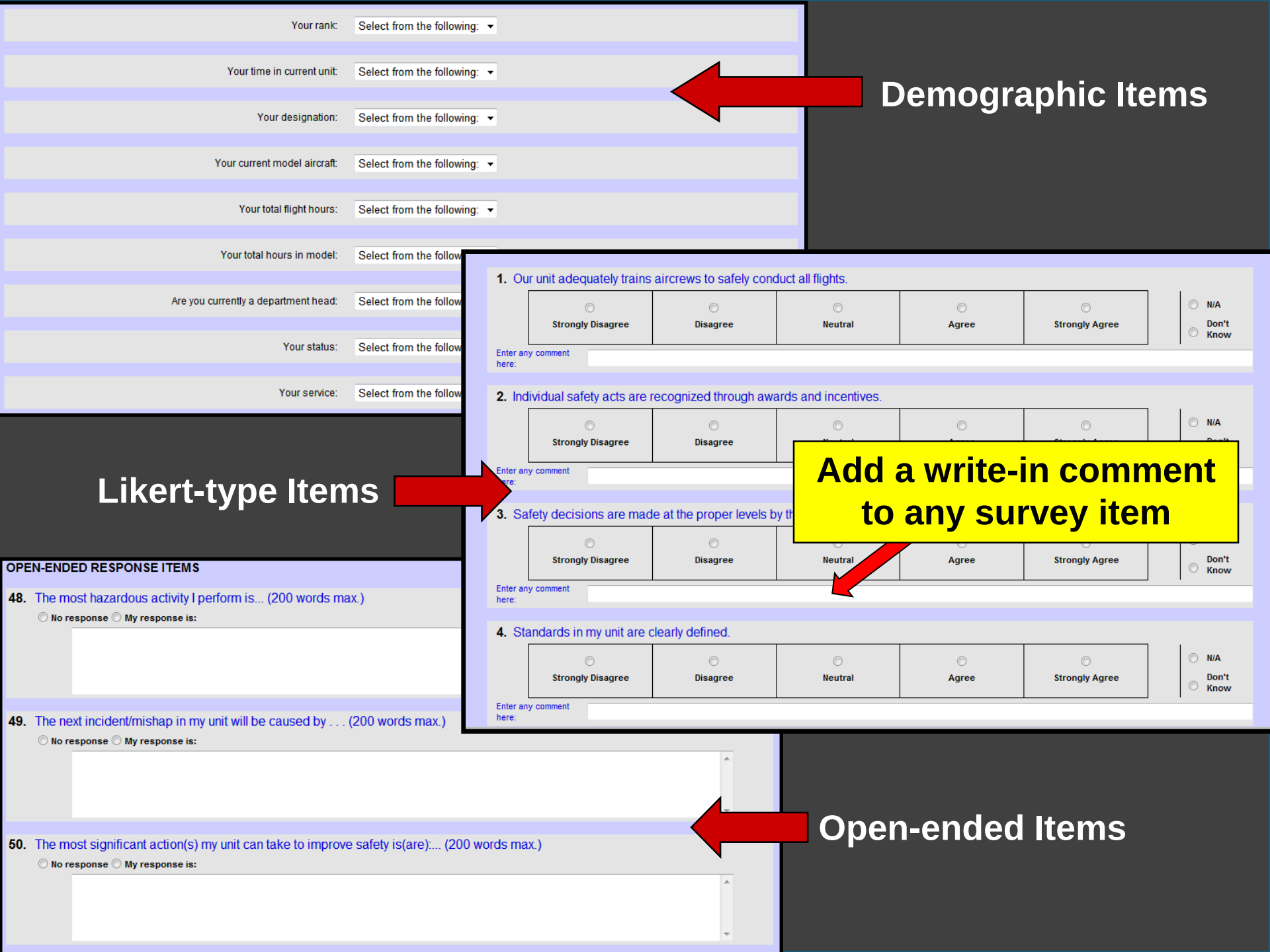
11 - HELP / FAQ
12 - LINKS
13 - CONTACT US
14 - HOME
U.S. Marine Corps
Ground Climate Assessment
Survey System (GCASS)
MOTORCYCLES
GROUND CLIMATE ASSESSMENT
DRINKING & DRIVING
PRIVATE MOTOR VEHICLES
HIGHER HQ
OFF-DUTY & RECREATIONAL ACTIVITIES
SUPPORT PERSONNEL
AVIATION COMMANDS ONLY
(for aircrew & maintenance surveys click here to go to the CSA/MCAS site)
Who should take the GCASS surveys?
[CLICK HERE FOR INFO]
USMC (ground)


Your rank: Select from the following:
Your time in current unit: Select from the following:
Your designation: Select from the following:
Your current model aircraft: Select from the following:
Your total flight hours: Select from the following:
Your total hours in model: Select from the follow
Are you currently a department head: Select from the follow
Your status: Select from the follow
Your service: Select from the follow
Demographic Items
1. Our unit adequately trains aircrews to safely conduct all flights.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
N/A
Don't Know
Enter any comment here:
2. Individual safety acts are recognized through awards and incentives.
Strongly Disagree
Disagree
N/A
Enter any comment here:
Add a write-in comment to any survey item
3. Safety decisions are made at the proper levels by th
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
Don't Know
Enter any comment here:
4. Standards in my unit are clearly defined.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
N/A
Don't Know
Enter any comment here:
Likert-type Items
OPEN-ENDED RESPONSE ITEMS
48. The most hazardous activity I perform is... (200 words max.)
No response
My response is:
49. The next incident/mishap in my unit will be caused by . . . (200 words max.)
No response
My response is:
50. The most significant action(s) my unit can take to improve safety is(are):... (200 words max.)
No response
My response is:
Open-ended Items

