



Welcome!



Personality Traits that Predict Behavior in Pilots



Today's Agenda



Kerstin Alicki
Director
Europe Campus

- Welcome / Introduction - Kerstin Alicki
- Presentation - Dr. Karina Mesarsova
- Questions & Answers



Introducing Embry-Riddle Aeronautical University





ERAU Worldwide Accolades

#1

Best Online Bachelor's
Degree Program

*by U.S. News & World
Report 2019*

#1

Best Online Colleges &
Universities

by College Choice 2018

#1

Most Technologically Savvy
Online School

by Online School Center 2020



Dr. Karina Mesarosova

- MD / Aviation Psychologist
- PhD, MSc, BSc Applied Psychology
- Adjunct Professor at the Embry Riddle University - College of Aeronautics





Personality Traits That Predict Behaviour in Pilots.



Karina Mesarosova, Phd.

Aviation Psychologist / Adjunct Professor

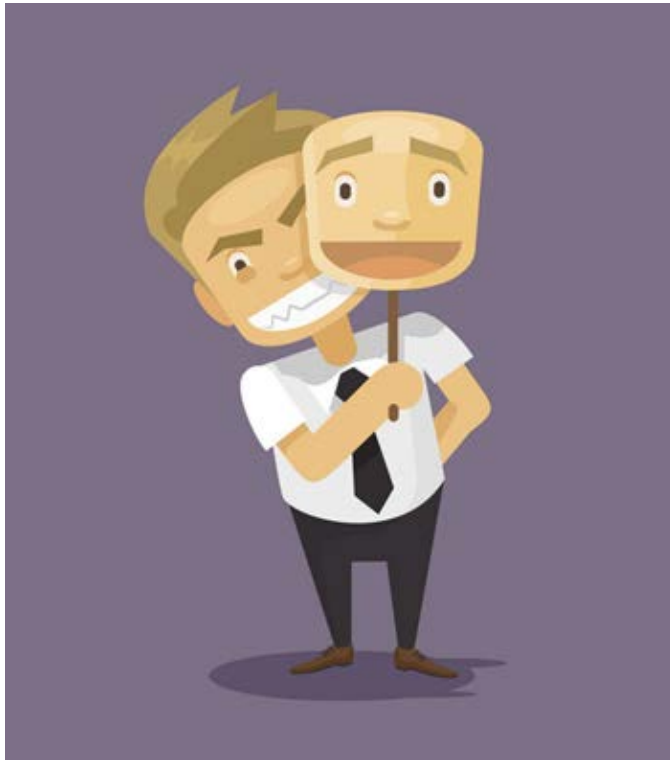


Agenda

1. Introduction to Personality.
2. Norms – Comparing apples & pears.
3. Research – Are there pilot differences ?
4. Profiles & Regulations – Gaining safety and efficiency benefits.
5. Discussion.



Personality



‘Refers to individual differences in characteristic patterns of thinking, feeling and behaving’.



- Personality profiling has been in common use for over sixty years.
- It is not a measure of intelligence or ability – but of behaviour. **Likelihood of behaviour.**





Personality

Why is it Important?

- Personality (social competence)
Recognised by IATA as an essential component in pilot selection.

(IATA, 2012)





Personality

Why is it Important?

- Analyses of accidents, incidents (Thomas, 2012) and safety investigations within airlines (Burger, Neb & Hoermann, 2003) has revealed that operational safety was compromised by a lack of:

“Assertiveness, authoritative behaviour, poor decision making, or a lack of situational awareness among flight crew members”.







WHAT MAKES A GOOD PILOT?





We know what is a good pilot like!

Or do we?



Five Factor Model (FFM)

‘Big Five’ personality traits—

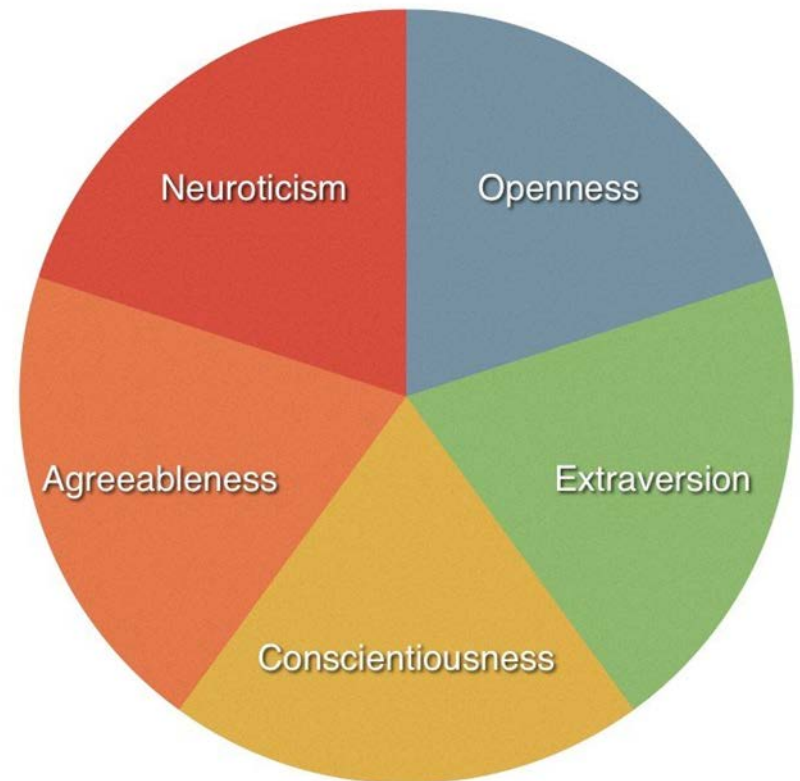
Neuroticism (N)

Extraversion (E)

Openness (O)

Agreeableness (A)

Conscientiousness (C)





- How many of you can't stand to spend time alone?
- Does being with other people exhaust you?





