

CENTERS OF EXCELLENCE

TECHNICAL TRAINING &
HUMAN PERFORMANCE



Human Factors Overview

Bill Kaliardos
*Human Factors
Specialist*

Jason Demagalski,
*Manager, Human Factors and
Fatigue Risk Management Team*

Public Meeting | October 21-22
DoubleTree by Hilton, Crystal City (Arlington), Virginia

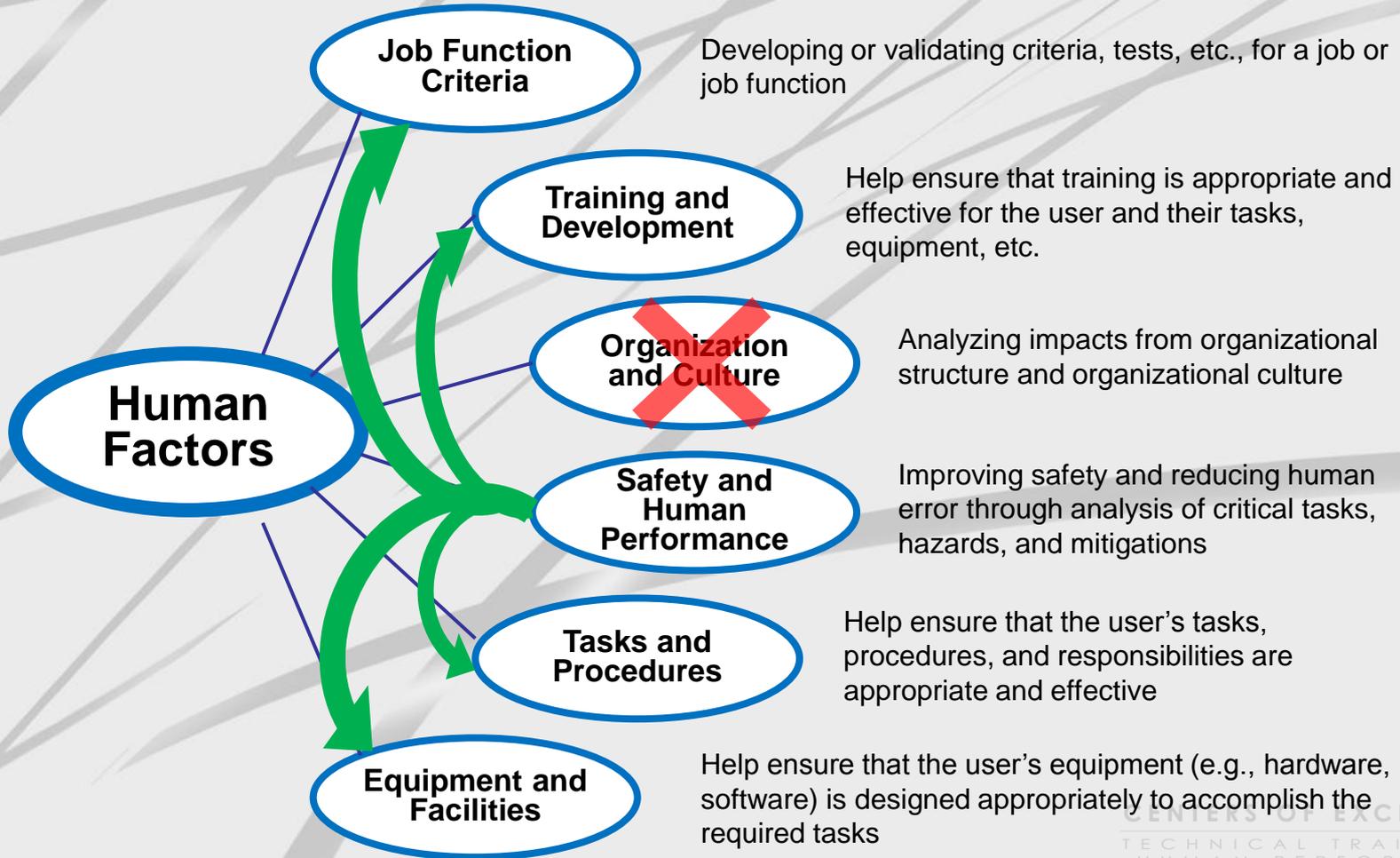
www.faa.gov/go/coe

What Can Human Factors Cover?