Safety Climate Assessments

- Individual respondent anonymity

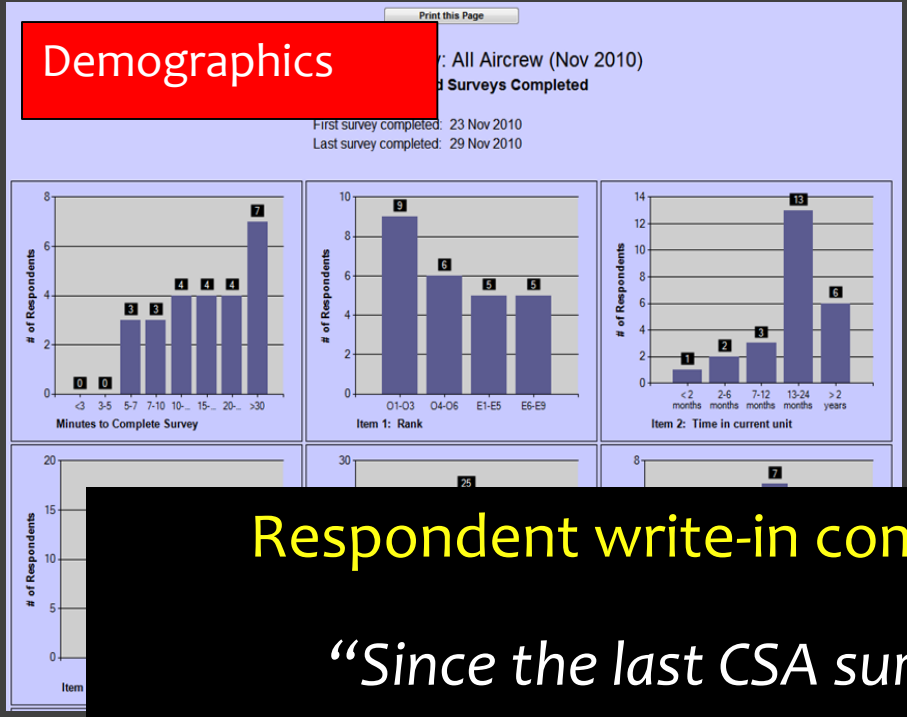
- Organizational confidentiality

- Restricted access to the results

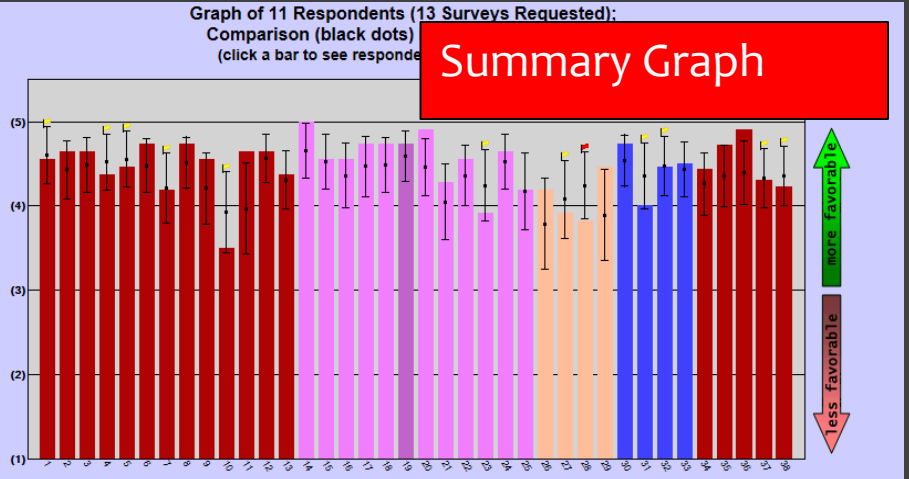
Post-Survey Results

Mining for Safety Data

Demographics

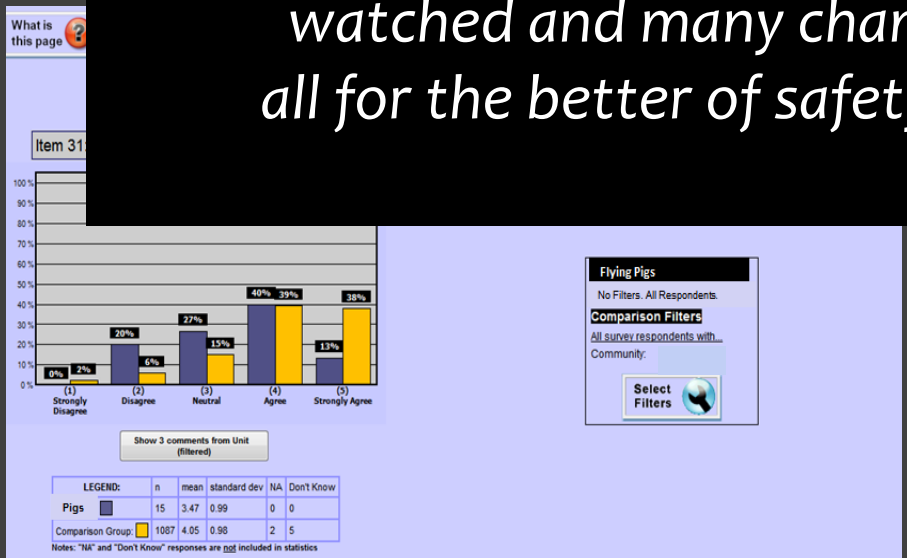


Summary Graph

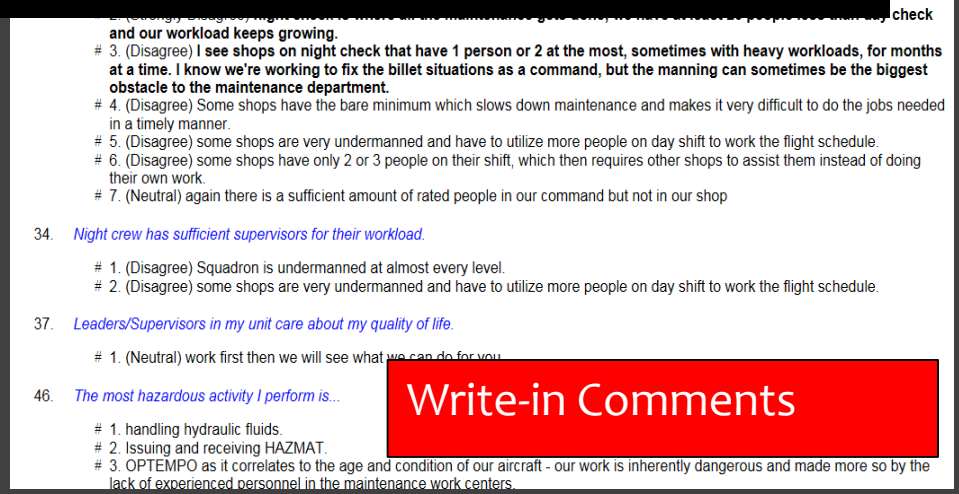


Respondent write-in comment regarding crew rest:

"Since the last CSA survey this has been heavily watched and many changes have been put in place, all for the better of safety and well-being of aircrew."



