

# Airline safety culture: A pan-European survey study of pilots

FSS 1st Public event

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# Background Literature

- **Safety culture** is about safety-related:
  - Values (E.g. Do pilots value SOPs)
  - Beliefs (E.g. Do pilots think managers are committed to safety)
  - Behaviours (E.g. Are pilots reporting incidents)

[Guldenmund 2000; Cooper 2000]
- In aviation, safety culture **key indicator** for assessing safety practices & susceptibility to safety problems.. due to low frequency of incidents
- Yet, **no systematic method** or practice of measuring safety culture amongst pilots in European aviation
- **Few academic studies with pilots** - Review shows 3/23 on commercial pilots, most on military flight crews [O'Connor et al 2011]
- **Important** times - transformation of aviation pressures and airline business models over the recent few years

# Study Aims

1. Identify **pilot perceptions** on organisational safety culture within the European aviation industry
2. Identify areas where the industry is **strong**, and areas for **improvement**
3. Compare the experiences of pilots in different organisations and individual **contexts**.

# Study Methods

- **SC Survey measure**
  - 58 items, almost all >3 items per safety culture dimension
  - 5 point agreement Likert scale
  - Sections
    - A: Demographics
    - B: General
    - C: Operational
    - D: Work life
  - Theoretical constructs added to validated items from ATM

# Study Methods

- **Data collection**
  - Online survey via ECA & Social media
  - Commercial pilots based in Europe
- **Data Analysis**
  - Descriptive analysis of survey items
  - Group correlations & comparisons by dimensions (e.g. ANOVAs)



# Findings

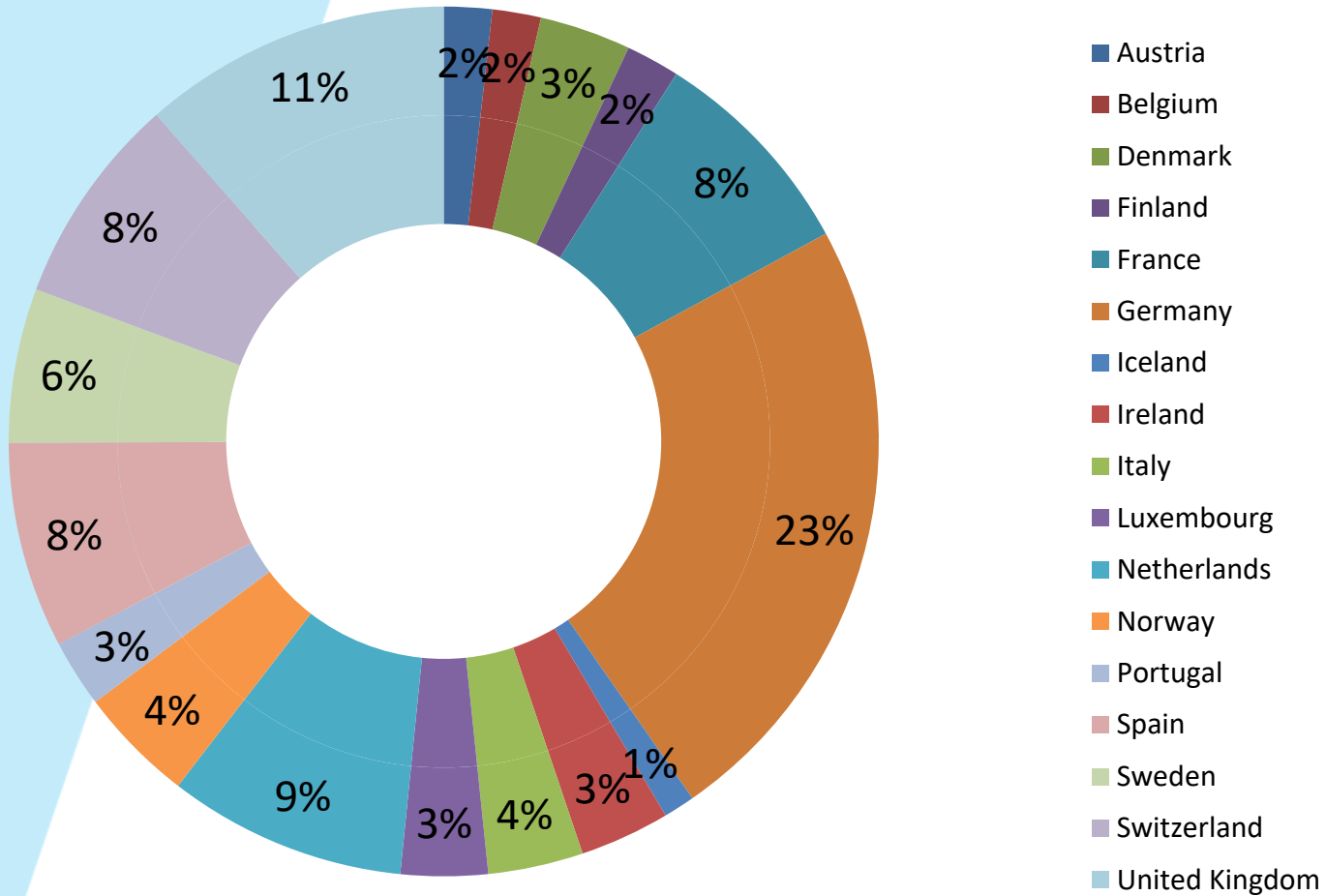
**n=7,239**

**(14% response rate of pop.)**

# Demographics

- Male (96%)
- Aged 31-50 (62%)
- Considerable flying experience (44% had >10,000 flight hrs)
- Captains (56%), First Officers (43%)
- No managerial role (88%)
- Almost half (48%) had been in their company for >11yrs
- Trained through self-funded modular training (42%)