Extraversion

Extraversion

Introversion



Sociable

Talkative

Energized by
being alone

Energized by
social interaction

Drained by
social
interaction



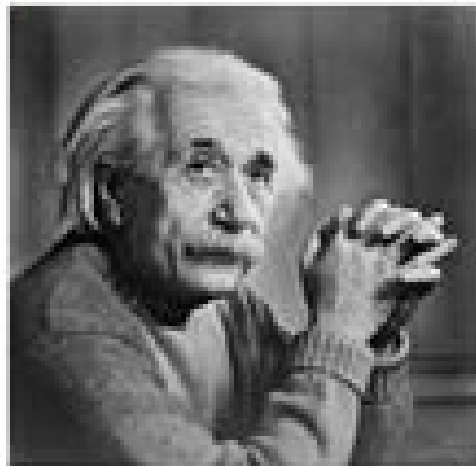
Potentially Assertive

Tentative

Reserved

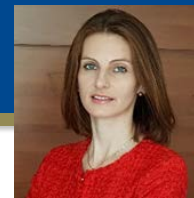


Openness to Experience



Creative
Potential Thrill-seeker





Emotional Stability





Agreeableness

High ←————→ Low

Gentle

Irritable

Good-natured

Short-tempered

Understanding

Forgiving

Uncooperative

Antagonistic





Conscientiousness

High ←————→ Low

Few Goals

Many Goals

Systematic

Organized

Self-disciplined

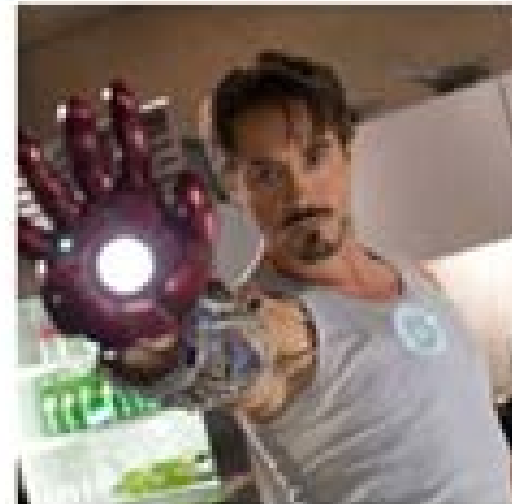
Careless

Careful

Responsible

Irresponsible

Disorganized





Based on this knowledge:

What will a professional commercial pilot profile look like?



Neuroticism (N)



Extraversion (E)



Openness (O)



Agreeableness (A)



Conscientiousness (C)



(Fitzgibbons, Davis & Schutte, 2004)



What will be the pilot profile in your company?



Would there be differences? WHY?



- Hold that thought, I shall ask you again.





NEO Personality Inventory - Revised (NEO PI-R)

- Simple logic
- Scientifically based
- More factual than feeling
- Used in military aviation
- Reference to past research

<i>Neuroticism</i>	<i>Extraversion</i>	<i>Openness</i>	<i>Agreeableness</i>	<i>Conscientiousness</i>
N1 - Anxiety	E1 - Warmth	O1 - Fantasy	A1 - Trust	C1 - Competence
N2 - Angry hostility	E2 - Gregariousness	O2 - Aesthetics	A2 - Straightforwardness	C2 - Order
N3 - Depression	E3 - Assertiveness	O3 - Feelings	A3 - Altruism	C3 - Dutifulness
N4 - Self-consciousness	E4 - Activity	O4 - Actions	A4 - Compliance	C4 - Achievement striving
N5 - Impulsivity	E5 - Excitement-seeking	O5 - Ideas	A5 - Modesty	C5 - Self-discipline
N6 - Vulnerability	E6 - Positive emotions	O6 - Values	A6 - Tender-mindedness	C6 - Deliberation





The Relevance

- Pilots high on **C1 (competence)** and **C3 (dutifulness)** are more likely to experience pilot error mishap and incidents (Barto et al, 2011).
- Pilots differ in **C6 (deliberation)** or thinking carefully before acting, that have been found to be predictive of performance (Chappelle, 2014).
- Pilots are lower on Neuroticism, **N3 (depression)** facet in comparison to adult norm sets (Fitzgibbon et al, 2004) .



Personality

Knowledge, Skills and Abilities (KSAs) tip of the Iceberg

- KSAs are relatively visible, easy to identify and manage.

Other characteristics:

- Behavioural
- More difficult to identify **and manage.**



Why all this?

The regulatory proposal addressed the safety issues identified by the EASA-led Germanwings Task Force.

- The Germanwings Task Force examined the findings of the BEA accident report and assessed the adequacy of the European air safety and security rules.
- As a result of this work, 6 recommendations were addressed to the European Commission on 16 July 2015.
- Action via:
‘Special rulemaking procedure: direct publication’.



- Commission Regulation (EU) 2018/1042
- Date: 23 July 2018
-technical requirements and administrative procedures related to introducing support programmes, psychological assessment of flight crew, as well as systematic and random testing of psychoactive substances to ensure medical fitness of flight and cabin crew members.....



- **CAT.GEN.MPA.175**

‘CAT.GEN.MPA.175 Endangering safety

(a) The operator shall take all reasonable measures to ensure that no person recklessly, intentionally or negligently acts or omits to act so as to:

- (1) endanger an aircraft or person therein; or
- (2) cause or permit an aircraft to endanger any person or property.

(b) The operator shall ensure that flight crew has undergone a psychological assessment before commencing line flying in order to:

- (1) identify psychological attributes and suitability of the flight crew in respect of the work environment; and
- (2) reduce the likelihood of negative interference with the safe operation of the aircraft.

(c) Considering the size, nature and complexity of the activity of an operator, an operator may replace the psychological assessment referred to in point (b) with an internal assessment of the psychological attributes and suitability of flight crew.’:



Summary of EASA Key Objectives

- Ensure flight crew undergo a psychological assessment before commencing line flying.
- Ensure good quality of psychological assessment.
- Based on best practices.
- Ensure a solid peer support structure.



Personality in Selection - Challenges

Many airlines selection are seeing a high fail-rate in selection;

- Increased costs of recruitment
- Time
- Potential loss of good fit candidates
- Potential difficulties with the rapid growth in global aviation recruitment.