Single Item Graph



Write-in Comments

Safety Climate Assessments

Summary Graph

Getting the BIG Picture

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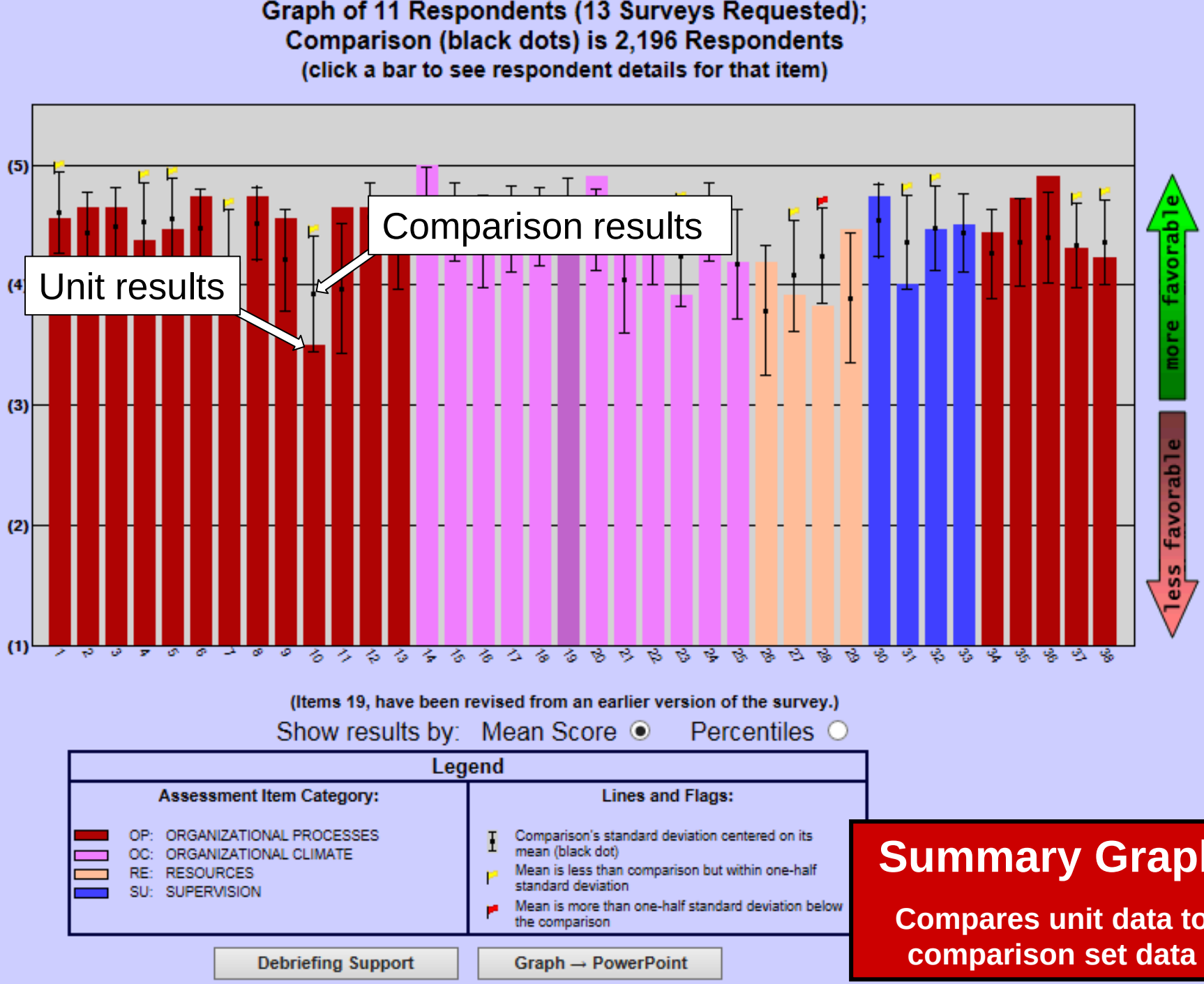
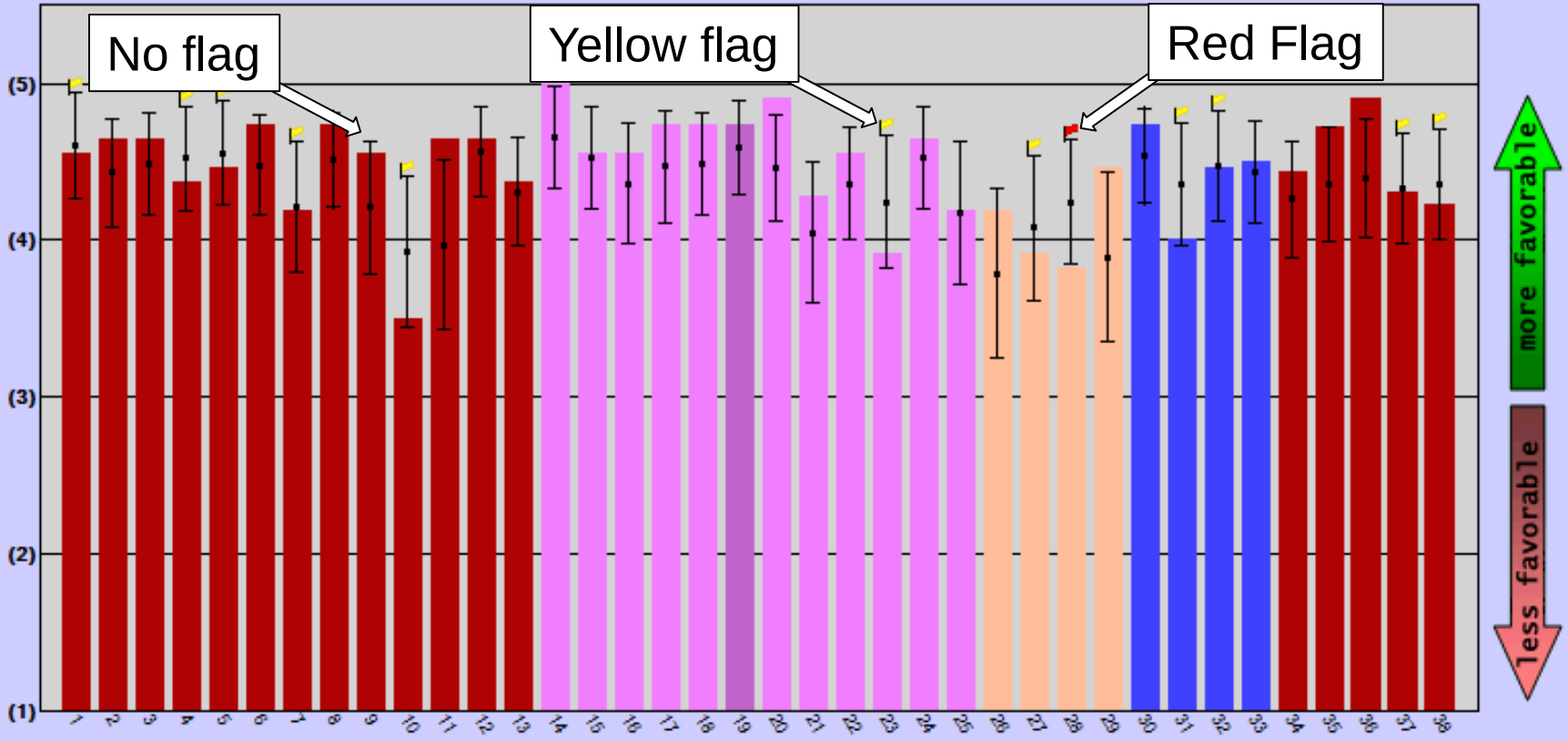


Summary Graph

Compares unit data to comparison set data

Graph of 11 Respondents (13 Surveys Requested);
Comparison (black dots) is 2,196 Respondents
(click a bar to see respondent details for that item)



(Items 19, have been revised from an earlier version of the survey.)

Show results by: Mean Score ◉ Percentiles ○

Legend

Assessment Item Category:

- OP: ORGANIZATIONAL PROCESSES
- OC: ORGANIZATIONAL CLIMATE
- RE: RESOURCES
- SU: SUPERVISION

Lines and Flags:

- Comparison's standard deviation centered on its mean (black dot)
- Mean is less than comparison but within one-half standard deviation
- Mean is more than one-half standard deviation below the comparison

Debriefing Support | Graph → PowerPoint

Summary Graph

Compares unit data to comparison set data

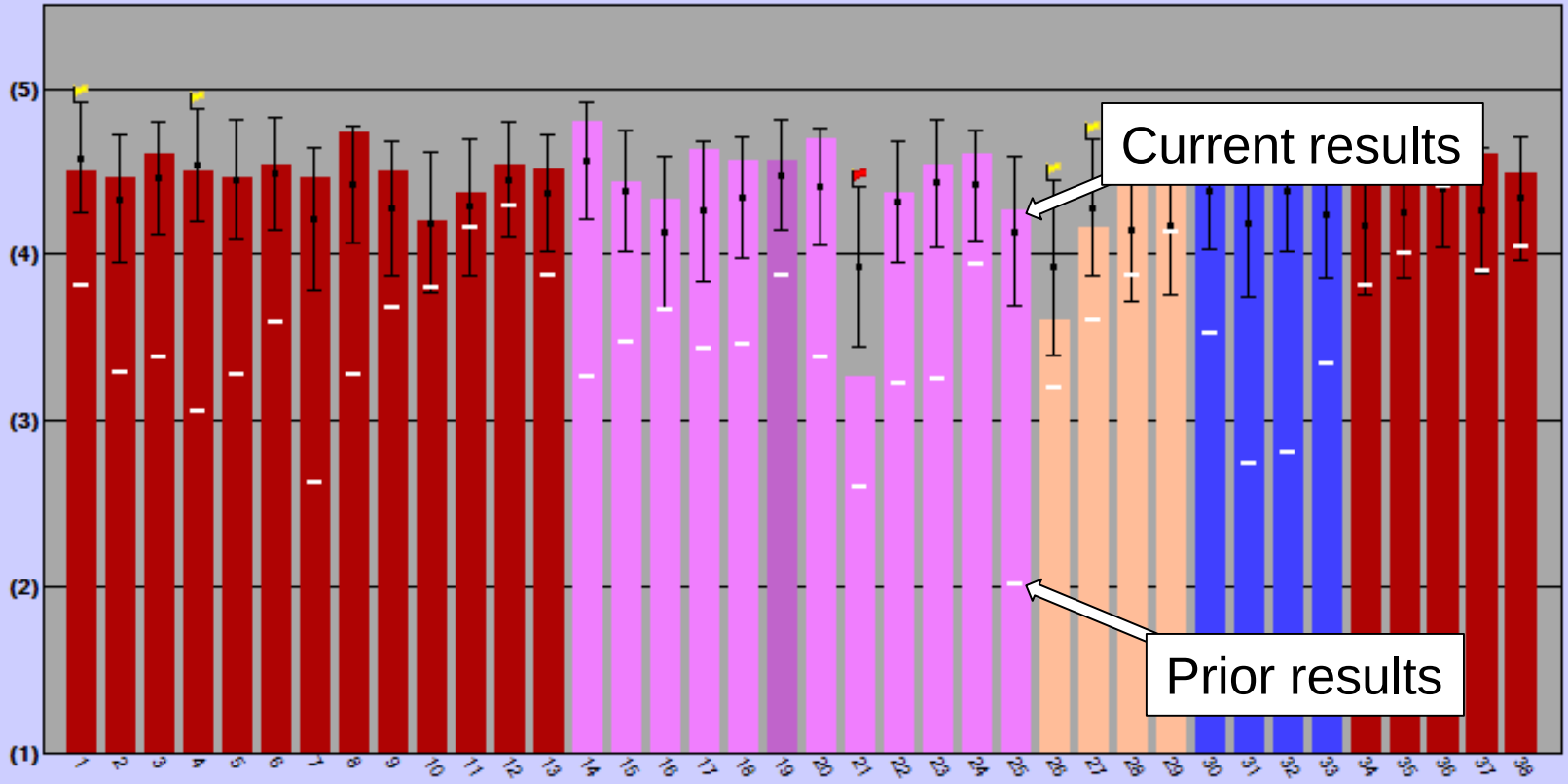
Safety Climate Assessments

Survey Results

(Compare to unit's prior survey results)