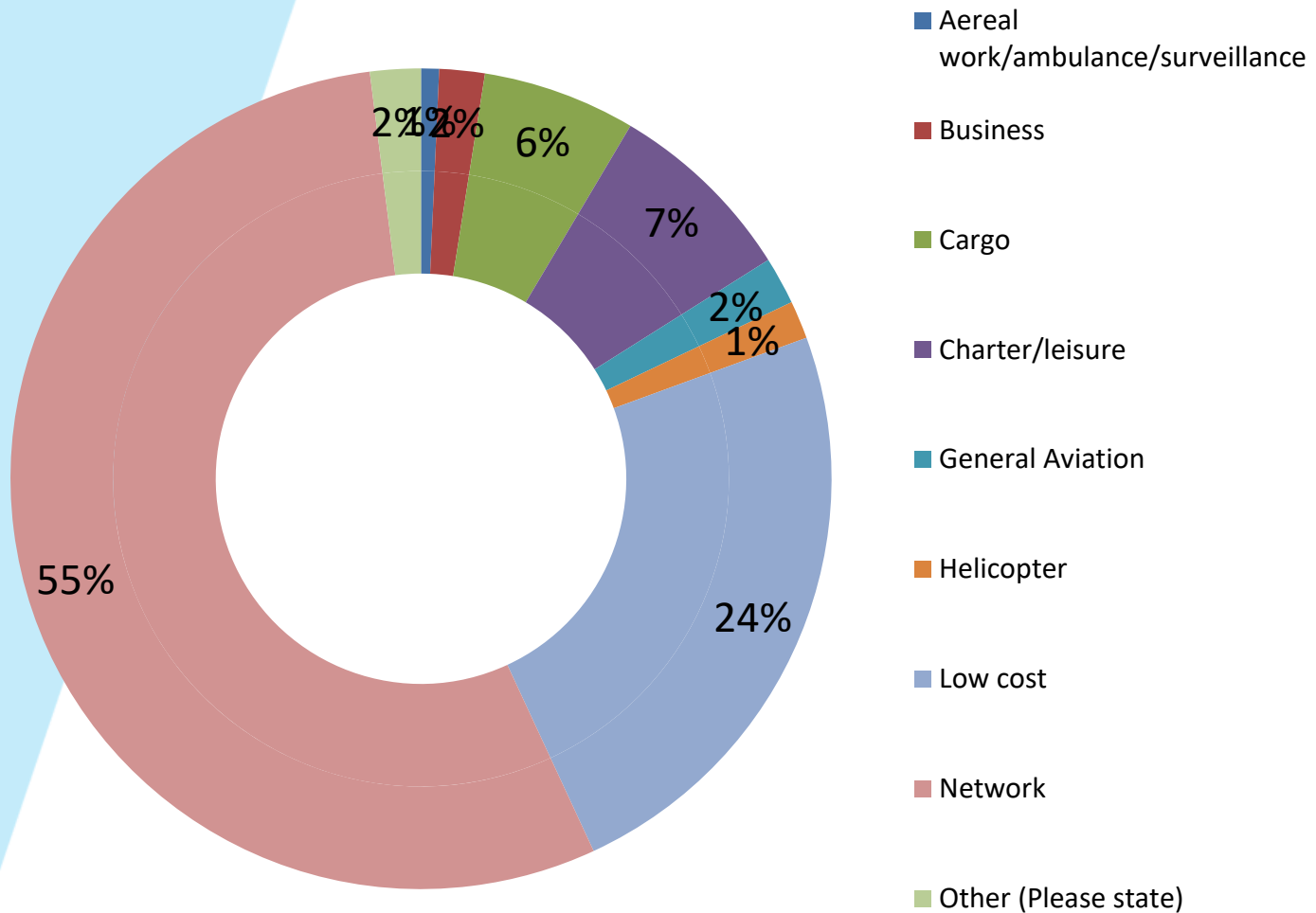
# Responses by Country Base



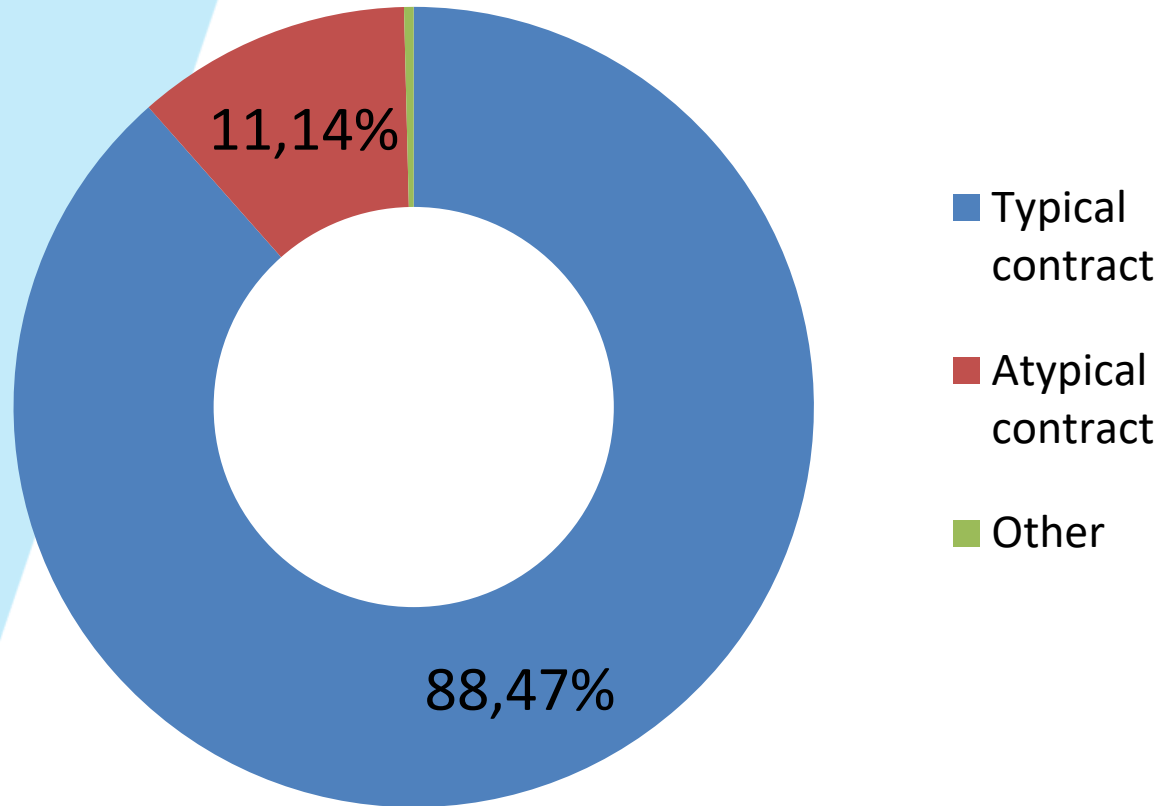
(Nb. Excludes those that make up >1% of sample;  
Nationality very similar make-up)