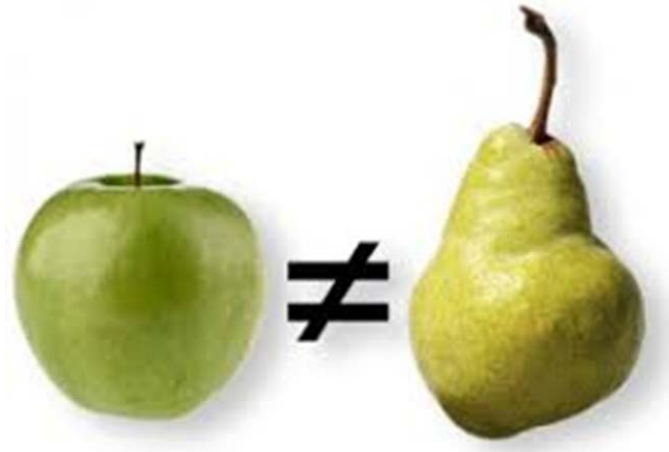
The Solution

- The Performance Based Professional Pilot Personality Profile.
- Linked to real world performance (FDM, Line)
- Tailored to Organisational culture
- Validated by use in recent selections



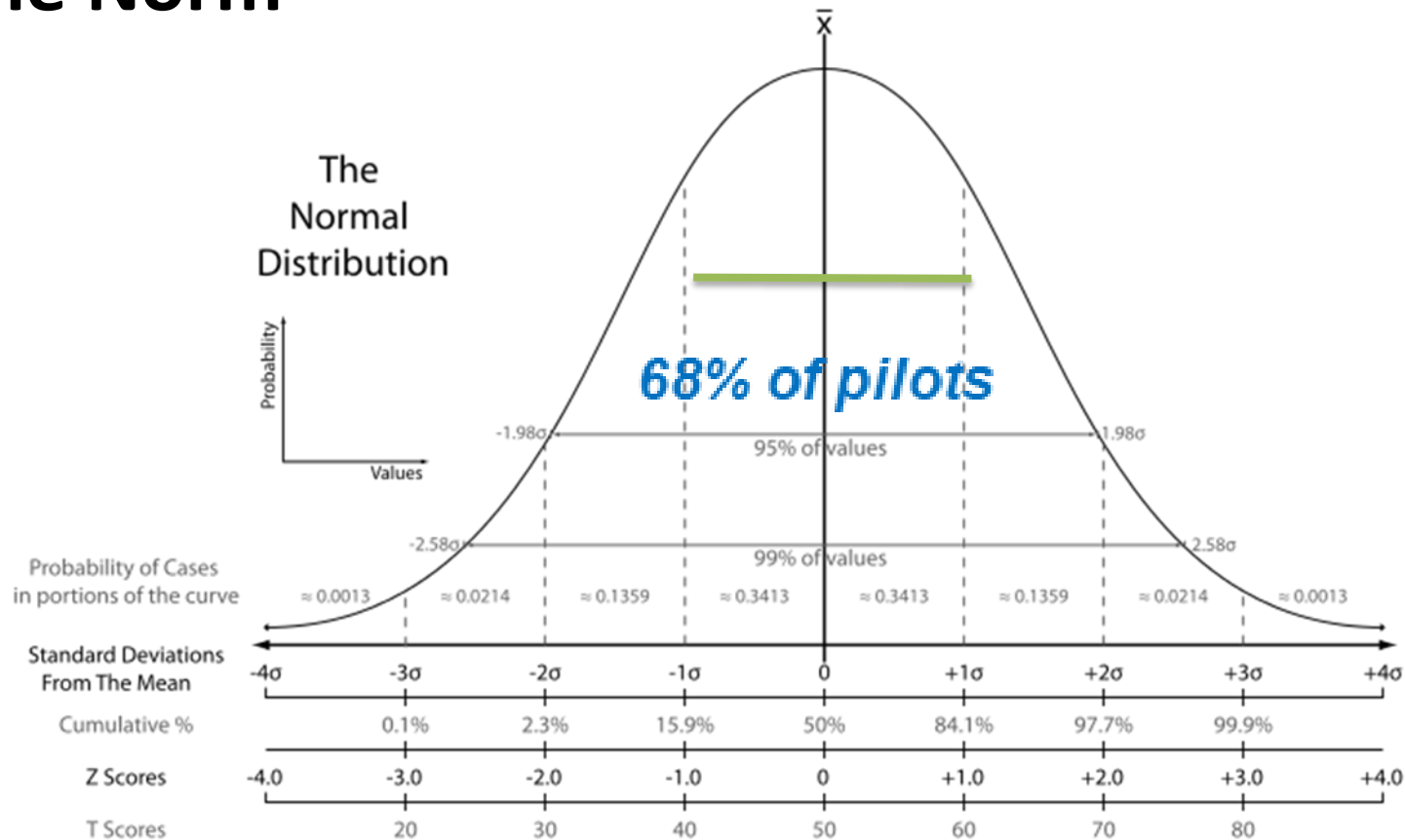
The Importance of a Norm

- **Norms** refers to information regarding the group performance of a particular reference on a particular measure for which a person can be compared to.





The Norm



Extroversion - Ambiversion - Introversion





What will be the pilot profile in your company?