Graph of 30 Respondents (60 Surveys Requested), 46 *prior* Responses (64 Surveys Requested); Comparison (black dots) is 9,239 Respondents

(click a bar to see respondent details for that item)



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- Mean is more than one-half standard deviation below the comparison

Debriefing Support | Graph → PowerPoint

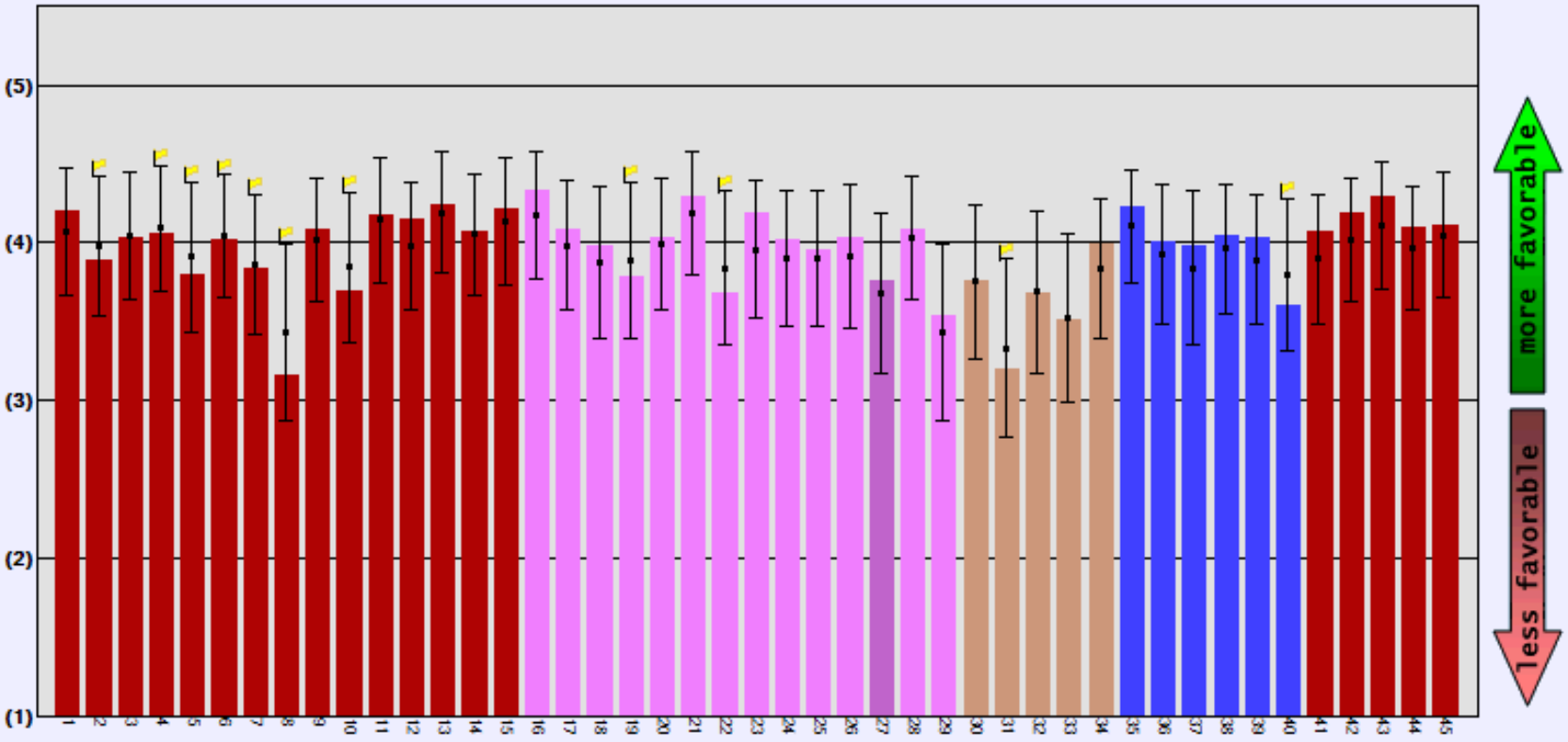
Safety Climate Assessments

Survey Results

(*Typical Unit*)

Graph of 76 Respondents (135 Surveys Requested); Comparison (black dots) is 7,551 Respondents

(click a bar to see respondent details for that item)



(Items 27, have been revised from an earlier version of the survey.)

Show results by: Mean Score ◉ Percentiles ○

Legend

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- OP: ORGANIZATIONAL PROCESSES
- OC: ORGANIZATIONAL CLIMATE
- RE: RESOURCES
- SU: SUPERVISION

Lines and Flags:

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- Mean is more than one-half standard deviation below the comparison

Debriefing Support | Graph → PowerPoint

Safety Climate Assessments

Survey Results

(*Above Average Unit*)

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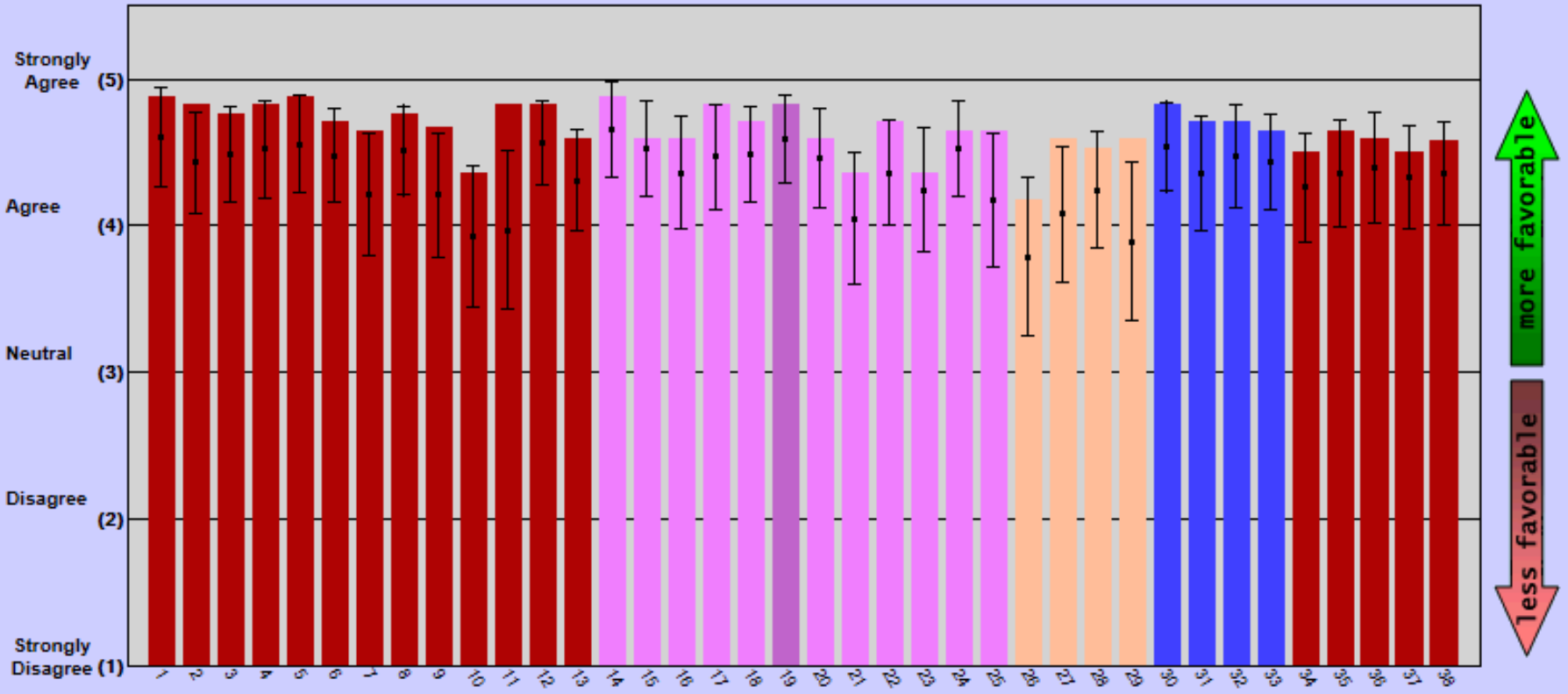
Graph of 17 Respondents (17 Surveys Requested); Comparison (black dots) is 2,196 Respondents

