AA Learning and Improvement Team (LIT)

A Journey to Implementing Safety II in the Commercial Aviation Industry

BALPA Safety II Workshop, Virtual – February 2021

Presenters:
CA James Kwasny, AA Flight Safety
CA Sean Kerrick, FAA

How Do I Improve Safety?

	Safety-I	Safety-II
Definition of safety	That as few things as possible go wrong	That as many things as possible go right
Safety management principle	Reactive, respond when something happens	Proactive, try to anticipate developments and events
Explanations of accidents	Accidents are caused by failures and malfunctions	Things basically happen in the same way, regardless of the outcome.
View of the human factor	Liability	Resource

~~I vs II~~

↓

I & II

(Hollnagel, 2013)

How Do I Improve Safety?

What is Safety?

Safety is not about the absence of negatives; it is about the presence of   -Sidney Dekker

Resilience

AA LIT Model

Resilience

AA LIT Model

AA LIT Model

Learn

Coordinate

Resilience

Plan

Adapt

Proficiencies

- Verbalize or apply what was previously learned

- Seek new knowledge and improve

- Discuss what happened

AA LIT Proficiencies – Our Language

LEARN

Apply what was previously learned

Debrief to discuss what went well

Seek knowledge

Share knowledge

PLAN

Develop "what if" scenarios

Discuss expected actions beforehand

Establish countermeasures

Gather information

Prioritize / schedule tasks

State expectation for flight

Update change in plan

AA LIT Proficiencies – Our Language

ADAPT

Address unanticipated new pressure

Adjust communication based on workload

Change automation or system

Heightened awareness or focus

Initiates action to decrease workload

Intervention for unwanted condition

Manage time effectively

Push back on external stimulus

Verbalize change in workload

COORDINATE

Affirm new information supports plan

Ask external resource for input / assistance

Ask other pilot for input / assistance

Cross-check other pilot's actions

Delegate tasks to even task loading

Monitor aircraft status

Re-center when deviation observed

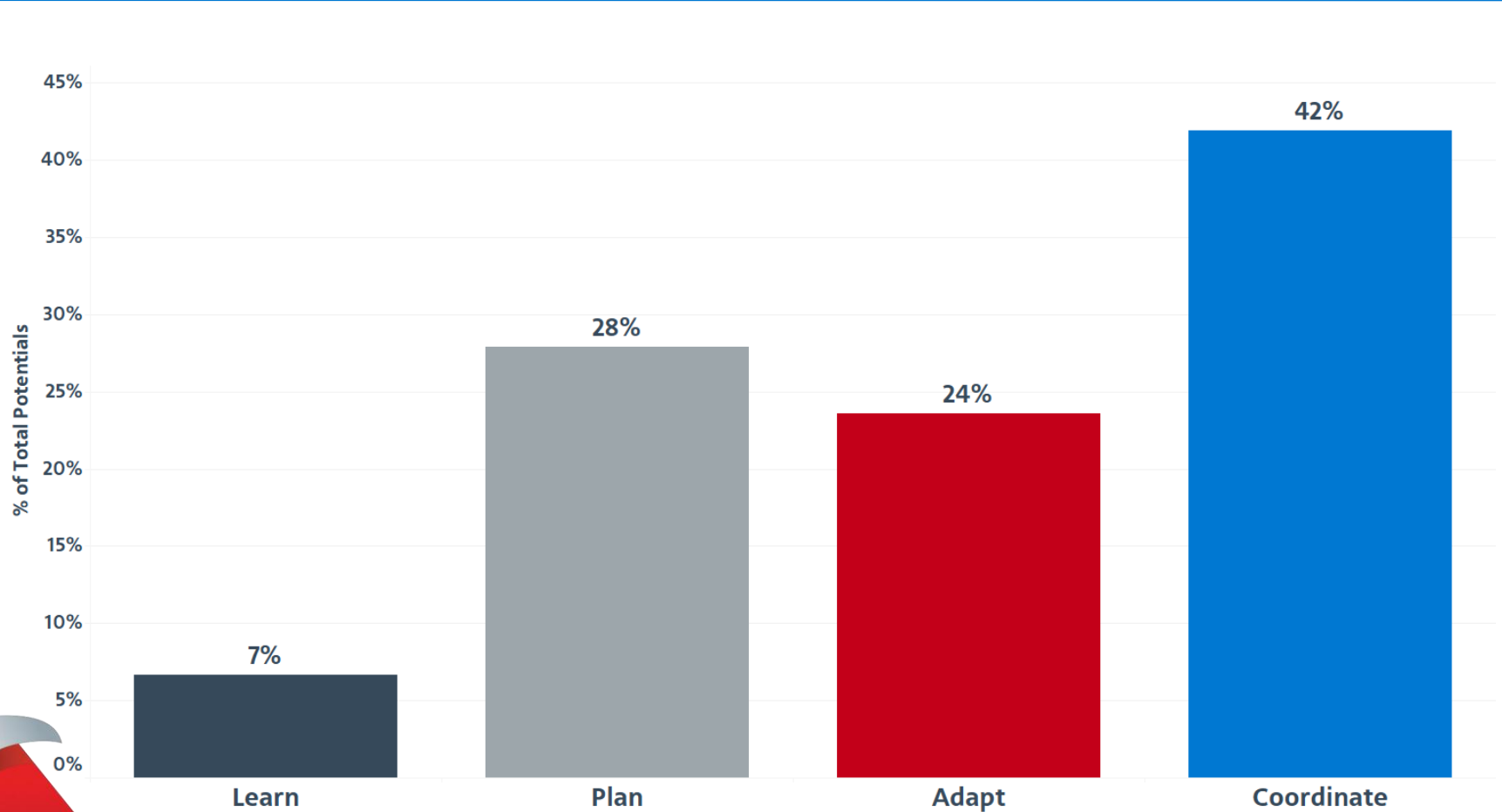# AA LIT Model

Data Collection

Direct Observation:
LIT Rides

96 Flight
Observations

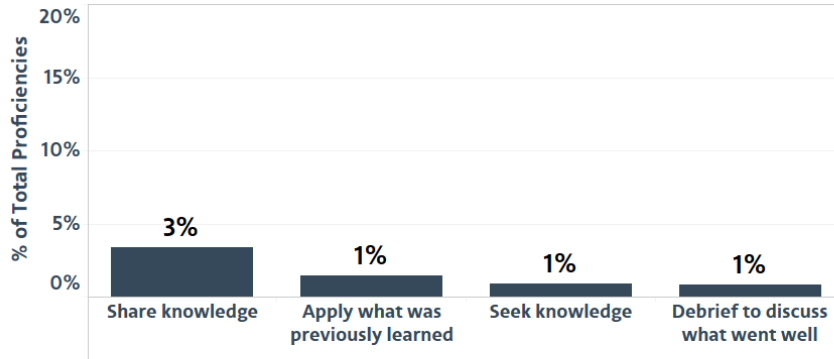Semi-Structured
Interviews:
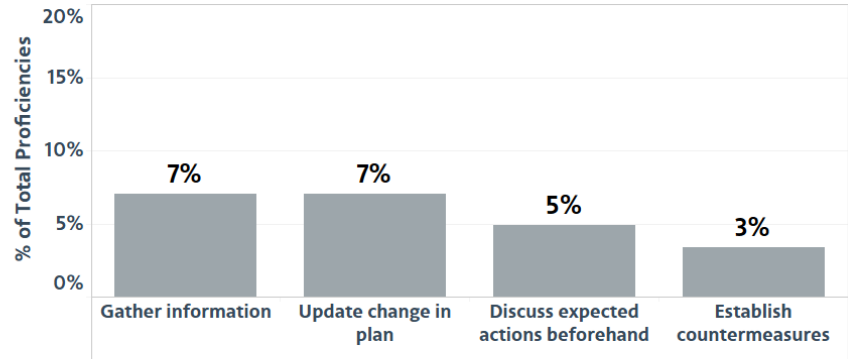Learning Sessions

