

Pilot Distraction



Promoting Better Attention Management

PACFEFF 2017 – Melbourne



Background/Perspective

- Large “domestic” U.S. airline
- Homogeneous - single aircraft type
- Over 20 years of safety experience
 - Primarily from the pilot union side
- Author “The Human Factor” safety column



SWAPA Reporting Point

14 | REPORTING POINT
FEBRUARY 2017

SAFETY COMMITTEE

THE HUMAN FACTOR: FLIGHT DECK DISTRACTION PART 1: DISTRACTION AND RECOVERY

Steve Swauger | Safety Committee | safety@swapa.org

BUILDING A BETTER PILOT

I recently noted that I have been writing this SWAPA safety column for 20 years — a long time and a lot of articles. I reflected on the progress that safety at Southwest and SWAPA have made over those two decades. We nurtured the growth of the ASAP and FDAP programs from baby steps through full integration within the Safety Management Systems (SMS). A shoestring safety organization with

was I thinking and how did I miss that?" Perhaps to move the safety needle any further, we each need to transform ourselves into better Pilots — yes, each of us — from the inside out. With increasing operational complexity, we need to become wiser, better, and more perceptive. Toward that end, I'd like to open a discussion about distraction. No matter how vigilant or well-intentioned we strive to become, we still succumb

enzymes, because sometimes, the rustle in the bushes really was a tiger. Our ancestors had brains that were wired to react to distractions **every single time**. Like them, we are hard-wired to react to distractions.

DEFINING DISTRACTION

Humans are easily distracted. We rely on this when we design machinery. Warning lights are intended to be distracting. If we failed

flow are countless tasks, decisions, and steps, many performed without awareness or conscious thought. We select the steps along the path **because they naturally fit into the intended flow**. That is how experts like us work. Distractions are those rustlings in the bushes that force us stop the flow and respond. Our added complication is that the aircraft doesn't stop moving forward as we respond to the distraction. Sometimes those



Safety Evolution

- Safety Management Systems (SMS) – develop and refine safety tools
- Detect and remove safety vulnerabilities
 - If not, then mitigate and educate
- Stubborn problems like distraction-related errors
- Need a more comprehensive strategy for reducing errors from pilot distraction



Resources

- ALAR tool kit (1998)
- ASRS (1998)
- FAA InFO 10003 (2010)
- DOT driving safety (texting)

Distraction Characteristics

- It doesn't look like distraction while it is happening
- We retain the appearance of operational compliance during the distraction event
- Little advance warning
- Low predictability/High complexity
- Time/Workload acceleration
- Individual and crew factors
- Poor cues as to how the workflow was disrupted after the distraction ends



Definitions

- **Distraction** – anything that diverts our attention away from our intended flow of work
- **Workflow** – flow of operational tasks that we manage by building a shared mental model through:
 - Policies, planning, and procedures
 - Decision-making related to workflow
 - Personal/Crew workload management skills