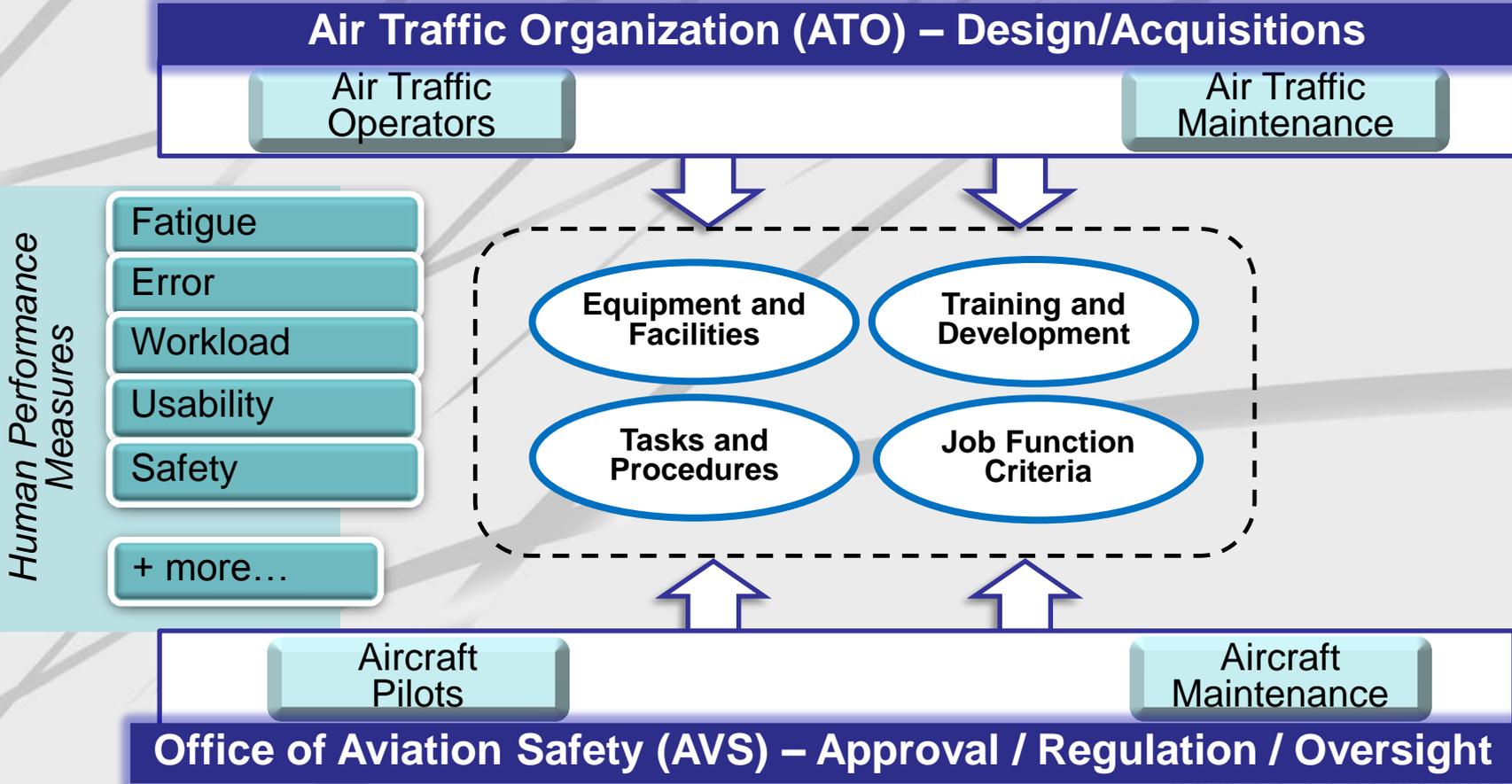
(Not Specific to FAA)