Potentials Observed

Top 4 Proficiencies in each Potential

Learn
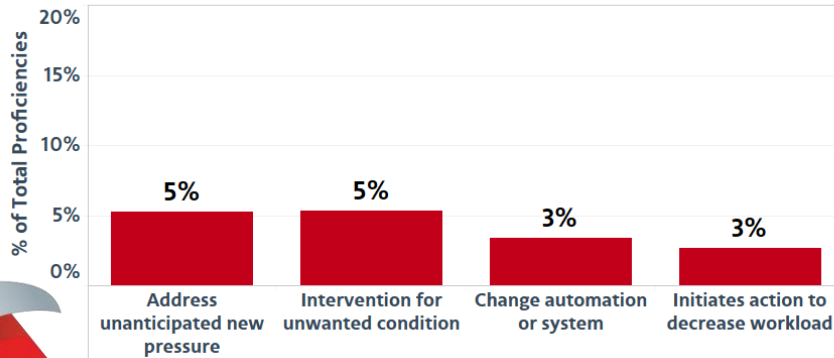
Share knowledge	Apply what was previously learned	Seek knowledge	Debrief to discuss what went well
3%	1%	1%	1%

Plan

Gather information	Update change in plan	Discuss expected actions beforehand	Establish countermeasures
7%	7%	5%	3%

Adapt