(click a bar to see respondent details for that item)



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- RE: RESOURCES
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- Mean is more than one-half standard deviation below the comparison

Debriefing Support | Graph → PowerPoint

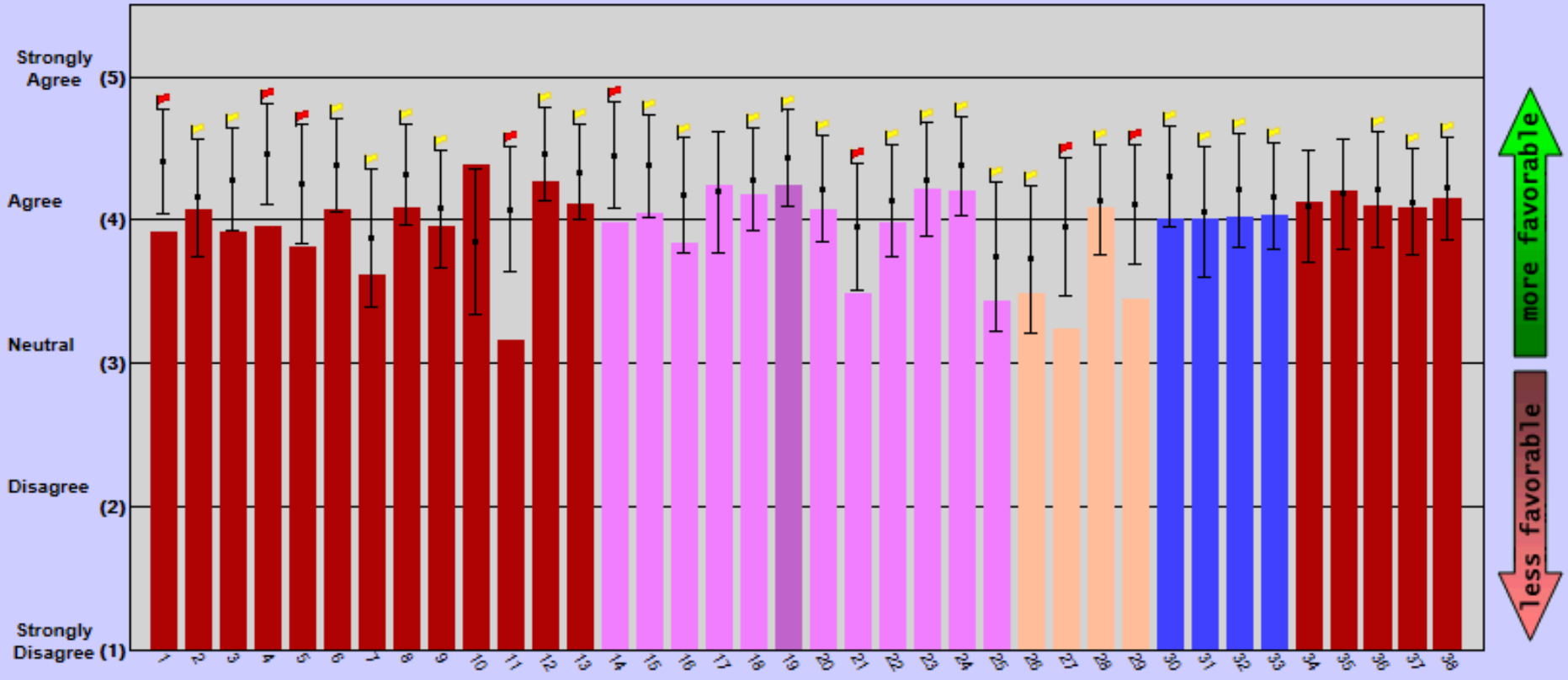
Safety Climate Assessments

Survey Results

(*Below Average Unit*)

Graph of 48 Respondents (48 Surveys Requested); Comparison (black dots) is 4,957 Respondents

(click a bar to see respondent details for that item)



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- RE: RESOURCES
- SU: SUPERVISION

Lines and Flags:

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- Mean is more than one-half standard deviation below the comparison

Debriefing Support | Graph → PowerPoint

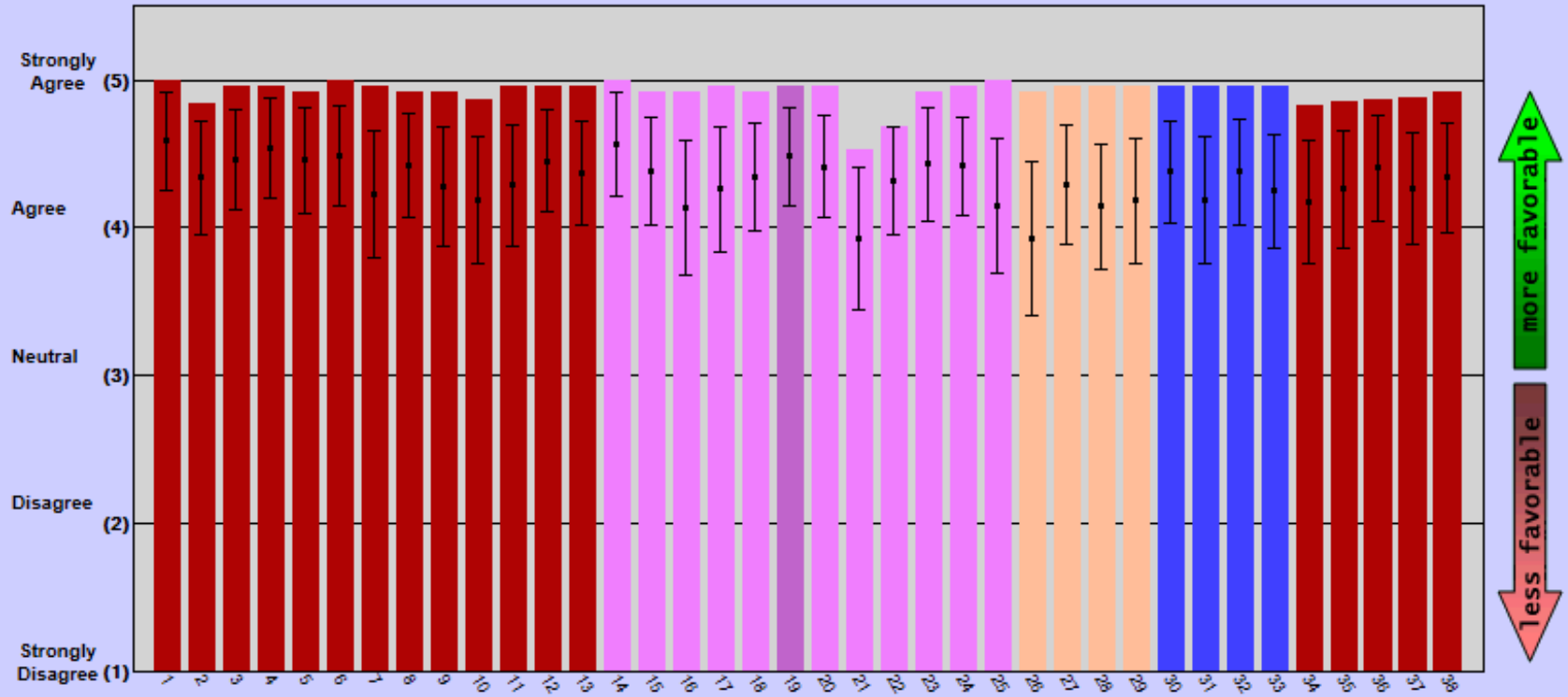
Safety Climate Assessments

Survey Results

(*Most favorable unit to date*)