**Would there be any differences?
WHY?**

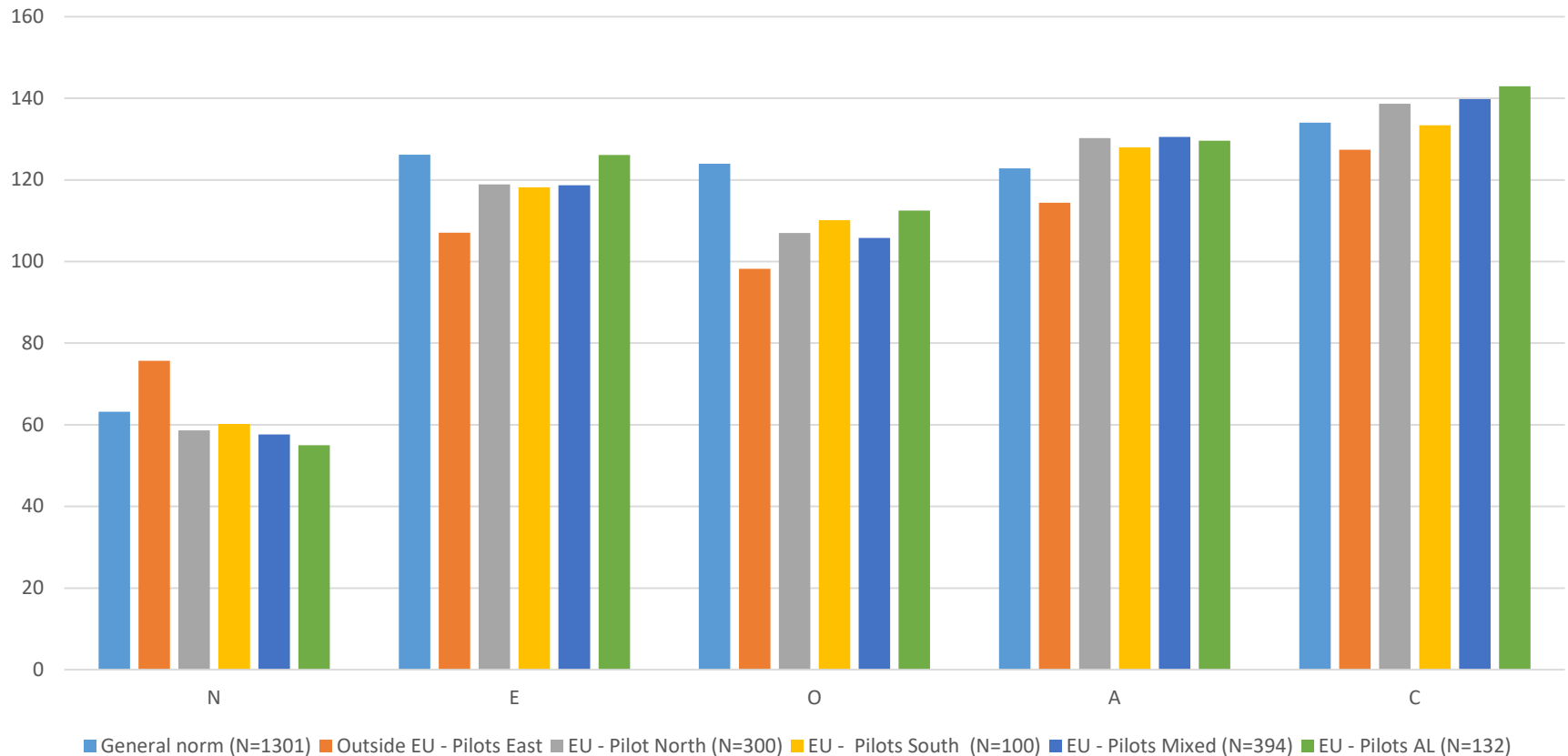


Comparison of General Working Population (GWP) and other Airlines/Regions

- ▶ General working population (GWP) UK (N=1301)
- ▶ Outside EU - Pilots East (N=31)
- ▶ EU - Pilot North (N=300)
- ▶ EU - Pilots South (N=100)
- ▶ EU - Pilots Mixed (N=394)
- ▶ EU - Pilots West (N=132)



NEO across the regions







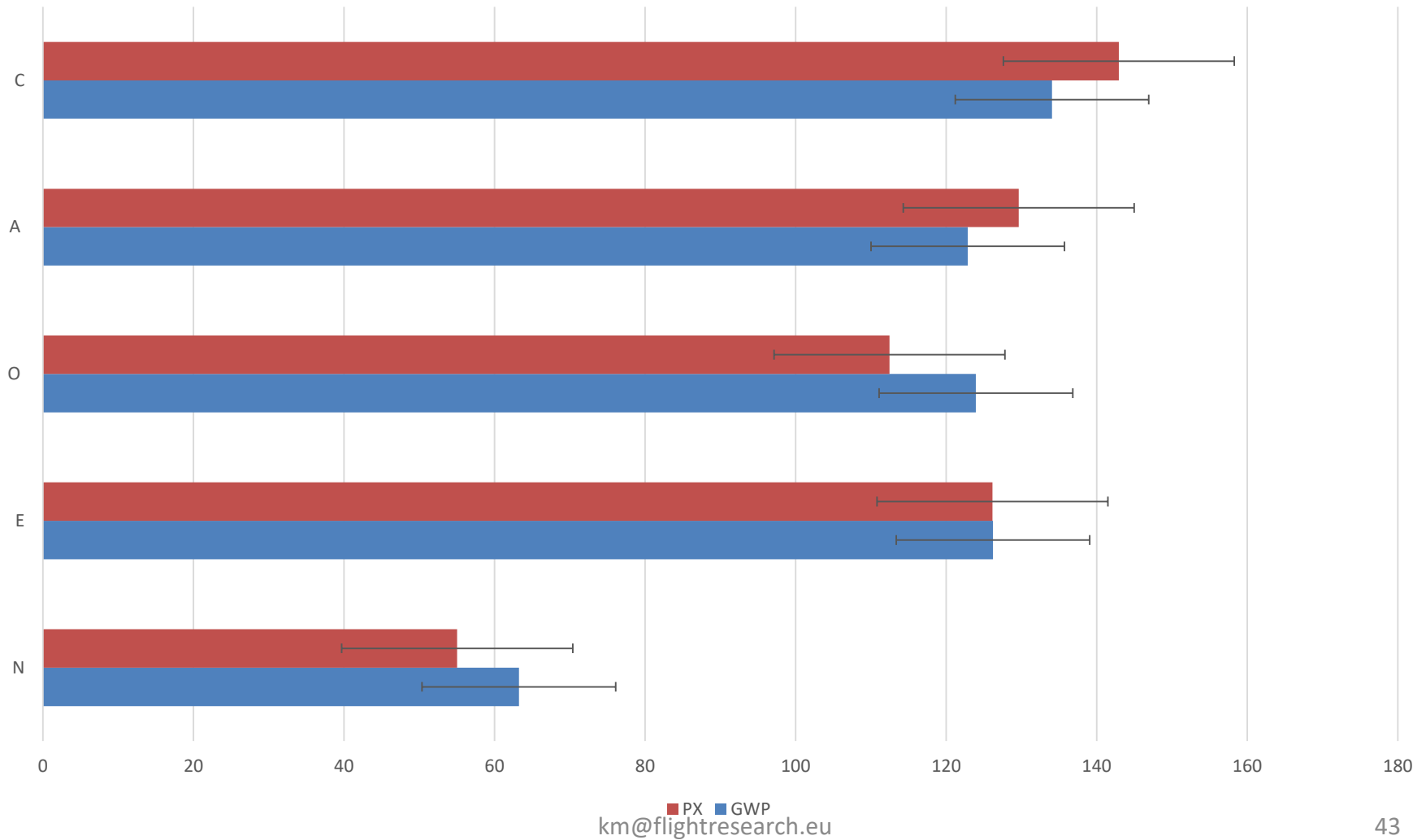
Comparison of General Working Population (GWP) and EU based Airline