# Responses by Company Type



# Responses by Contract Type

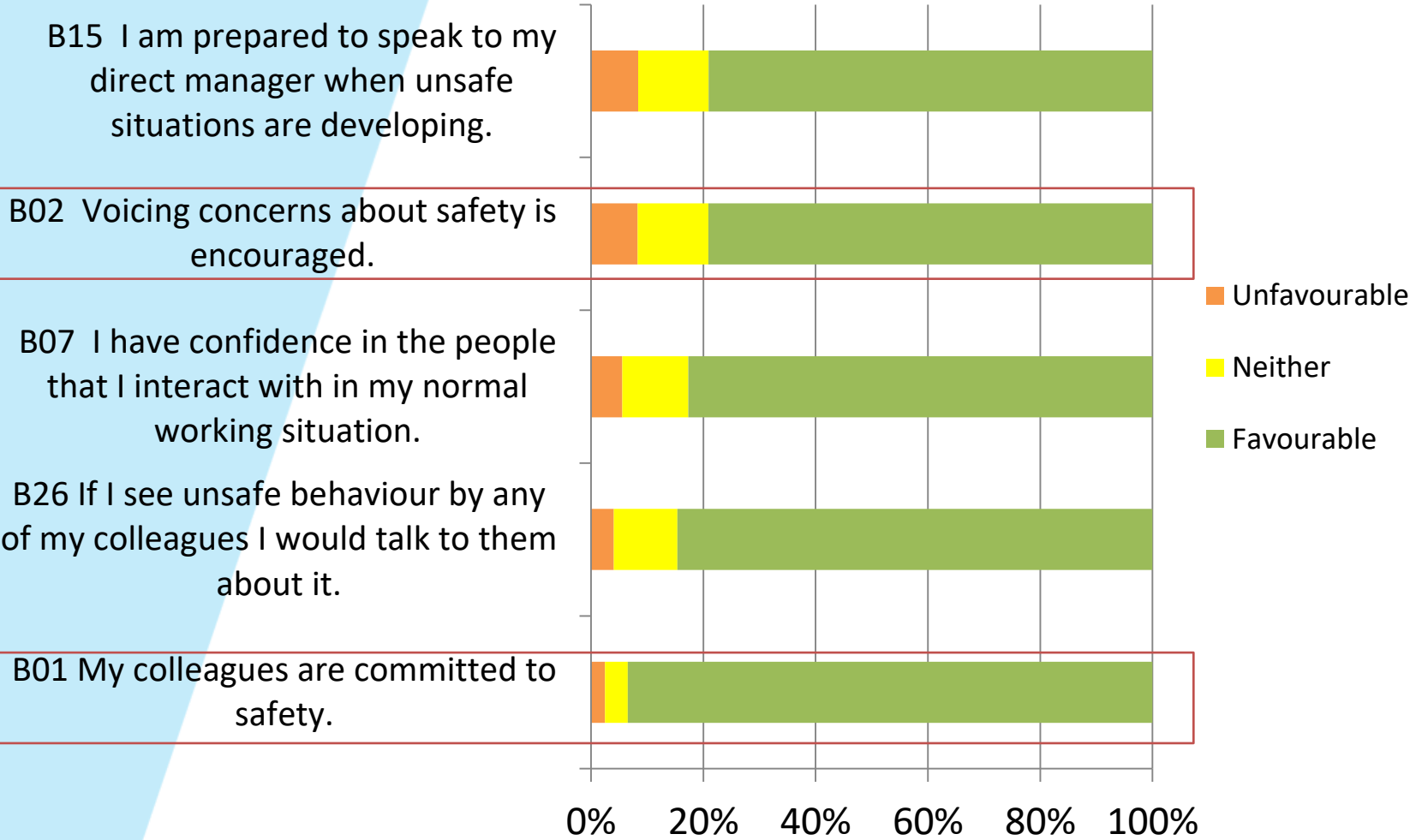


**Typical contract** = Permanent contract

**Atypical contract** = Self-employed; Zero-hours, fixed-term, pay-to-fly contracts

# **Highest & Lowest Favourable Responses by General Items**

# Most favourable responses: General questions

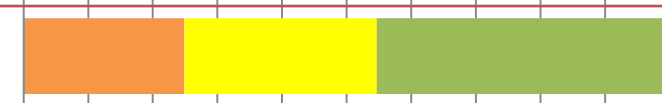


# Least favourable responses: General questions

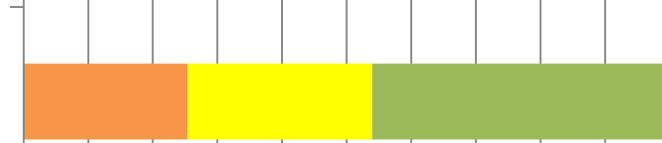
B16 There is good communication up and down the company about safety.



B12 We get timely feedback on the safety issues we raise.



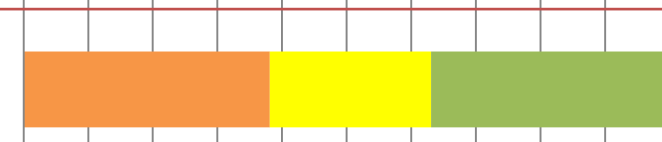
B17 Changes to the company, systems and procedures are properly assessed for safety risk.



B03 We have sufficient staff to do our work safely.