Graph of 25 Respondents (31 Surveys Requested); Comparison (black dots) is 8,886 Respondents

(click a bar to see respondent details for that item)



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- RE: RESOURCES
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- Mean is more than one-half standard deviation below the comparison

Debriefing Support | Graph → PowerPoint

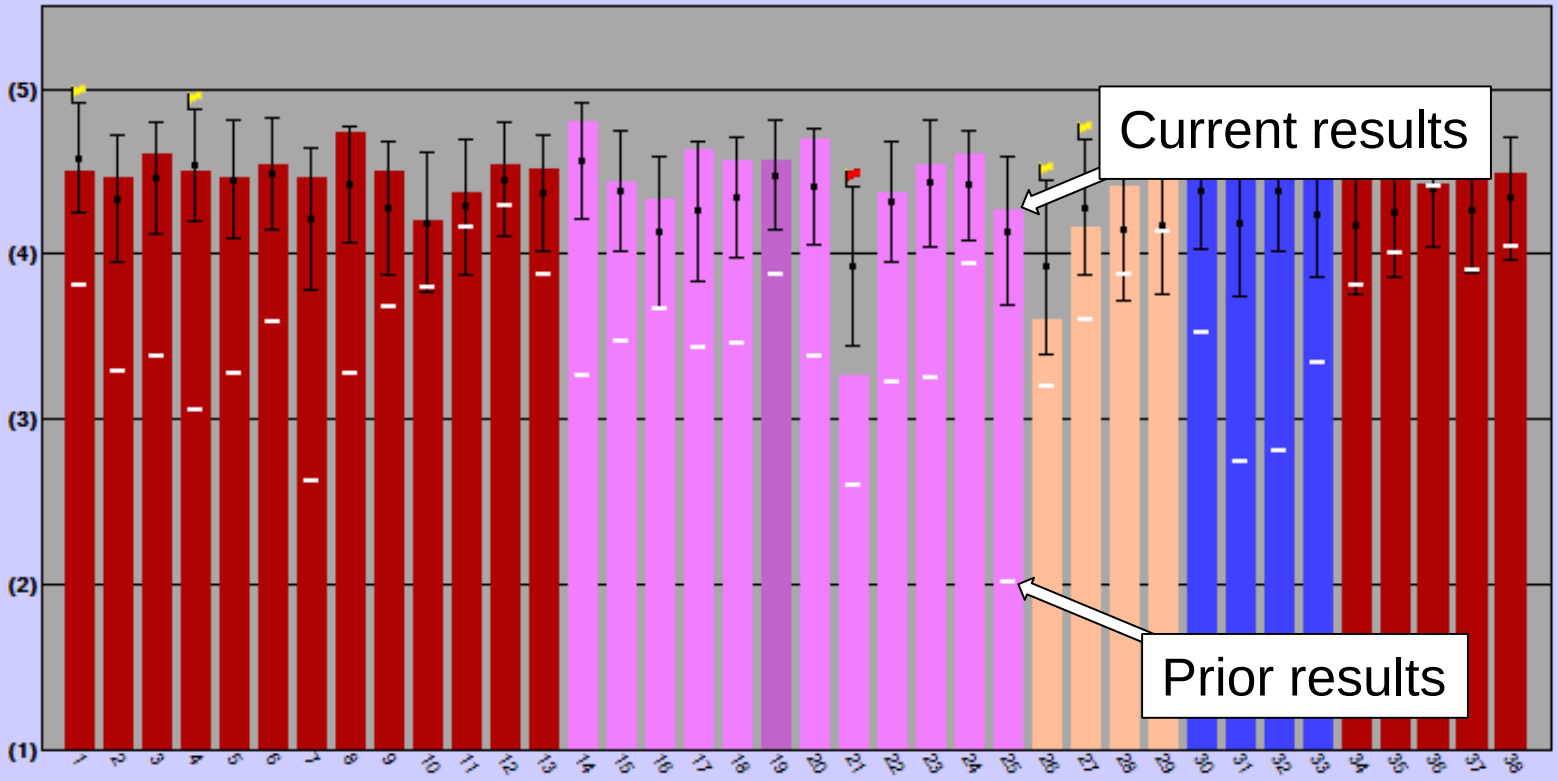
Safety Climate Assessments

Survey Results

(*Biggest improvement by a single leader*)

Graph of 30 Respondents (60 Surveys Requested), 46 *prior* Responses (64 Surveys Requested); Comparison (black dots) is 9,239 Respondents

(click a bar to see respondent details for that item)



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Legend

Assessment Item Category:	Lines and Flags:
OP: ORGANIZATIONAL PROCESSES	Comparison's standard deviation centered on its mean (black dot)
OC: ORGANIZATIONAL CLIMATE	Mean is less than comparison but within one-half standard deviation
RE: RESOURCES	Mean is more than one-half standard deviation below the comparison
SU: SUPERVISION	

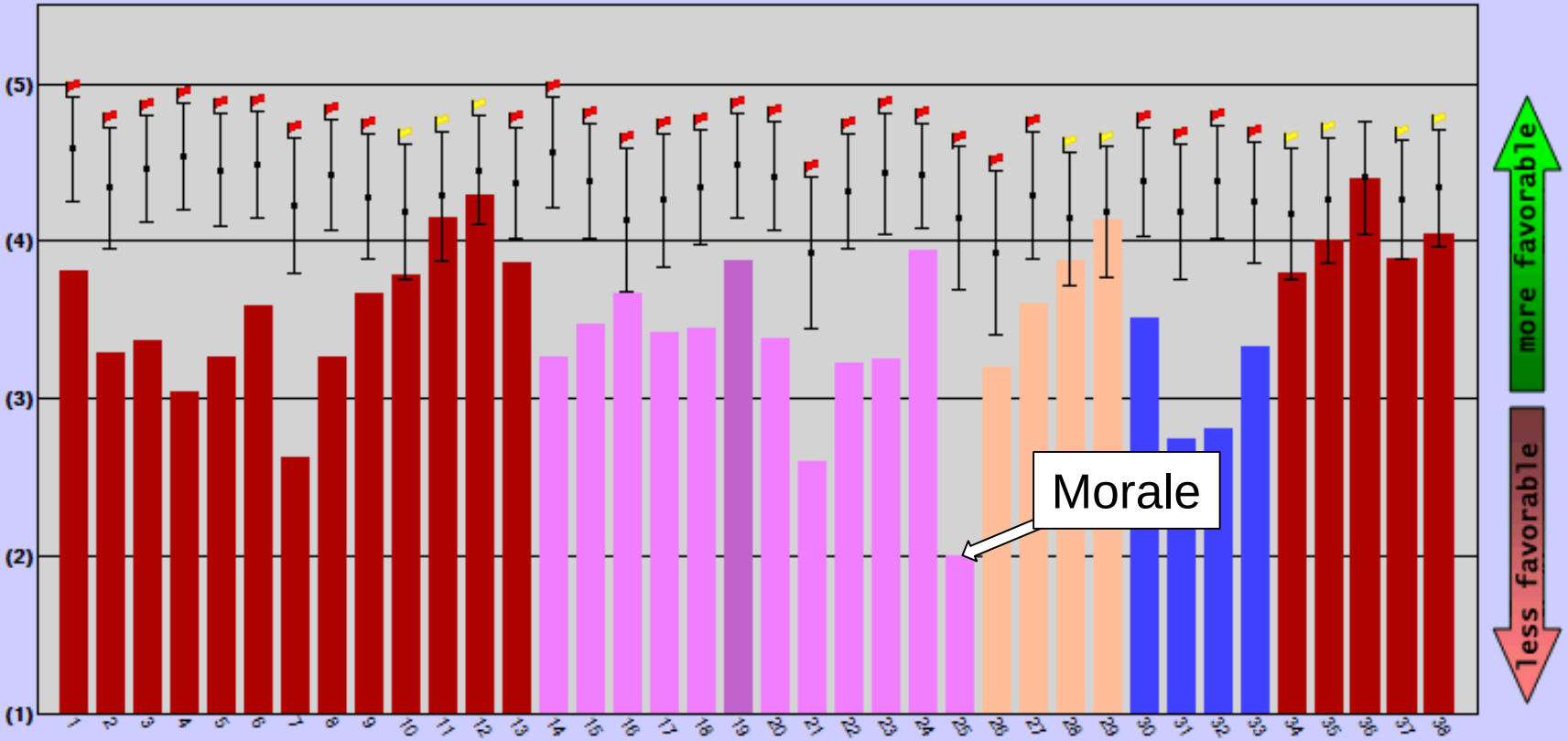
Debriefing Support | Graph → PowerPoint

Safety Climate Assessments

What can survey results look like after a tragic event?