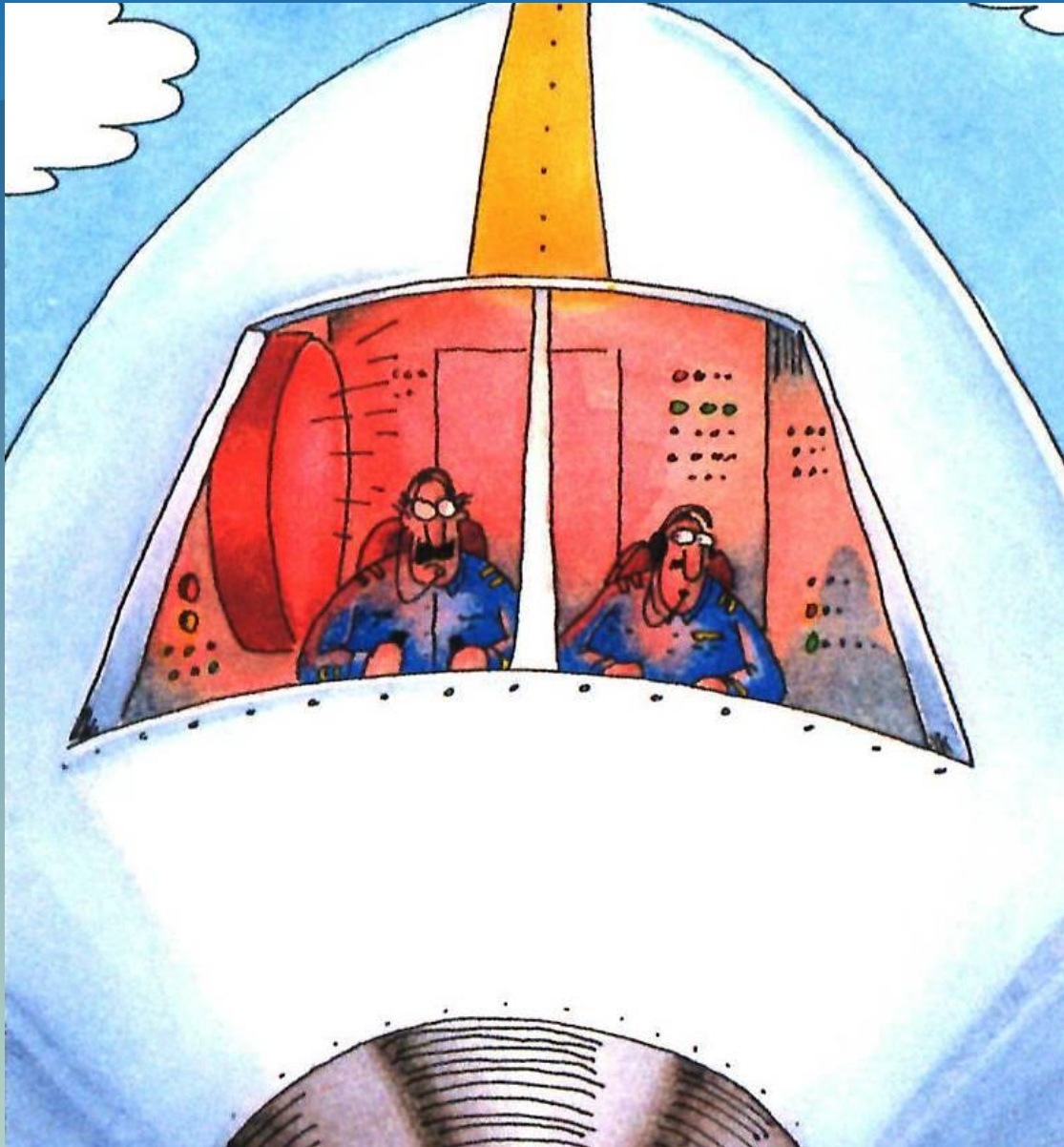
Distraction-related Events

- Disrupt the intended workflow - how?
 - Breakdown of Pilot Flying/Pilot Monitoring roles
 - Failure to restore the workflow to the correct operational point
 - Residual effects of the distraction

Distraction - the Human Factor

- We are hard-wired for distraction
- Engineered into the aircraft





I'm afraid we're going to have to head back, folks ... we've got a warning light on up here, and darn if it isn't the big one.

Larson – The Far Side

Distraction - the Human Factor

- We are hard-wired for distraction
- Engineered into the aircraft
- Bottom line – we respond to distractions *every single time*
- Any safety solutions we adopt must incorporate the assumption that pilots will be distracted



Complicating Trend

- The rise of screen culture
 - Reduced attention span
 - Brain chemistry changes – rise in sensory input baseline
 - Multitasking
 - Discretionary tasks at inappropriate times



Easily Distracted Pilots



Our Hero Dug!