Neuroticism (N)
Extraversion (E)
Openness (O)
Agreeableness (A)
Conscientiousness (C)



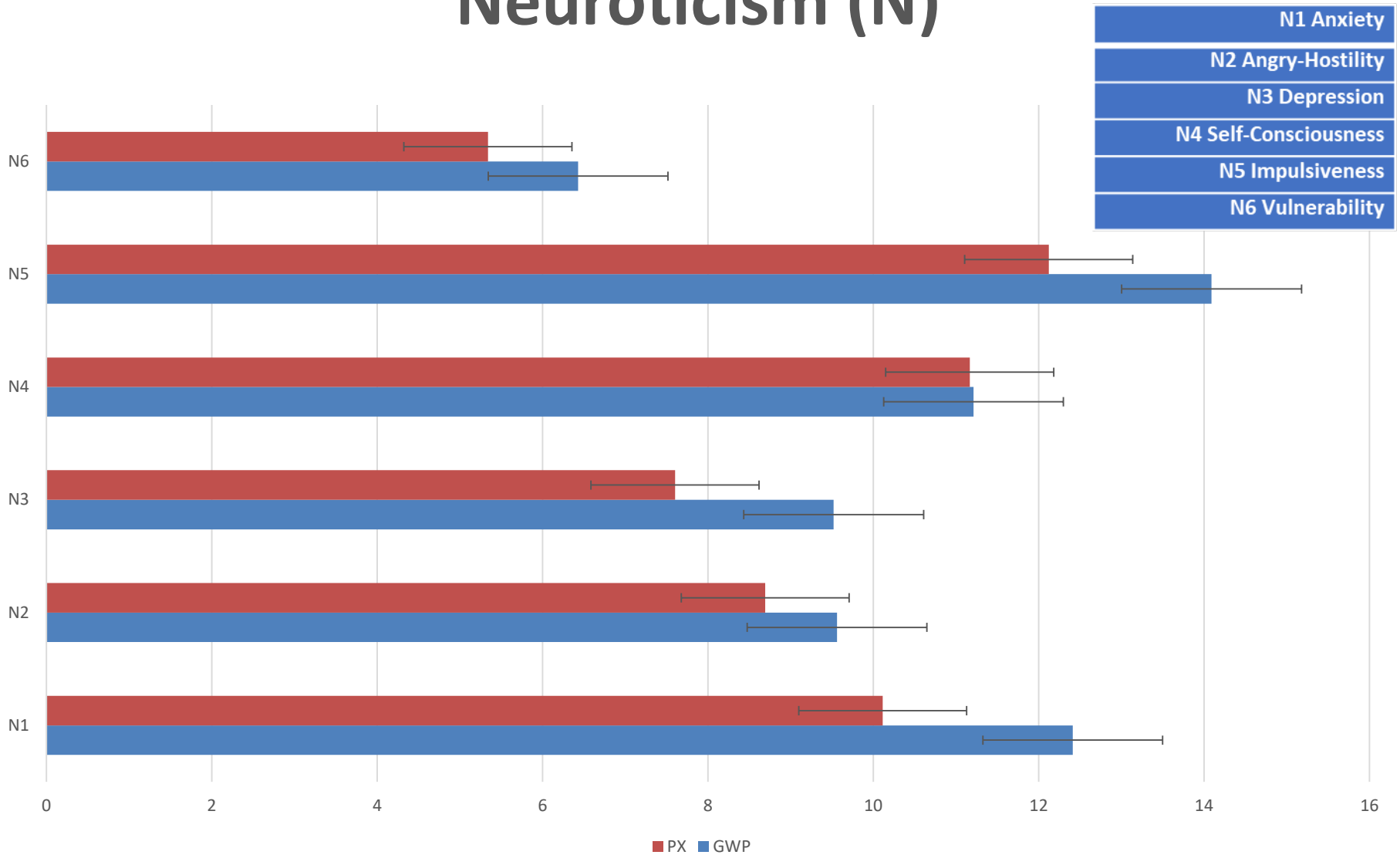


NEO DIMENSIONS





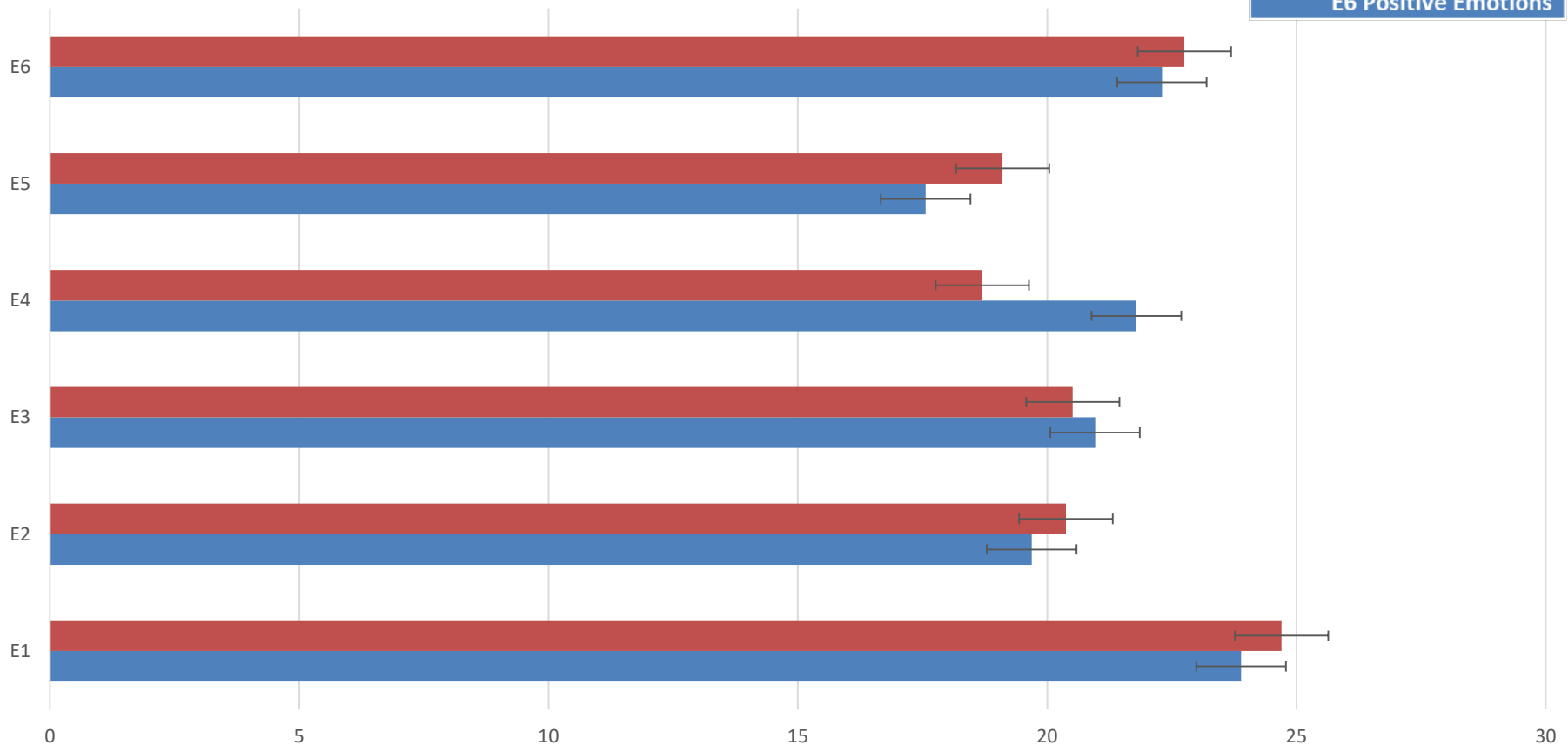