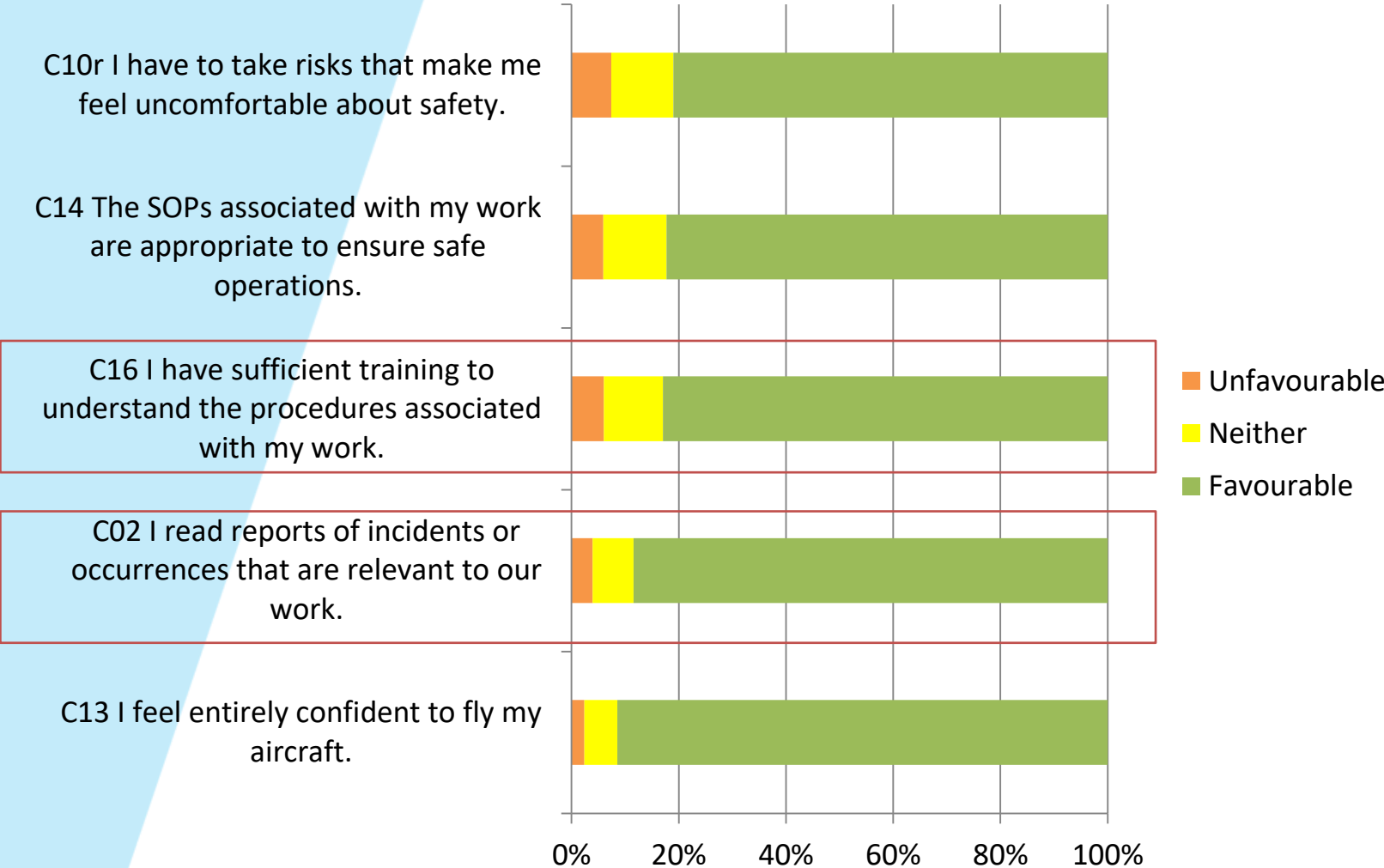
B06 Pilots have a high degree of trust in management with regard to safety.