FAA Human Factors *Research Focus*



One Agency – Two Worlds – Similar Human Factors



Human Factors in ATO Acquisition Programs

Development of HF Guidance and Standards

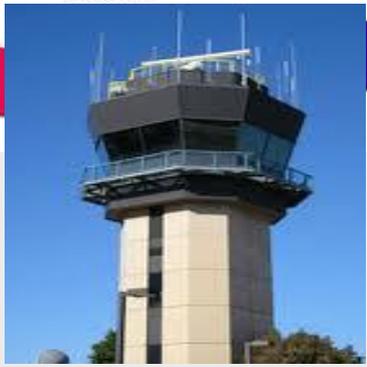
Application of HF Guidance and Standards

Shortfall Analysis, Research, and Concept Development

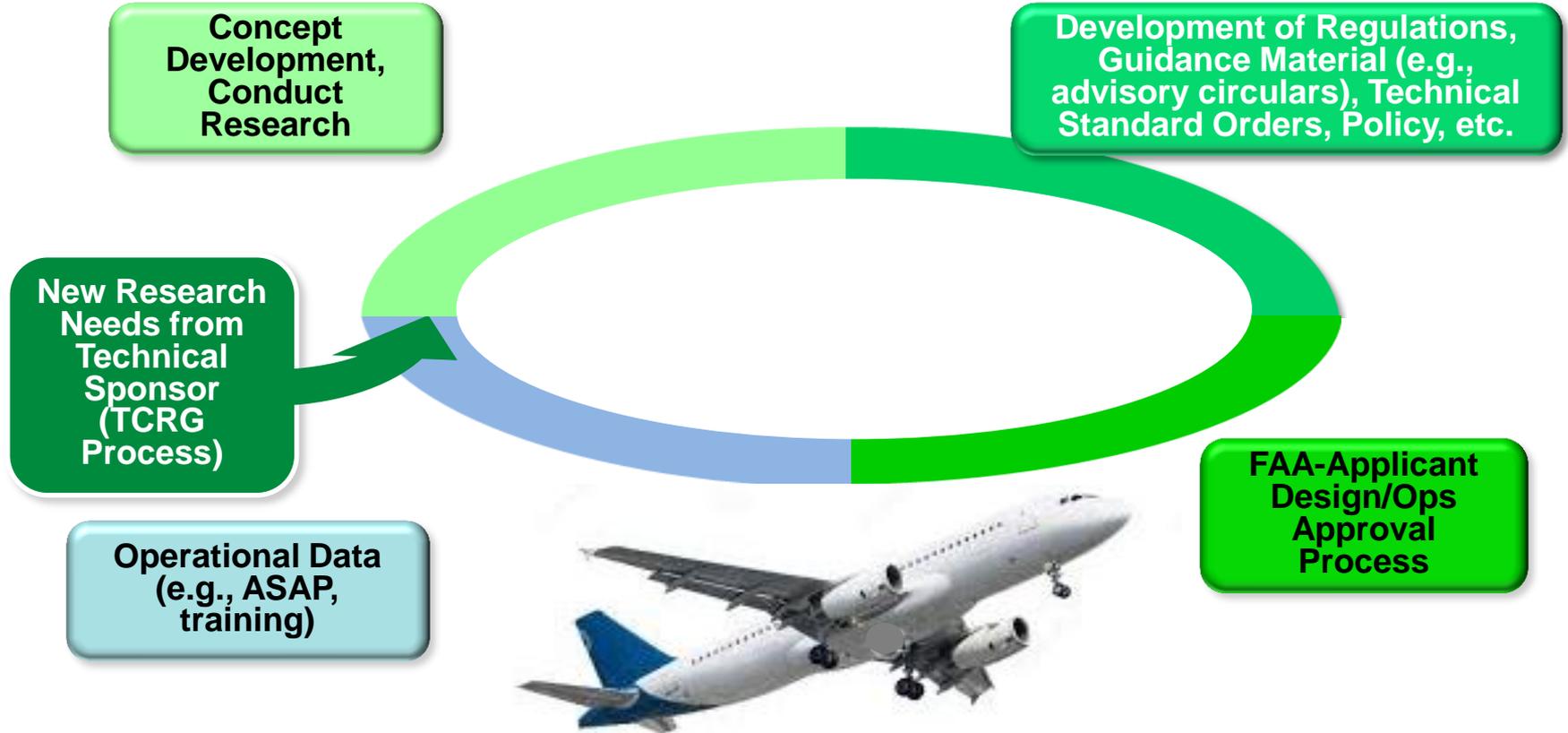


Operational Data (e.g., AT SAP, Training)