Neuroticism (N)





Extraversion (E)

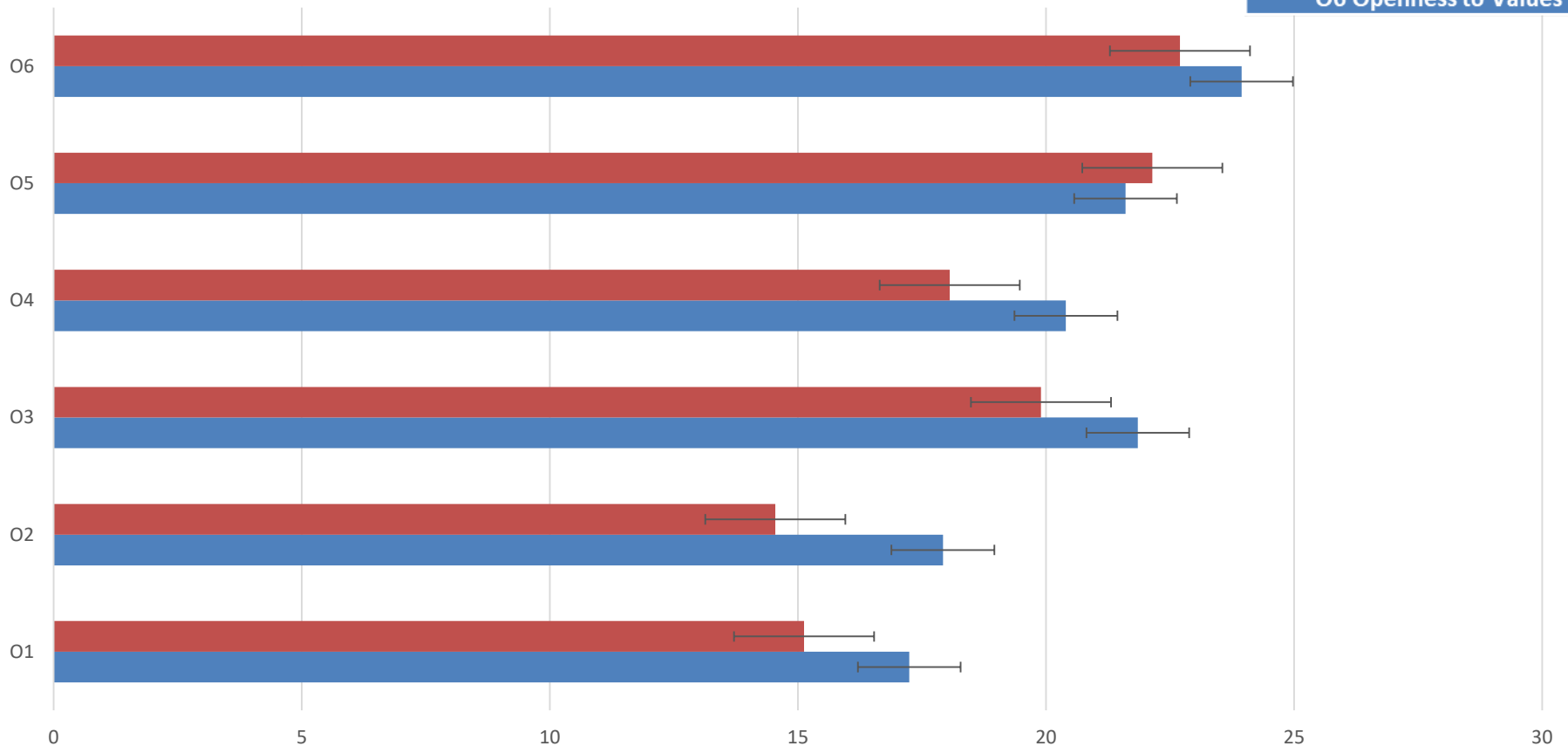
E1 Warmth
E2 Gregariousness
E3 Assertiveness
E4 Activity
E5 Excitement-Seeking
E6 Positive Emotions