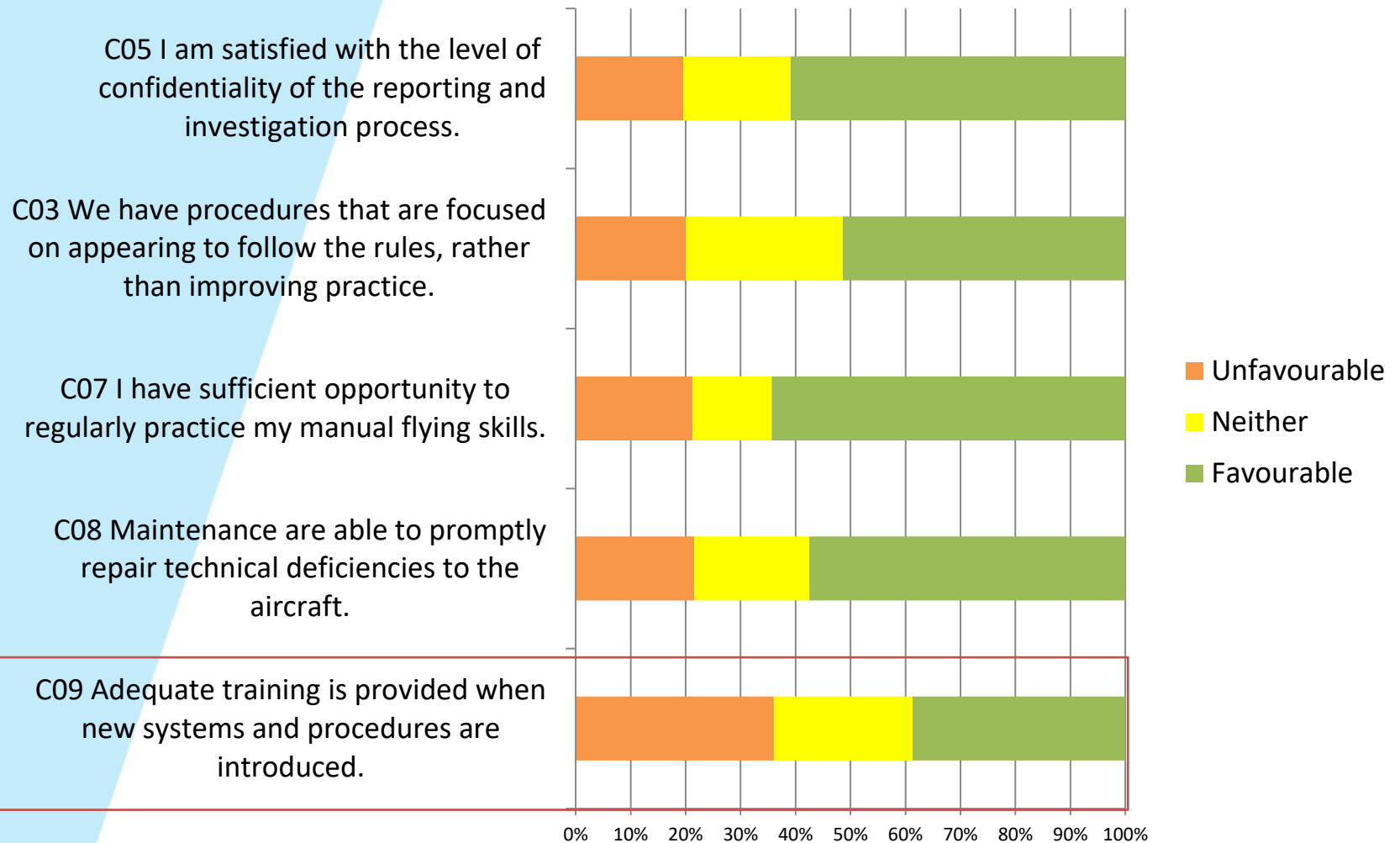
Unfavourable  
Neither  
Favourable

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

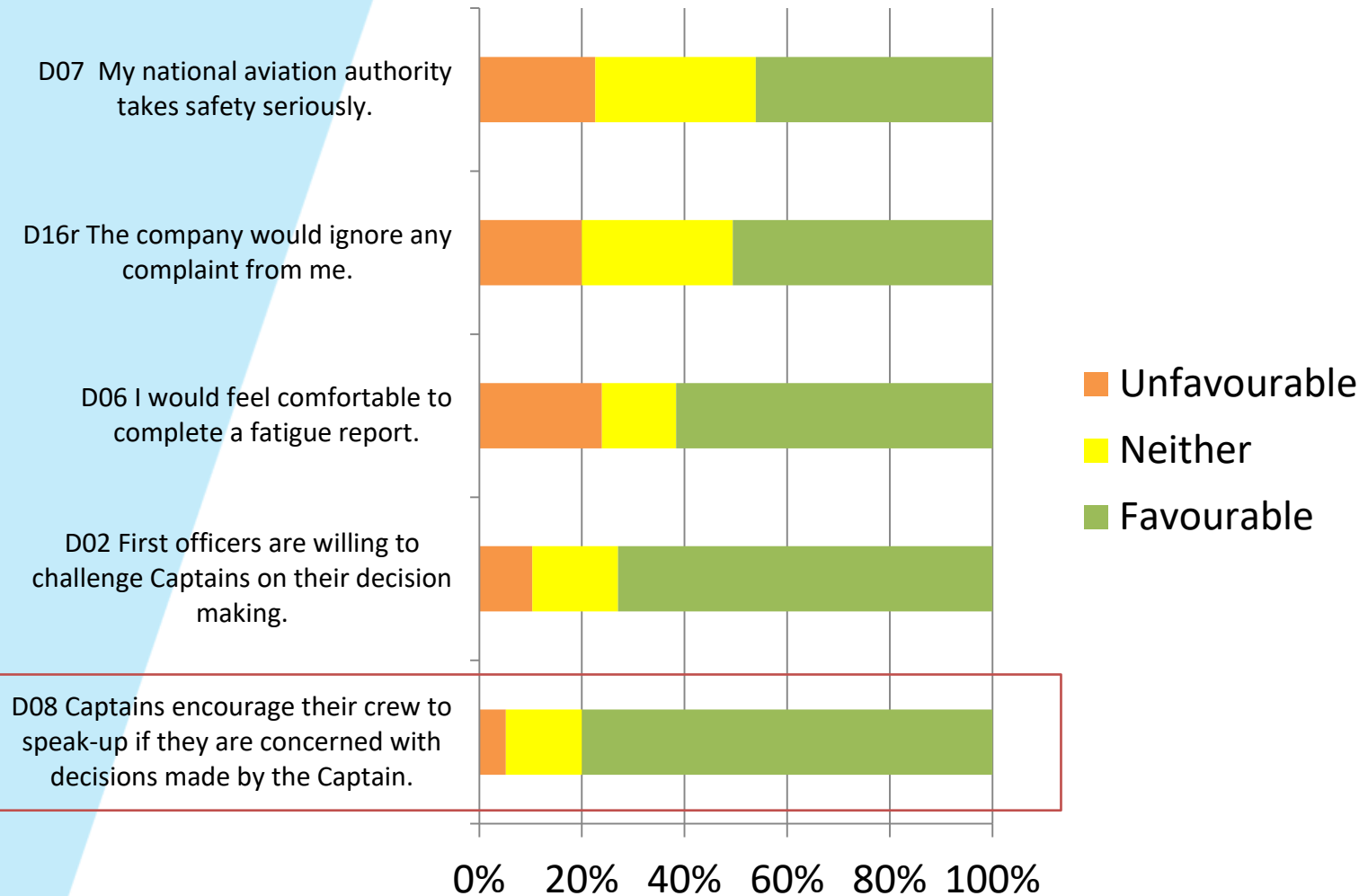
# Most favourable responses: Operational questions