Address unanticipated new pressure	Intervention for unwanted condition	Change automation or system	Initiates action to decrease workload
5%	5%	3%	3%

Coordinate

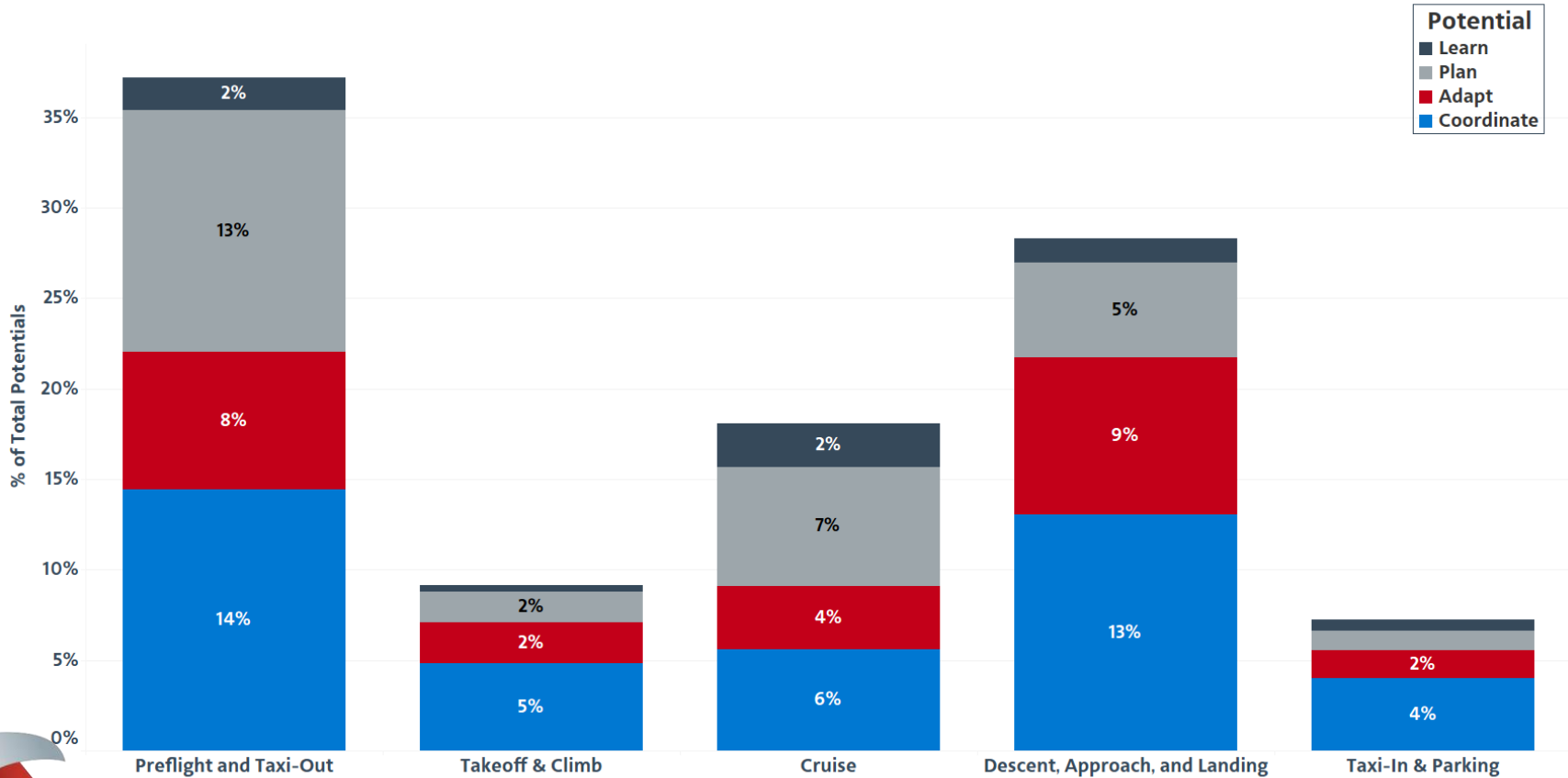| Affirm new information supports plan	Ask other pilot for input/assistance	Monitor aircraft status	Ask external resource for input/assistance
17%	11%	5%	5%