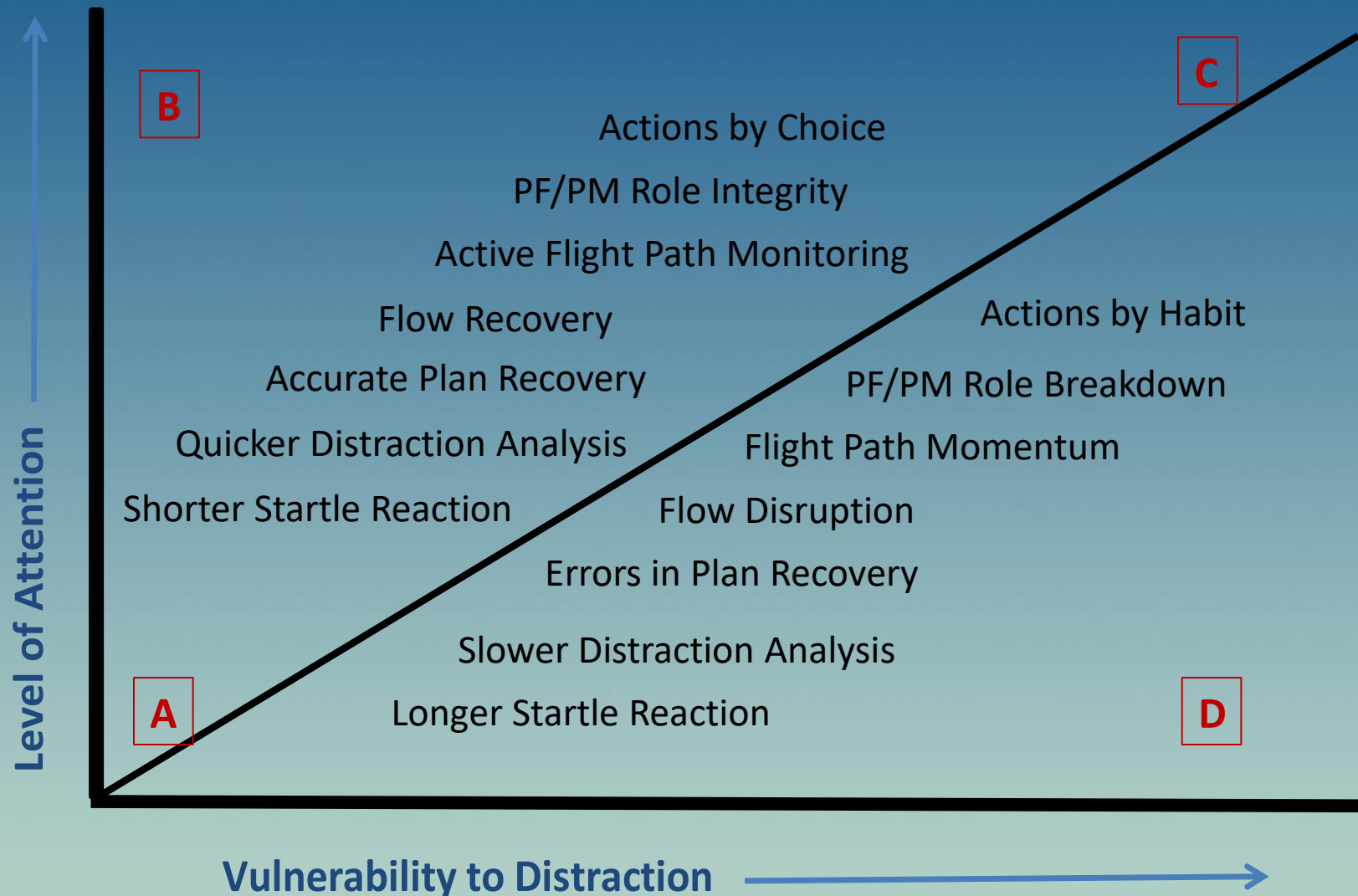


Solving the Distraction Problem

- Simple strategy
 - Prepare for distraction by modulating the level and focus of our attention
- Key to distraction management is attention management



The Distraction Environment



Solutions – Human Factors

- Organizational level – incorporate flow and attention management into procedure development
- Pilot level – increase awareness, train techniques, and promote discipline to improve attention management skills



Organizational Measures

- Resources
 - ASRS Directline – Cockpit Interruptions and Distractions
 - ALAR Tool Kit – Interruptions/Distractions
- Work flow awareness
 - TEM/HFACS/RRM Models
 - Trends noticed in safety monitoring programs
- Automation and technology