Graph of 46 Respondents (64 Surveys Requested); Comparison (black dots) is 8,869 Respondents

(click a bar to see respondent details for that item)



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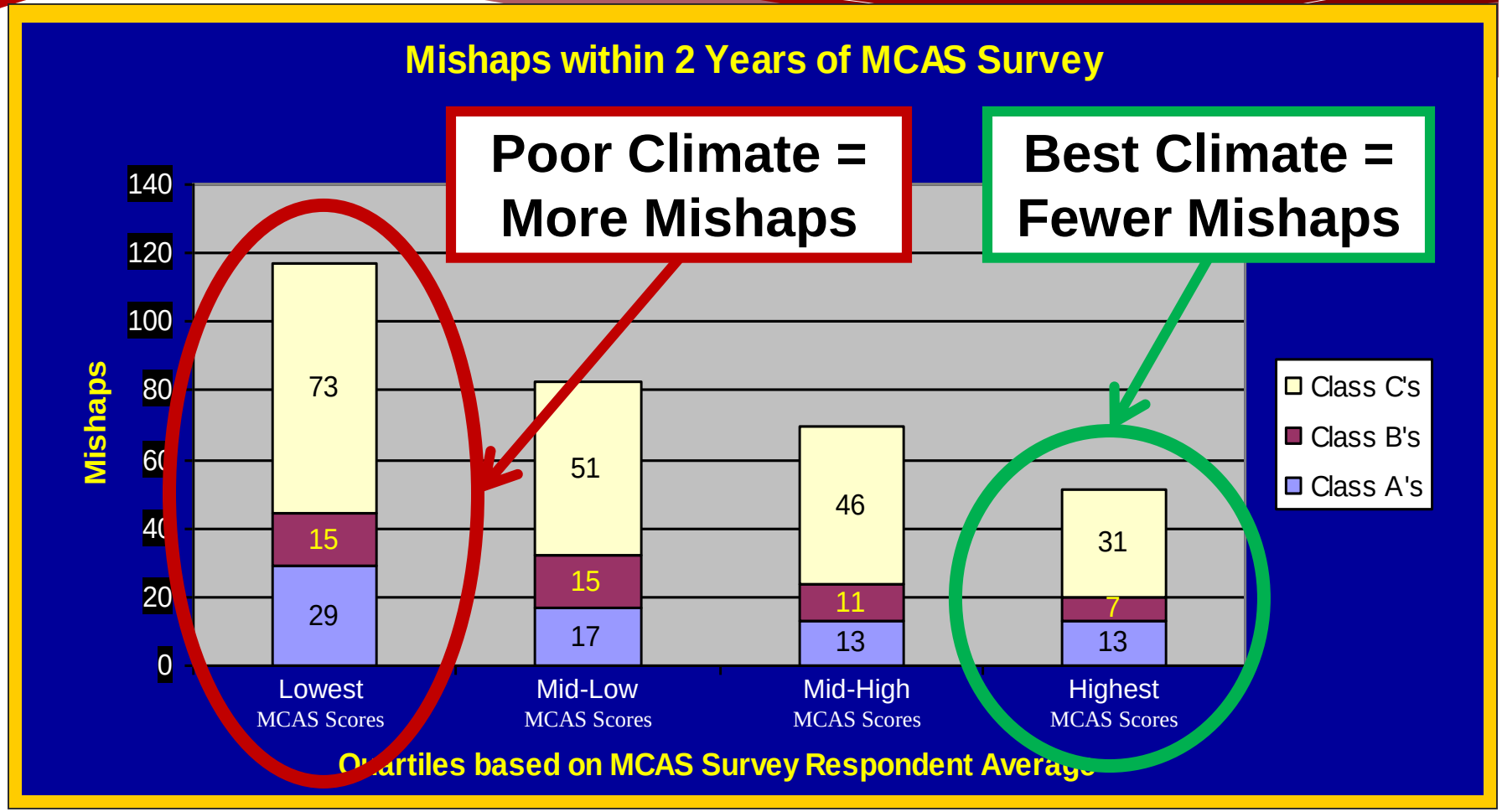
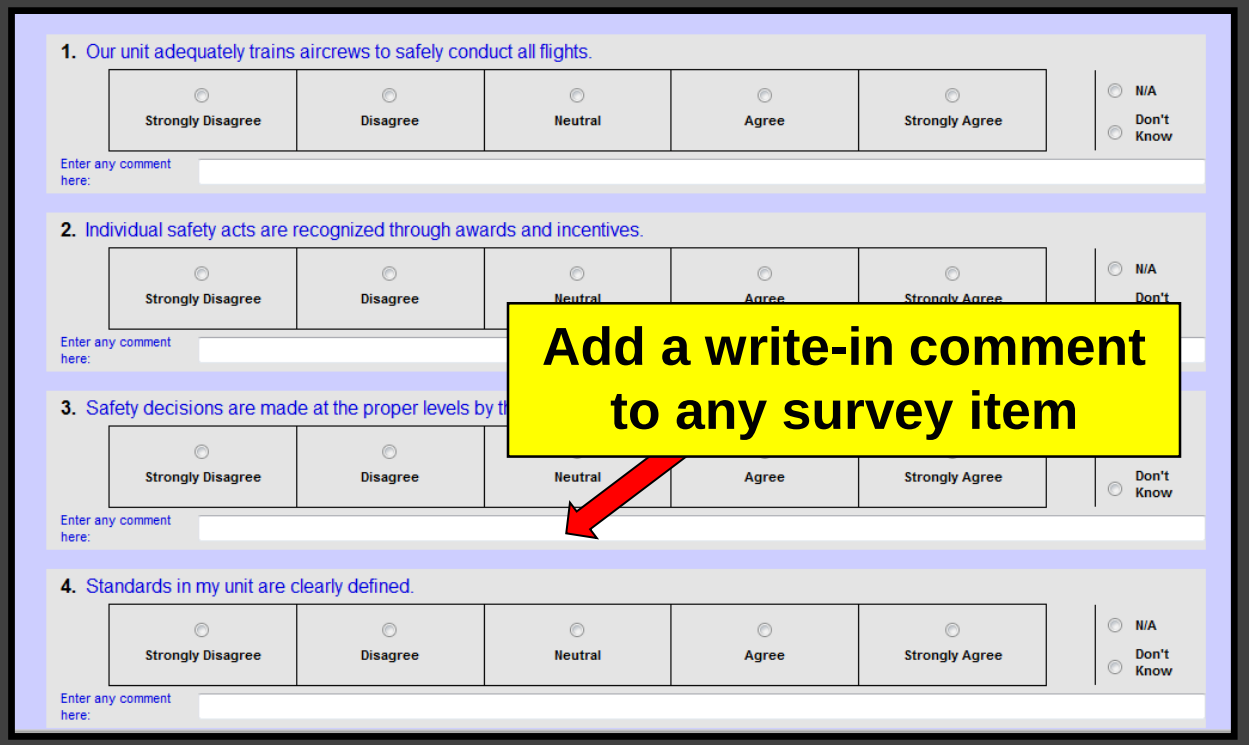
Debriefing Support | Graph → PowerPoint

Why do I care about this stuff?