# Lease favourable responses: Operational questions

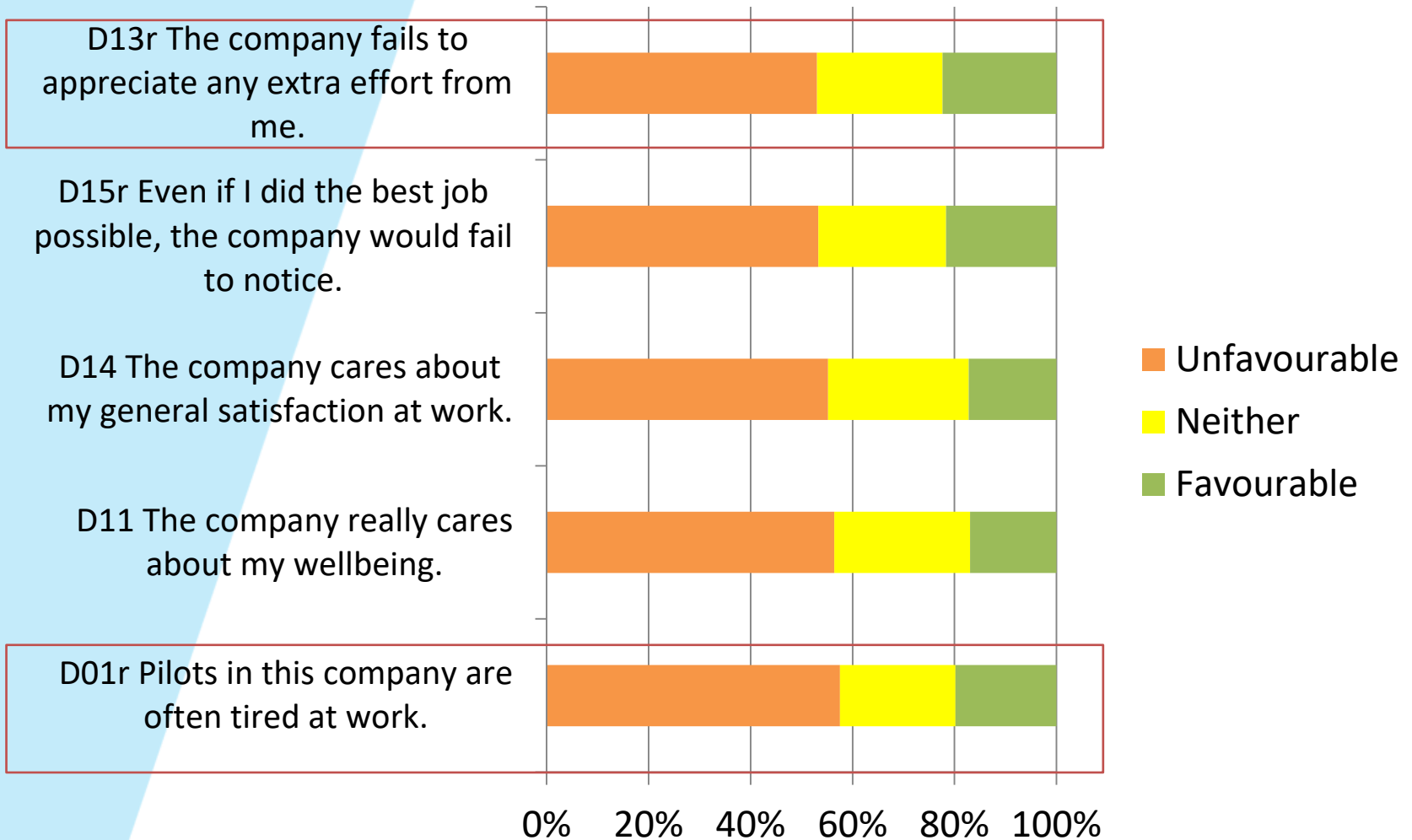


# Most favourable responses: Work life





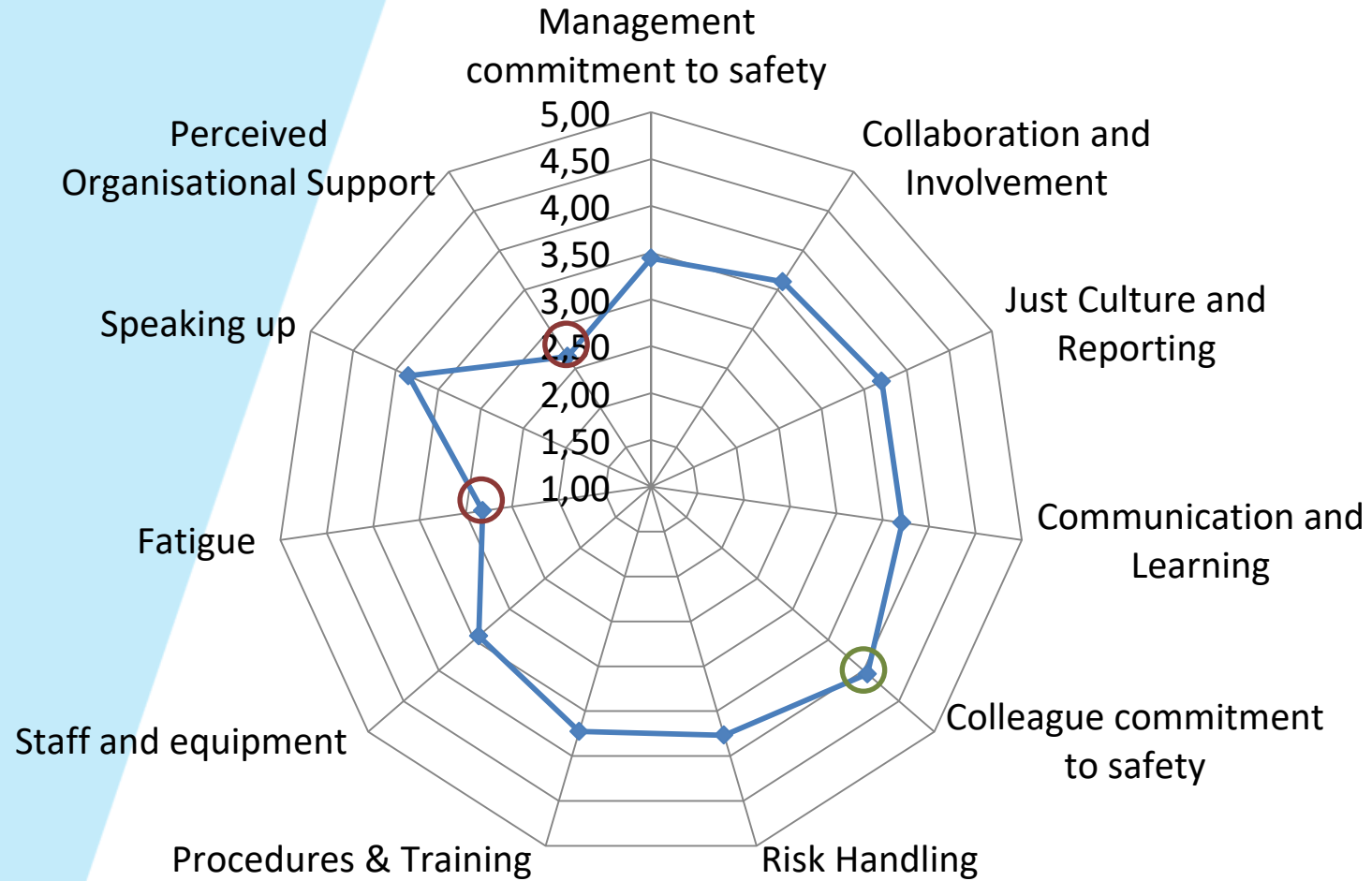
# Least favourable responses: Work life





# **Groups Comparisons by Dimensions**

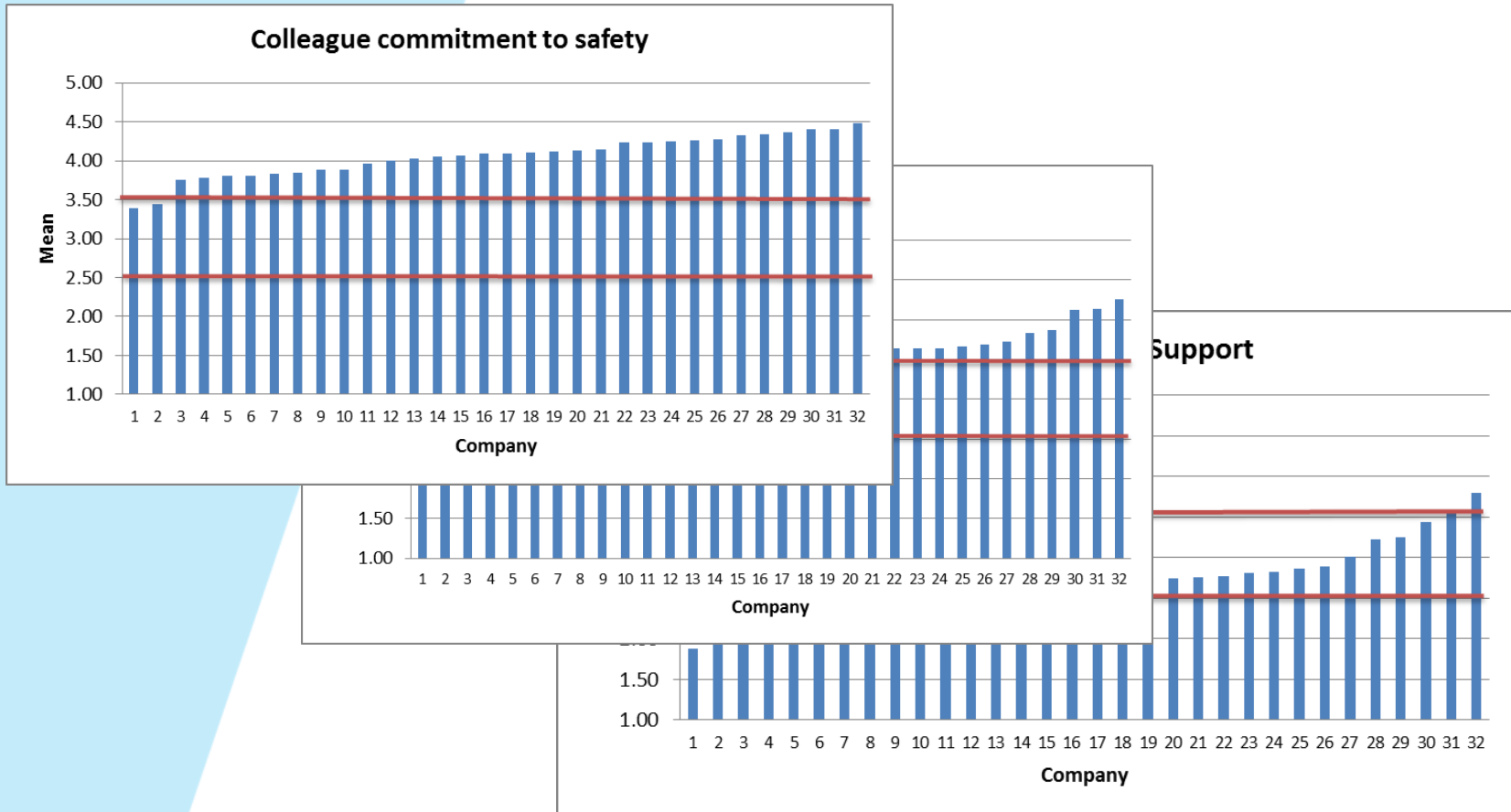
# Overall Results



Overall M = 3.49

◆ Mean