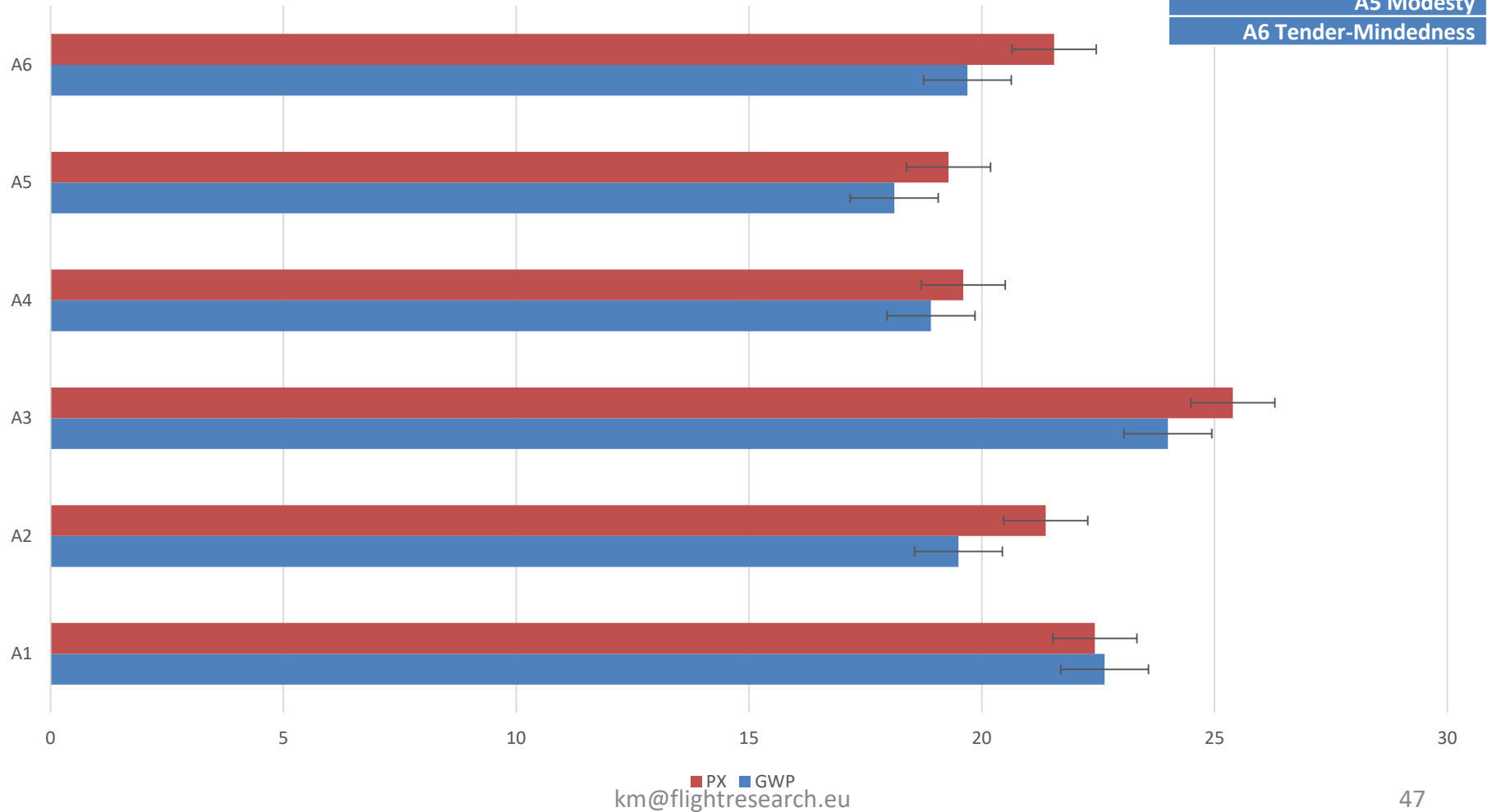
Openness (O)

- O1 Openness to Fantasy
- O2 Openness to Aesthetics
- O3 Openness to Feelings
- O4 Openness to Actions
- O5 Openness to Ideas
- O6 Openness to Values





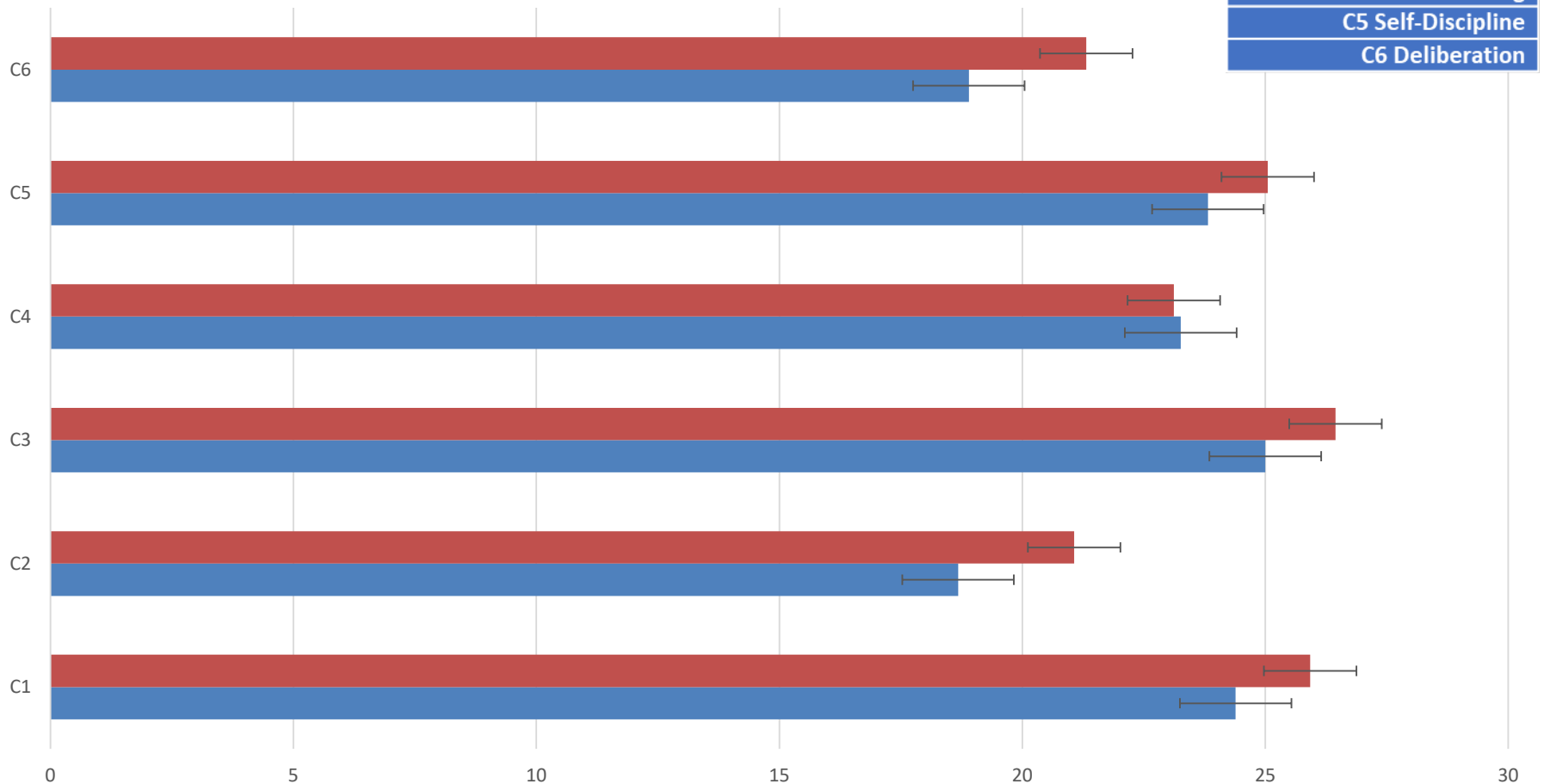
Agreeableness (A)