Note: This guy was a test pilot.

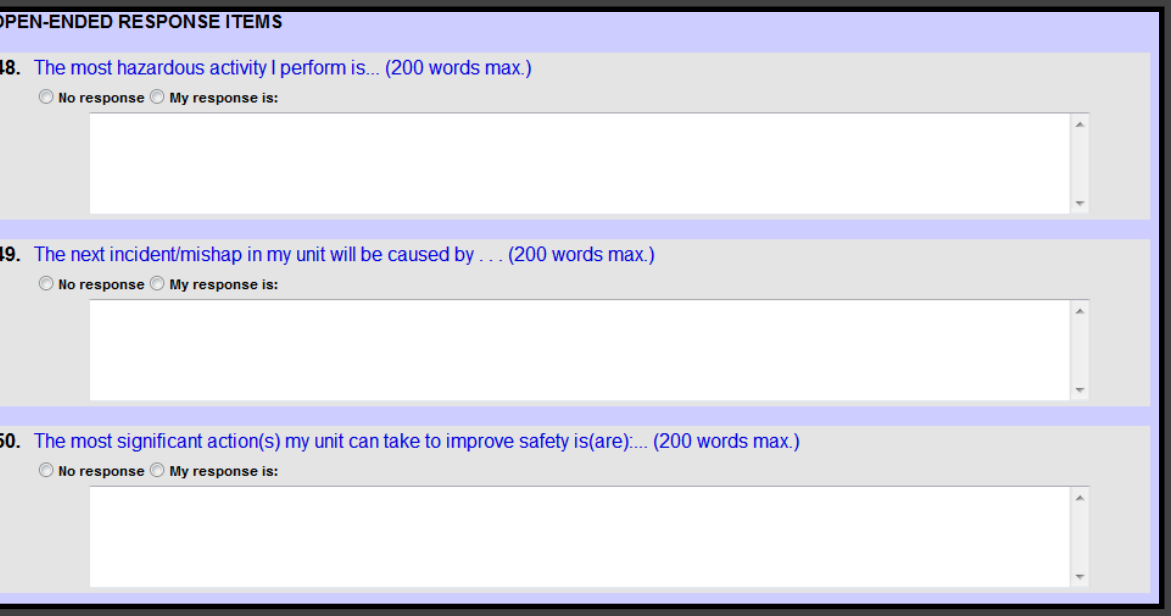
Respondent Average versus Mishap Frequency





Likert-type Items

Open-ended Items



Hazard Identification

33. *Night crew has sufficient staffing for their workload.*

1. (Strongly Disagree) Squadron is undermanned at almost every level.
2. (Strongly Disagree) **night check is where all the maintenance gets done, we have at least 20 people less than day check and our workload keeps growing.**
3. (Disagree) **I see shops on night check that have 1 person or 2 at the most, sometimes with heavy workloads, for months at a time. I know we're working to fix the billet situations as a command, but the manning can sometimes be the biggest obstacle to the maintenance department.**
4. (Disagree) Some shops have the bare minimum which slows down maintenance and makes it very difficult to do the jobs needed in a timely manner.
5. (Disagree) some shops are very undermanned and have to utilize more people on day shift to work the flight schedule.
6. (Disagree) some shops have only 2 or 3 people on their shift, which then requires other shops to assist them instead of doing their own work.
7. (Neutral) again there is a sufficient amount of rated people in our command but not in our shop

34. *Night crew has sufficient supervisors for their workload.*

1. (Disagree) Squadron is undermanned at almost every level.
2. (Disagree) some shops are very undermanned and have to utilize more people on day shift to work the flight schedule.

37. *Leaders/Supervisors in my unit care about my quality of life.*

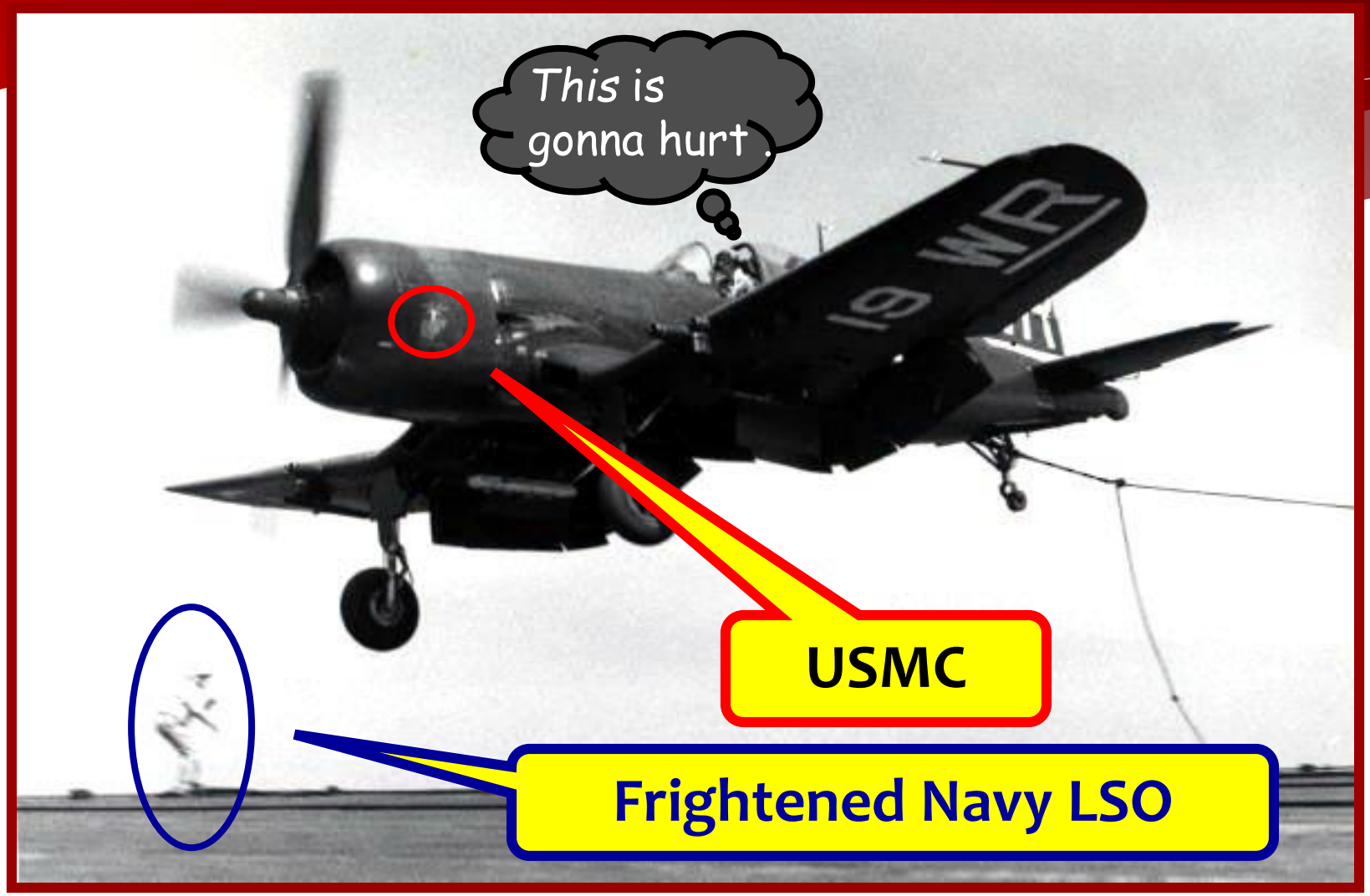
1. (Neutral) work first then we will see what we can do for you.

46. *The most hazardous activity I perform is...*

1. handling hydraulic fluids.
2. Issuing and receiving HAZMAT.
3. OPTEMPO as it correlates to the age and condition of our aircraft - our work is inherently dangerous and made more so by the lack of experienced personnel in the maintenance work centers.

Let's Wrap It Up

It's all about . . .

- Monitoring and capturing safety data
- Measuring to see if changes are needed
- Measuring to see if controls are working
- Digging to figure out why the "Check Engine" light is on

QUESTIONS ???