# Company variations

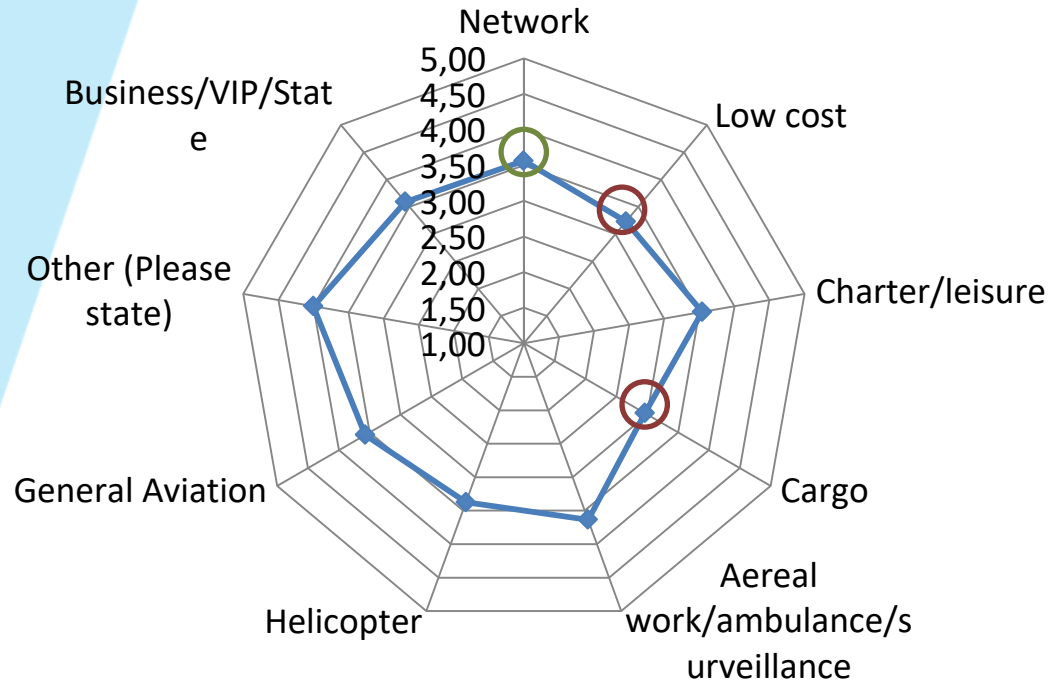


(NB. Excludes companies with >30 responses)

(NB. Company ID varied per graph)

# Company Type

- Sig. diffs ( $p < .001$ ) by company type for 10 dimensions
- Pattern - lower safety culture ratings amongst pilots at Low Cost & Cargo airlines than other airline types (esp. Network airlines)