A Practical Guide for Improving Flight Path Monitoring

FINAL REPORT OF THE ACTIVE PILOT MONITORING WORKING GROUP

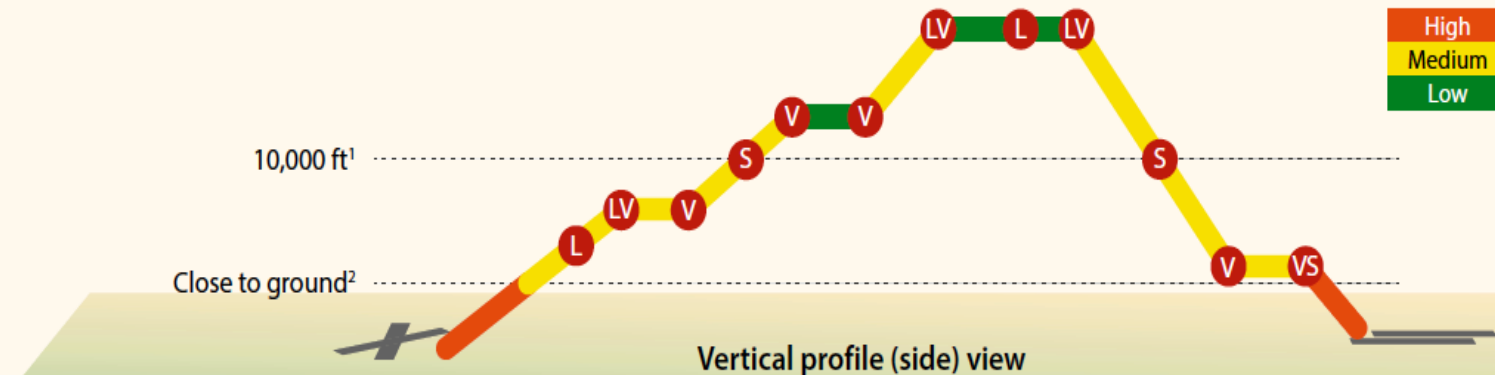


NOVEMBER, 2014

Organizational Measures

- Areas of Vulnerability management (AOV)

Areas of Vulnerability (AOV) to Flight Path Deviation, In-Flight Profile Examples



L Lateral trajectory change **V** Vertical trajectory change **S** Speed change

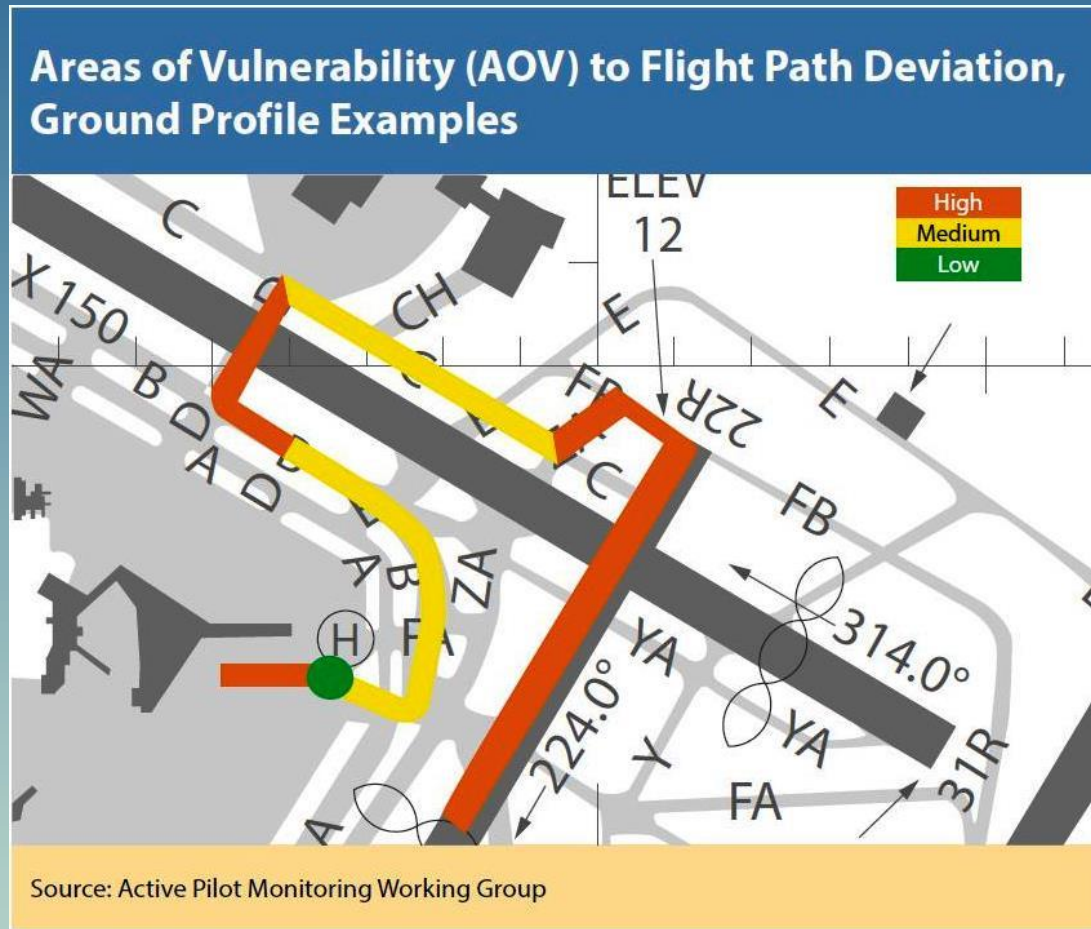
Notes:

1. 10,000 ft is used in the United States as the boundary altitude for sterile cockpit rules and for the 250 KIAS speed restriction (both required below 10,000 ft). For the purpose of the AOV model, an altitude of other than 10,000 ft may be chosen, but it is suggested that this boundary match the use of sterile cockpit rules for your operator (or nation/state) for ease of operational applicability by flight crews
2. "Close to ground" may be defined by the operator, but it is suggested that this be an altitude no less than (a) 1,500 ft AGL or (b) the altitude of the surrounding terrain (if terrain threats exist within 5 nm [9 km] of the flight path), whichever is higher.

Source: Active Pilot Monitoring Working Group

Organizational Measures

- Areas of Vulnerability management (AOV)



Pilot Education Ideas

- Promote attention management
 - Deeper discussions on the effects of distraction on workflow
 - Mindfulness
 - Pattern interruption
 - Mental rest during green cruise phases (Discretionary time management)
 - Promote professionalism



Pilot Education – Distraction Management

- Promote awareness through education
 - Educate pilots on how our minds work
 - Myth of Multitasking
 - By-products of frequent screen use
 - Hazards of multi-sensory discretionary choices



Pilot Education – Distraction Management

- Promote existing good practices
 - Distraction reaction of each person
 - Assignment of roles (workload management)
 - Sterile cockpit
 - Effective communications and coordination
 - Avoid discretionary distractions during dynamic flight
 - Coordinate heads-down work
 - Effective use of automation



Effects of Distraction on Flow

- Distraction awareness and recovery
 - What was happening before the distraction occurred?
 - Where were we in the flow?
 - How do we restore the intended path?

Mindfulness

- Slow the pace of sensory input
- Improve our ability to focus our attention
- Awareness of the workflow
- Choice over habit
- Accepting what is happening, not what you wish to be happening



Pattern Interruption

- Promote conscious choice
 - Respect procedure, but alter habitual flow
 - Advantages of altering mental processes



Mental Rest – Discretionary Time

- Guide appropriate activities during green phases
 - Appropriate activities to promote mental rest
 - Start/Stop times for discretionary tasks
 - Rehearse the future task flow using the existing conditions
 - Both desired path and contingency paths