Conscientiousness (C)

C1 Competence
C2 Order
C3 Dutifulness
C4 Achievement Striving
C5 Self-Discipline
C6 Deliberation



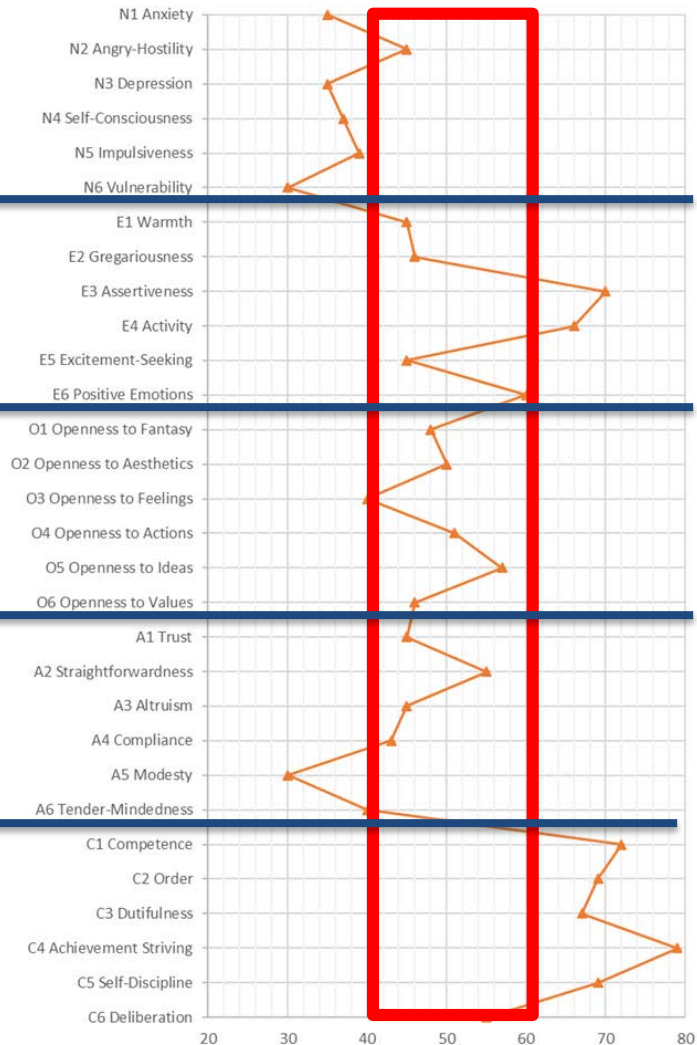


Where to use personality profiles?

- Selection (direct entry, ab-initio)
- Command upgrade selection
- TRI/TRE Selection
- CRM training
- Selection of CRM Instructors
- Selection of Peer support (peer support, the EASA recommendation)



Candidate 2 - F/O



- A Profile Sample

- Highlighting the

- possible behavioural disorders, personality traits associated with a high risk of future behavioural problems.



The psychological assessment

- Adapted to operational environment.
- EASA recognise that 'one size does not fit all'!
- A clear purpose of the assessment.



Personality Profiles - Potential Advantages

- We can re-visit your current selection process to achieve EASA regulation so that you gain extra benefits of:
 - A more predictable success rate
 - Reduction in “sunken cost”
 - High training success
 - Good line performance
 - Meet regulatory needs
- Prerequisite:
 - Ensuring that you select the correct psychometric tools for your needs
 - Transparency in data
 - Learning from past selections (Identify critical factors)
 - Compare selection cost training cost



How Mental Health relates to Personality

- Importance of mental and emotional health
 - Handle wide variety of feelings on situations
 - Make wise choices that demonstrate both strong values and responsible behaviour.





Personality and Personality Disorder

- Cluster A -PARANOID /SCHIZOID/ SCHIZOTYPAL
- Cluster B -ANTISOCIAL /BORDERLINE/ HISTRIONIC /NARCISSISTIC
- Cluster C -AVOIDANT DEPENDENT / OBSESSIVE COMPULSIVE



EMOTIONAL LABILITY



ANXIOUSNESS



SEPARATION
ANXIETY



DEPRESSIVITY



IMPULSIVITY



RISK-TAKING



HOSTILITY

© LEREMY/SHUTTERSTOCK.COM



Now we had the Introduction, if you are ready for more, join us in Berlin in **February 2020**.



Two Days Professional Education Course at Embry-Riddle Berlin Campus

“Personality Traits that predict behavior in Pilots – How to get the best out of your profiling tools”

EAAP accredited course

Feb. 11 and 12, 2020
from 9 a.m. to 4 p.m.

<http://berlin.erau.edu/professional-education/index.html>

COST: €950 +19% VAT

EAAP members have 10% discount

Email: ww europe@erau.edu

Email: info@flightresearch.eu





Thank you!

Questions & Comments