Potentials Observed by Phase of Flight

Proficiency Prevalence

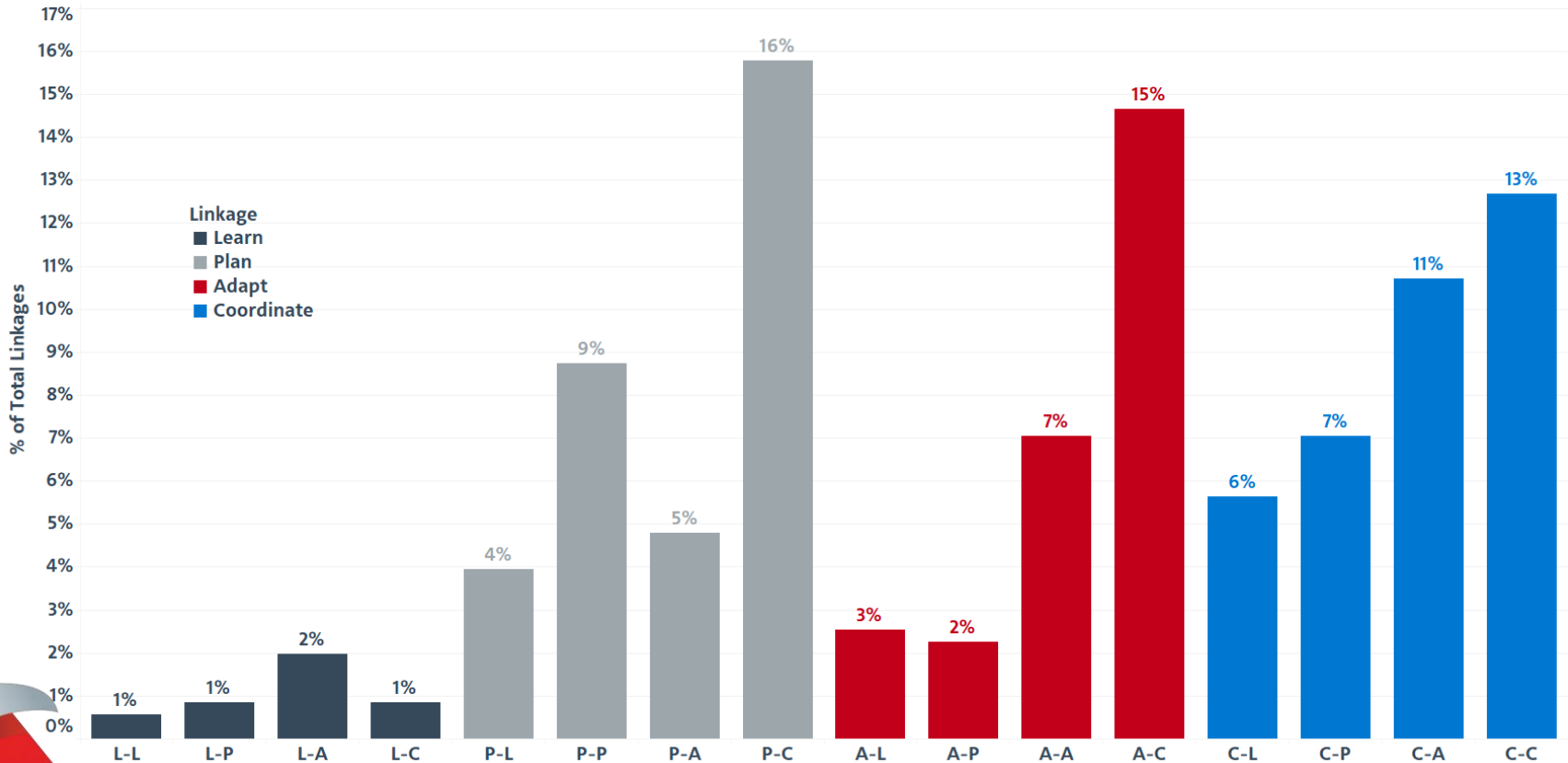| Label	Value
Affirm new information supports plan	342
Ask other pilot for input/assistance	225
Gather information	144
Update change in plan	144
Intervention for unwanted condition	109
Address unanticipated new pressure	108
Monitor aircraft status	105
Discuss expected actions beforehand	100
Ask external resource for input/assistance	98
Share knowledge	70
Change automation or system	69
Establish countermeasures	69
Develop "what if" scenarios	55
Initiates action to decrease workload	55
Push back on external stimulus	46
State expectation for flight	43
Cross-check other pilot's actions	35
Heightened awareness or focus	35
Re-center when deviation observed	35
Manage time effectively	34
Apply what was previously learned	30
Delegate tasks to even task loading	20
Seek knowledge	19
Adjust communication based on workload	17
Debrief to discuss what went well	17
Prioritize/schedule tasks	17
Verbalize change in workload	11