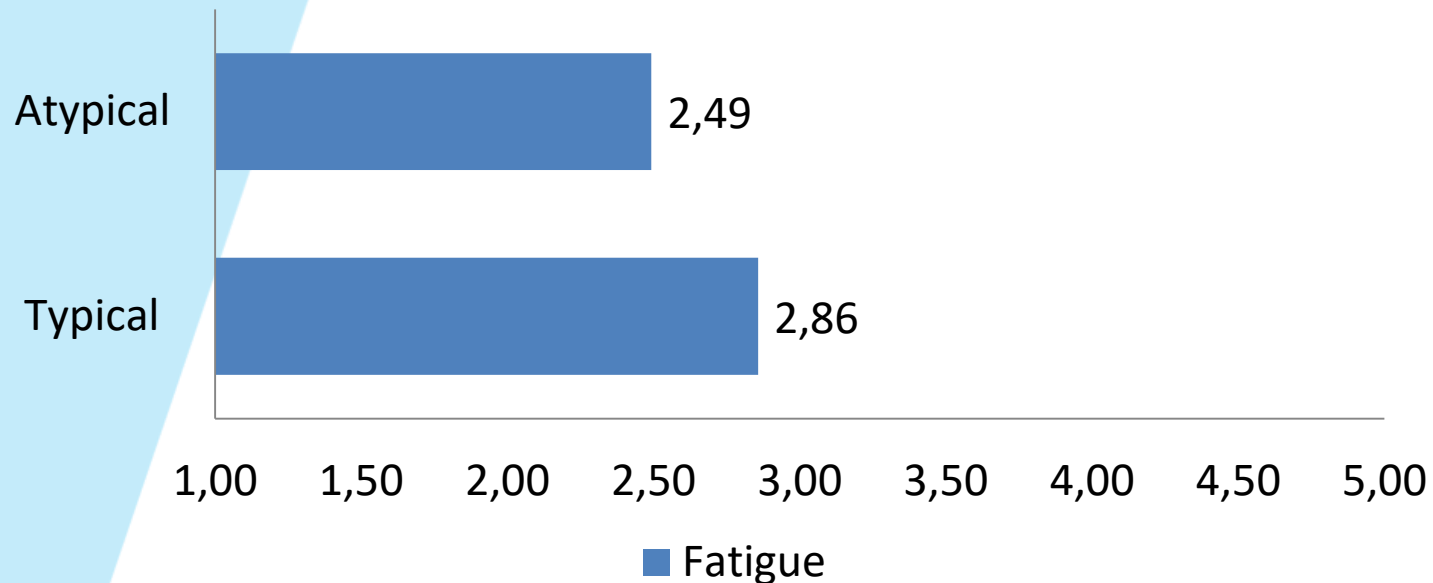


◆ Management Commitment to Safety

(NB. Many mean differences have low effect sizes)

# Contract Type

- Sig diffs ( $p < .001$ ) between different contracts for all but 2 dimensions.
- Pattern - pilots with atypical contracts view safety culture less positively than those on typical contracts



(NB. Typical (n=6394), Atypical (n=805) contracts)

# Conclusions

- Overall, the average safety culture is good (m=3.49)
  - Positive results for **colleague commitment** & **speaking up**
- Potential improvement/concern areas:
  - **Fatigue** management
  - Pilots on **unsecure contracts**
  - **Cargo & Low Cost** airlines
- Regulators, airlines and pilot associations need to consider results & ways forward.

# Study Limitations

- Predominantly used union members to help with survey distribution
- Caution in interpreting results - SDs high and effect sizes low
- Cannot guarantee same pilots did not complete more than once (though conducted Fraud detection)



# Impact

## More than half of airline pilots 'fly while tired'

Graeme Paton Transport Correspondent

Passengers are being put at risk by shoddy airline safety regimes that allow fatigued pilots to take control of planes, according to research.

In what is billed as the biggest study of its kind into commercial flight safety, academics have warned that some airlines may be guilty of cutting corners to meet demanding schedules.

The researchers, by the London School of Economics (LSE) and Euro-control, which co-ordinates air traffic across the continent, found that pilots were often tired at work and felt that airlines did not take fatigue seriously. Companies also treated whistleblowers as troublemakers, they said.

The conclusions, based on a survey of more than 7,200 pilots across Europe, or one in seven of the total workforce, raised concerns that pilots were being overworked, particularly by budget airlines that often schedule the same team on multiple flights in the same day.

Fifty per cent of pilots said that fatigue was "not taken seriously" by their company and 58 per cent said their pilot colleagues were "often tired at work". More than 25 per cent said there was insufficient "staff to do our work safely", and about 14 per cent suggested that they worked even when feeling unwell.

The researchers said that 21 per cent of pilots felt they were not given enough chance to practise their manual flying skills and 22 per cent said that maintenance teams were unable to "promptly repair" technical problems with aircraft.

The British Airline Pilots' Association (Balpa) said previously that pilots were being forced to work shifts of more than 20 hours without breaks. It

attacked the introduction of rules from the European Aviation Safety Agency (EASA) that allowed airlines to roster pilots on more early shifts and increased the maximum number of hours they could work in a week.

Problems are believed to have been fuelled by the overreliance on inexperienced pilots working zero-hour contracts and those on "pay-to-fly" deals. According to the LSE study, 11 per cent of pilots in Europe are not on permanent contracts, and many are under 30.

Tom Reader, associate professor in organisational and social psychology at LSE, said: "Whilst pilot perceptions of safety culture are encouragingly positive, these results will raise concerns that passenger safety could be put at risk by the increasing pressures of understaffing and fatigue."

However, Tim Alderslade, chief executive of Airlines UK, said: "Safety is the number one priority for everyone in aviation. The long-term data shows that air travel is getting safer and a strict adherence to global standards across the industry demonstrates a commitment to ensuring this trend continues."

The survey found that Britain had some of the biggest reported problems, with pilots rating their airline's approach to fatigue lower than in any other country apart from Croatia and Luxembourg. Seventeen per cent said that their airline treated pilots who raised safety concerns as "troublemakers".

Rob Hunter, head of flight safety at Balpa, said: "Fatigue has been a growing issue among pilots and has intensified since the introduction of EASA flight time limitations this year. Balpa has been challenging all airlines and carriers to improve fatigue management."

The Economist

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Waking up to fatigue

## Pilots are too often flying when tired

*Airlines should not lose sight of the things that make them so safe*



Alamy

# Acknowledgements

- European Commission
- European Cockpit Association
- Future Safety Sky Team



# Thank you & Questions



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