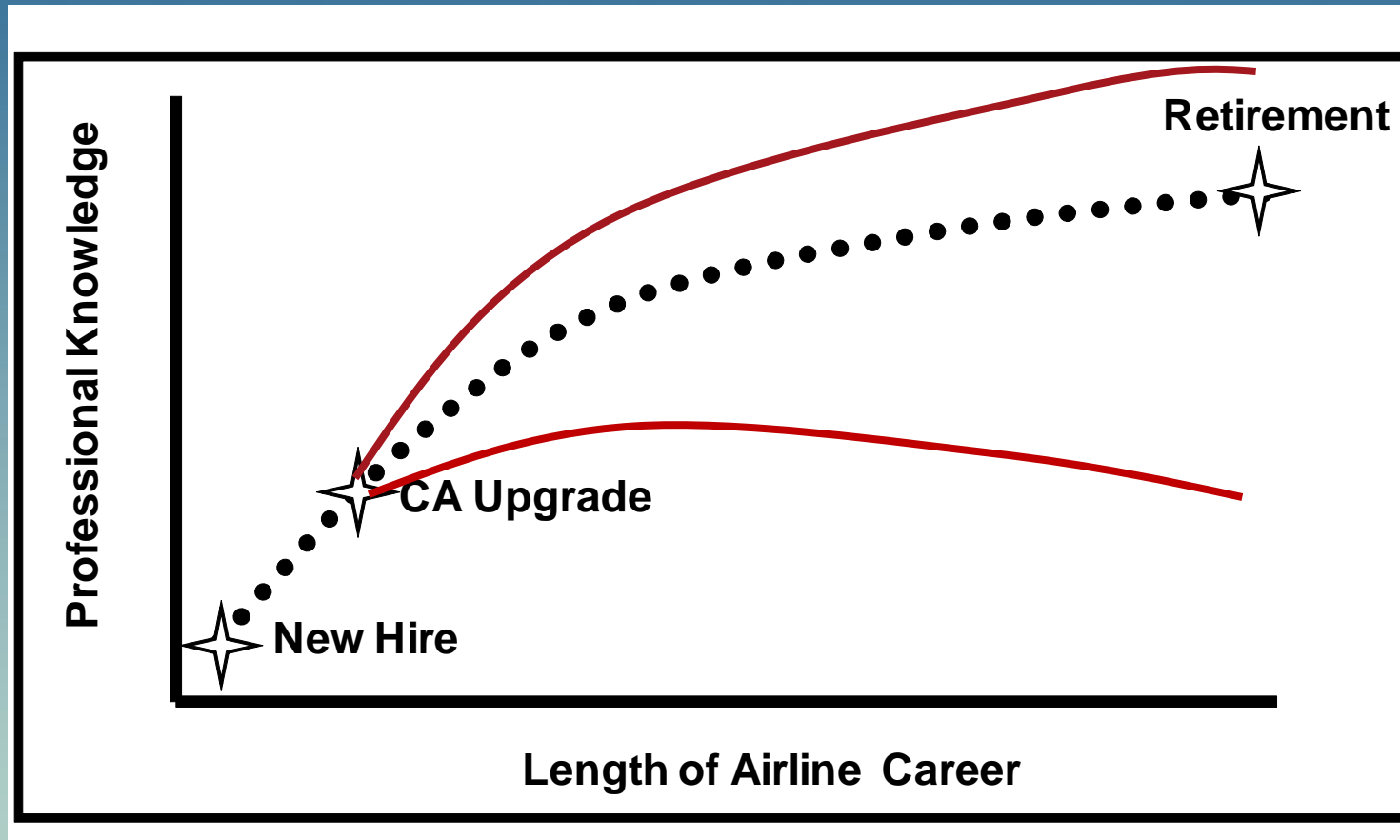


Promote Professionalism

- Attention discipline in dynamic flight
- Personal pursuit of professional excellence



Career Progress and Professional Job Skills



Performance Evolution Ladder



Promote Professionalism

- Attention discipline in dynamic flight
- Personal pursuit of professional excellence
- Cultural promotion of professional ideals
 - Debriefing for sustained improvement
 - Life-long learning
 - Promote a culture of professionalism



Wrap-up

- More emphasis on the effects of distraction on workflow
- Educate pilots on the effects of distraction
- Promote attention management by phase of flight
- Promote professional development



Finish with a squirrel joke



Questions?



Steveswauger@gmail.com
sswauger@swapa.org