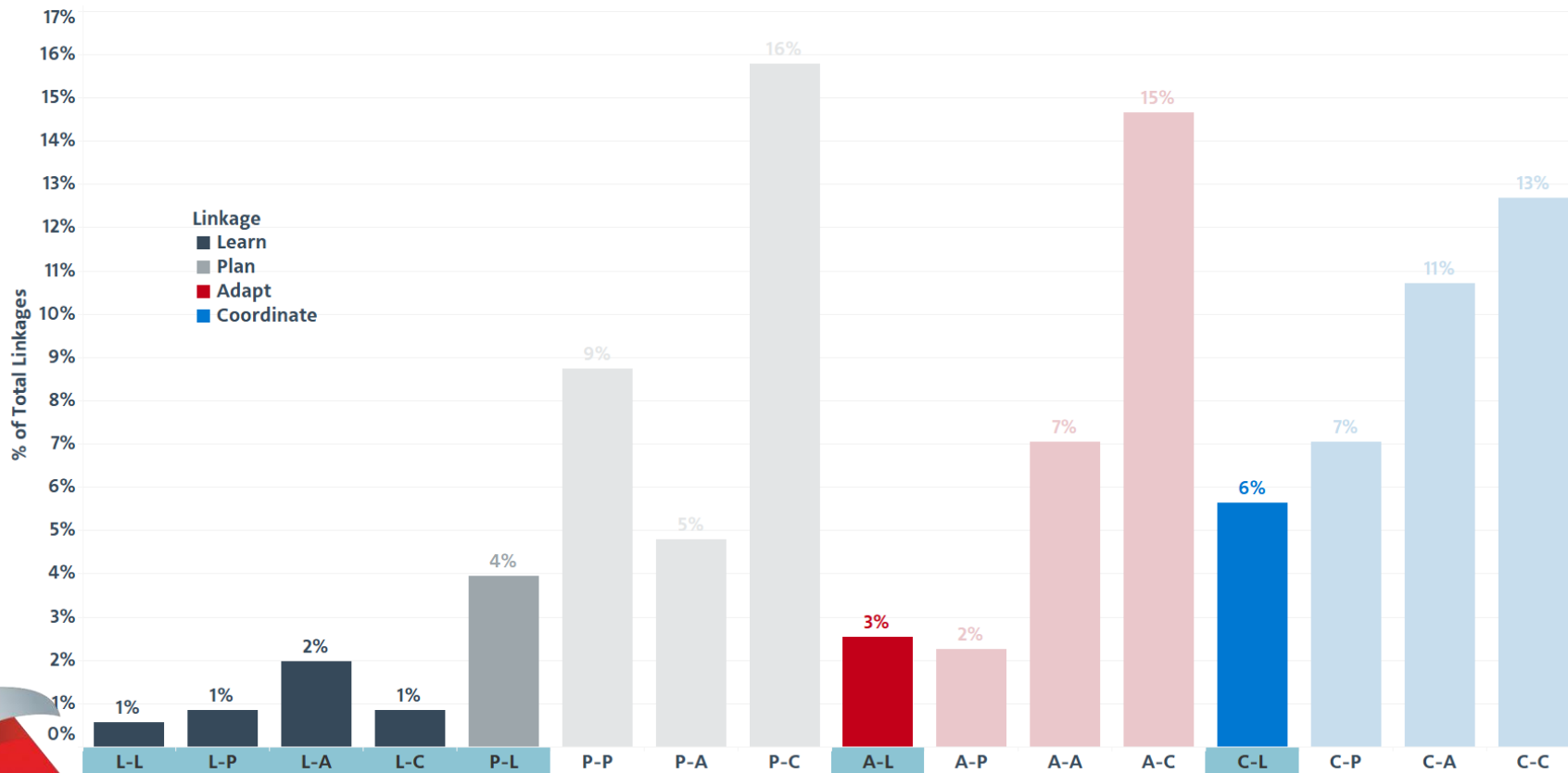Potential
- Learn
- Plan
- Adapt
- Coordinate