Operational Test for Human System Performance



Human Factors in the Office of Aviation Safety (AVS)



Examples of Past HF Research – Flight Deck



Cockpit Display of Traffic Information

Flight Deck Interval Management

Traffic Alerting and Collision Avoidance (TCAS)

Enhanced/Synthetic Vision

Systems (EVS/SVS)

Unmanned Aircraft Systems (UAS) Control Stations

Electronic Flight Bags

Fatigue Risk Management in Maintenance

Guidelines for advanced instrument procedures

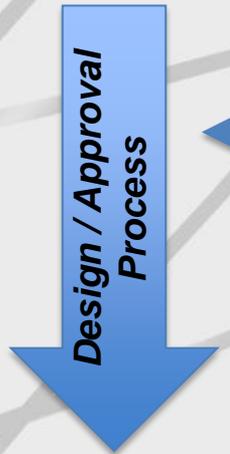
Loss of Control Training Methods

Competencies for pilots and dispatchers



Example Use of Human Factors Research Office of Aviation Safety (AVS)

Cockpit Display of
Traffic Information



Advisory Circulars
(ACs)



AC 20-175

2-9. Controls Lighting.

b. Ensure that lighting of controls is consistent with flightcrew alerting such as warning, caution and advisory lights

Minimum Operational
Performance Standards/
Technical Standard Order
(MOPS/ TSOs)



**DO-317-B: MOPS for Aircraft Surveillance
Applications (ASA) System**

2.3.4.2.3.3.1 Traffic Advisories

- a. If traffic has a Traffic Advisory (TA), the traffic symbol **shall** (3230) be modified by changing the color to amber/yellow, and changing the shape to a circle.
- b. Traffic with valid directionality **shall** (3231) include directional inlay.

Research does NOT design, but rather provides information to support FAA guidance and other products for applicant design and FAA approval



Example



Figure 2-20 Directional TCAS TA Symbols (Example)

TSO-C195b



Cabin (vs. Flight Deck) Example

- Accidents: Problems with retrieving/donning vests
- Need: Update FAA Technical Standard Order for life vests
- Civil Aeromedical Institute (CAMI) research

Issues:

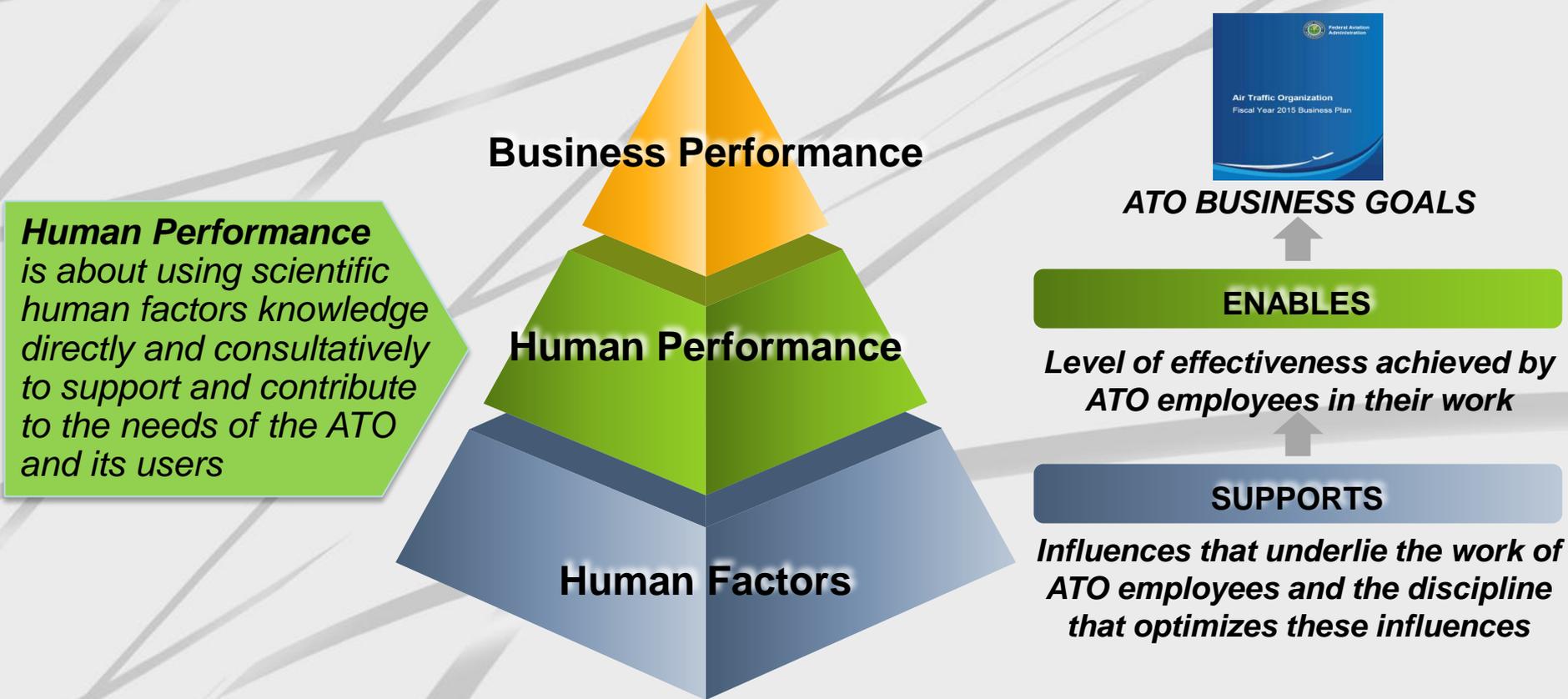
- Points of attachment
- Instructions on vests
- Life preserver packaging-time to open
- Time to put on