Number of Occurrences

AA LIT Model: Linkages between Potentials

Linkage Prevalence

Linkage Prevalence - Learn

Potentials Observed by CA/FO and PF/PM
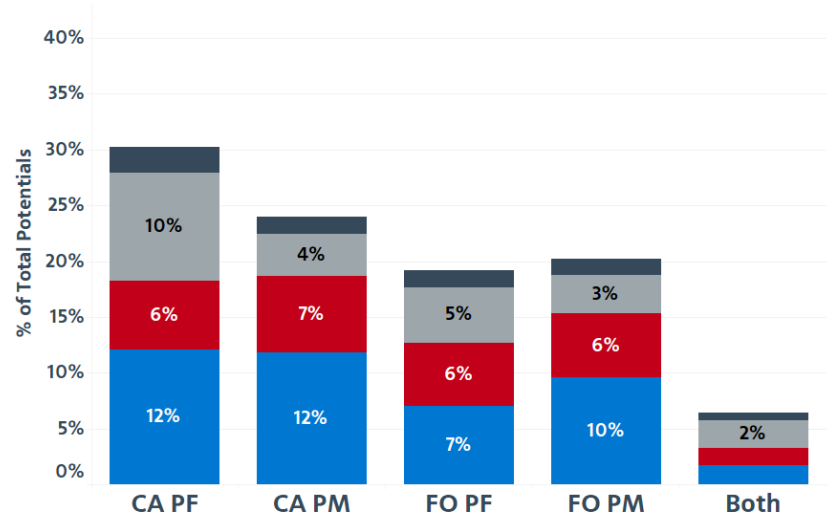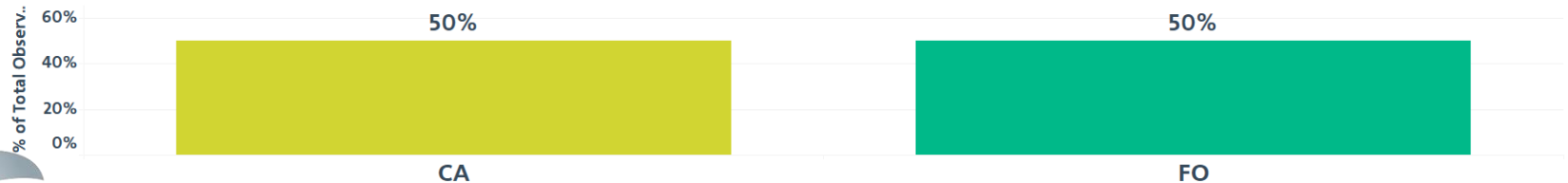
How Will Data be Used?

Learn: We Don't Know What We Don't Know
By Learning and Impro...
F/O Nick ...

On July 16, 2013, astronauts Luca Parmitano a... the International Space Station (ISS) and be... expectation, based on what NASA had learned i... (EVA) #23 would go that day. What nobody knew... would almost drown in his spacesuit.

The Safety-II concept of work-as-imagined exists... every day in flight operations at American Airline... garner all our previous experience and knowled... review the weather, the flight plan, the taxi rout... to the departure runway, takeoff performance, e... We make a plan that becomes work-as-imagined... as the beginning of EVA 23 was NASA's work-as-... imagined.

During a flight, small, subtle disturbances will fo... the crew to adapt slightly from the initial plan. A... unexpected taxi clearance, an unplanned increas... takeoff weight, a cabin call at the same time the... is issued an ATC are simple examples.

Sometimes the disturbances are less subtle - a fl... control malfunction or an unplanned go-around... Crews adapt on every flight, not consciously awa... the small accommodations they make to keep th... plan on track. When the flight is over and the sh...

American Airlines

SMS

Company Operations Standards Board (COSB)

Operations Management Review (OMR)
Operations Compliance Review (OCR)

System Safety Review Board (SSRB)

| Fatigue Steering Committee | Operations Standards Board (OSB) | Flight Service Operations Standards Board (FSOSB) | CASS Review Board (CRB) | Airport Ops Standards Board (AOSB) | Security Standards Board (SSB) | Environmental Operations Standards Board (EOSB) | Regional Operations Standards Board (ROSB) |

Flight Ops Standards Board (FOSB)
Tech Ops Standards Board (TOSB)

| Fatigue Review Committee | Ops Data Analysis Group (ODAWG) | Flight Service Data Analysis Group (FSDAG) | CASS Working Group (CWG) | Airport Ops Data Analysis Group (AODAG) | Security Data Analysis Group (SDAG) | Environmental Data Analysis Group (EDAG) |

FAR 117 Data Analysis Working Group (117DAWG)
Ops Data Analysis Working Group (ODAWG)
Flight Test Data Analysis Working Group (FTDAWG)

Risk Elevation

DATA COLLECTION AND ANALYSIS:
~ Corporate Compliance and Quality ~ Industry Safety Event Reviews ~ ASAP/P2/CERS/General Safety Concern Reporting/General Hazard Reporting ~ PIREPS ~ Audits ~ MEAA ~ REDA ~ Voluntary Disclosures ~ FAA ~ Mandatory Reporting ~ FOQA ~ Reliability ~ LOSA ~ Weight & Balance Task Force ~ Self Audits ~ Dangerous Goods Task Force ~ Significant Events ~ Smoke and Odor Task Force ~ Fatigue Risk Management ~ Risk Assessment ~ Root Cause Analysis ~ Bowtie ~ Event Risk Classification ~ Internal Evaluation Program ~ Fatigue Reports ~ Etc.

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Leadership and Command Training for Pilots in Command
Date: 3/3/20
Initiated by: AFS-200
AC No: 121-42
Change:

1 **PURPOSE OF THIS ADVISORY** ...
developing and implementing leaders...
(PIC) and second-in-command (SIC)...
Regulations (14 CFR) part 121 operat...
guidelines apply to air carriers, operat...
training and qualification under part 1...
the only way, that air carriers, operato...
leadership and command training req...

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Mentoring Training for Pilots in Command
Date: 3/3/20
Initiated by: AFS-200
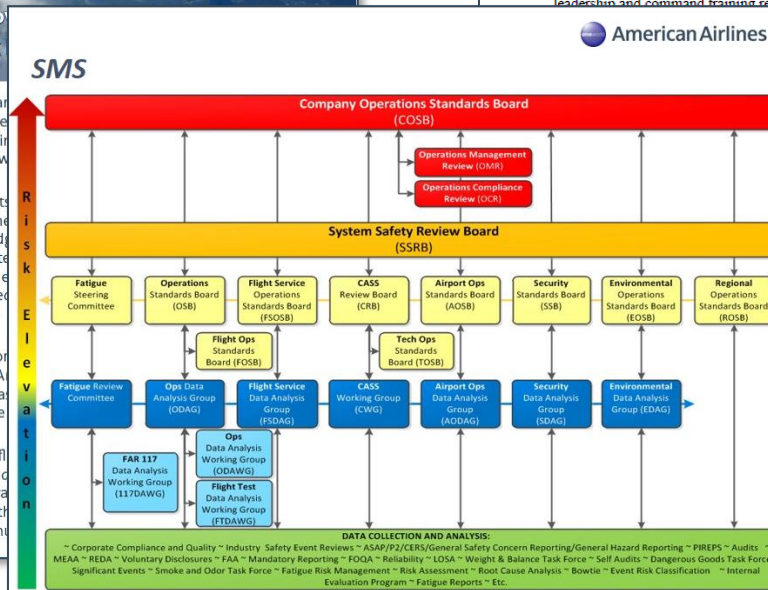AC No: 121-43
Change:

1 **PURPOSE OF THIS ADVISORY CIRCULAR (AC).** This AC presents guidelines for developing and implementing mentoring training for pilots in command (PIC). These guidelines apply to air carriers, operators, and program managers conducting pilot training and qualification under Title 14 of the Code of Federal Regulations (14 CFR) part 121. This AC presents one way, but not necessarily the only way, that air carriers, operators, and program managers may comply with the mentoring training requirements in part 121 subpart N. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies. This AC may also provide valuable information to other air carriers and operators operating under 14 CFR part 125 or 135 and other program managers operating under 14 CFR part 91 subpart K (part 91K).

2 **AUDIENCE.** The primary audience for this AC is air carrier, operator, and program manager personnel involved in the development and conduct of PIC mentoring training.

3 **WHERE YOU CAN FIND THIS AC.** You can find this AC on the Federal Aviation Administration's (FAA) website at http://www.faa.gov/regulations_policies/advisory_circulars.

4 **RELATED REGULATIONS.** The following 14 CFR sections may be found at http://www.ecfr.gov.
- Section 91.1063, Testing and Training: Applicability and Terms Used.
- Section 121.419, Pilots and Flight Engineers: Initial, Transition, Conversion, and Upgrade Ground Training.
- Section 121.420, Pilots: Upgrade Ground Training.
- Section 121.427, Recurrent Training.
- Section 121.429, Pilots in Command: Leadership and Command and Mentoring

Learning and Improvement Team (LIT)