Some Key Points So Far...

- Important ATO-AVS differences and similarities
- Research is needs-driven
- Research needs come from many different places
- Some characteristics of good FAA HF research
 - Practical
 - Readily applied without extensive HF expertise
 - Understandable value to FAA practitioners (e.g., engineers, operators)
 - Help FAA make better-informed decisions

Defining Human Performance



Simply Put...

Do we have the **right people**,

In the **right roles**...

With the **right information**...

And the **right skills**...

And the **right tools**...

And the **right role models**...

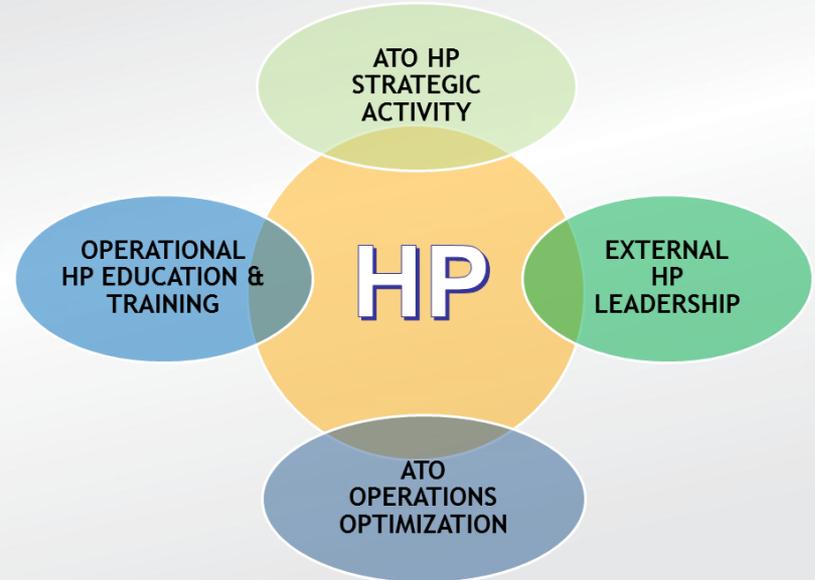
With the **right motivation**...

to do the job?



Human Performance Process Areas

1. ATO Human Performance Strategic Activities
2. External Human Performance Leadership
3. ATO Operations Optimization
4. Operational Human Performance Education & Training



AJI Needs...

Help to solve operational human performance issues!

- Caveats are OK, but humans are humans
- Operations needs help knowing how to apply the research (application guidance)
- Need research that gets off the fence and draws conclusions and not the usual one...

Research to reality!!

