

SOLAKONFERANSEN 2019

# Human Hazard Analysis for Helicopters

Supporting Resilient Performance in Offshore Operations



**HeliOffshore**  
*Safety Through Collaboration*

# HeliOffshore



80% of maintenance errors are detected by the operator themselves, allowing it to be resolved immediately

(Allwood, 1984, cited by Amalberti, 2004; Reason, 1993)



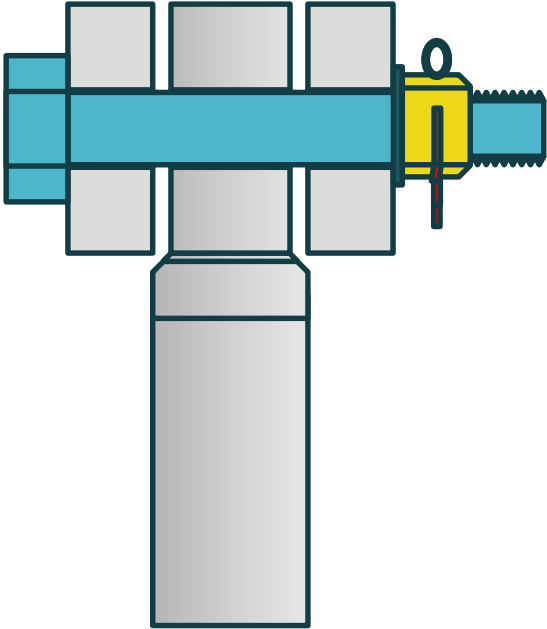
“Aircraft Mechanics  
Exist so Pilots can  
have Hero's too!”



# QUESTION 1

How can we draw out the valuable experience gained through everyday working, by maintenance engineers and get it to the designers in the OEM?

# Original Design – x2 locking Features to meet Certification requirements



# Human Hazard Analysis - Total System Approach

Errors can be created here !



Errors could be prevented



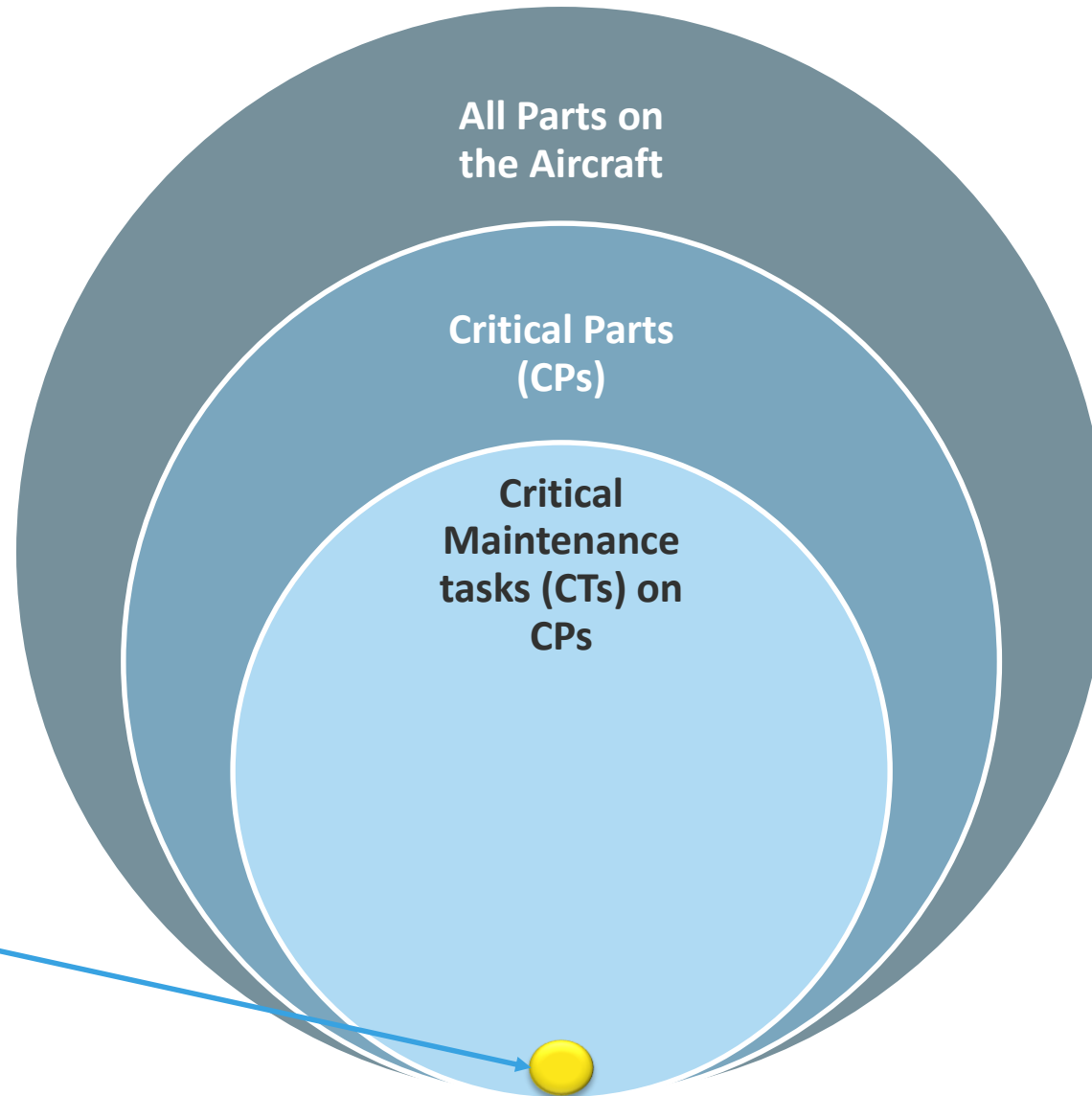
# The Human Hazard Analysis Workshop Team

Bring maintenance engineers and design engineers together in a facilitated team





We Focus on  
Small Subset of  
Maintenance  
Tasks



We seek to  
determine the CTs  
on CPs that will  
require Action



# The Analysis Questions

Joint analysis is calibrated by having set structure and “questions” about each maintenance task that includes:

- Location of task
- Type of maintenance error
- Detail of the error
- Causal/Contributing factors
- Past incidence of error



# Examine Existing Barriers

Analysing existing system features to test their ability to:

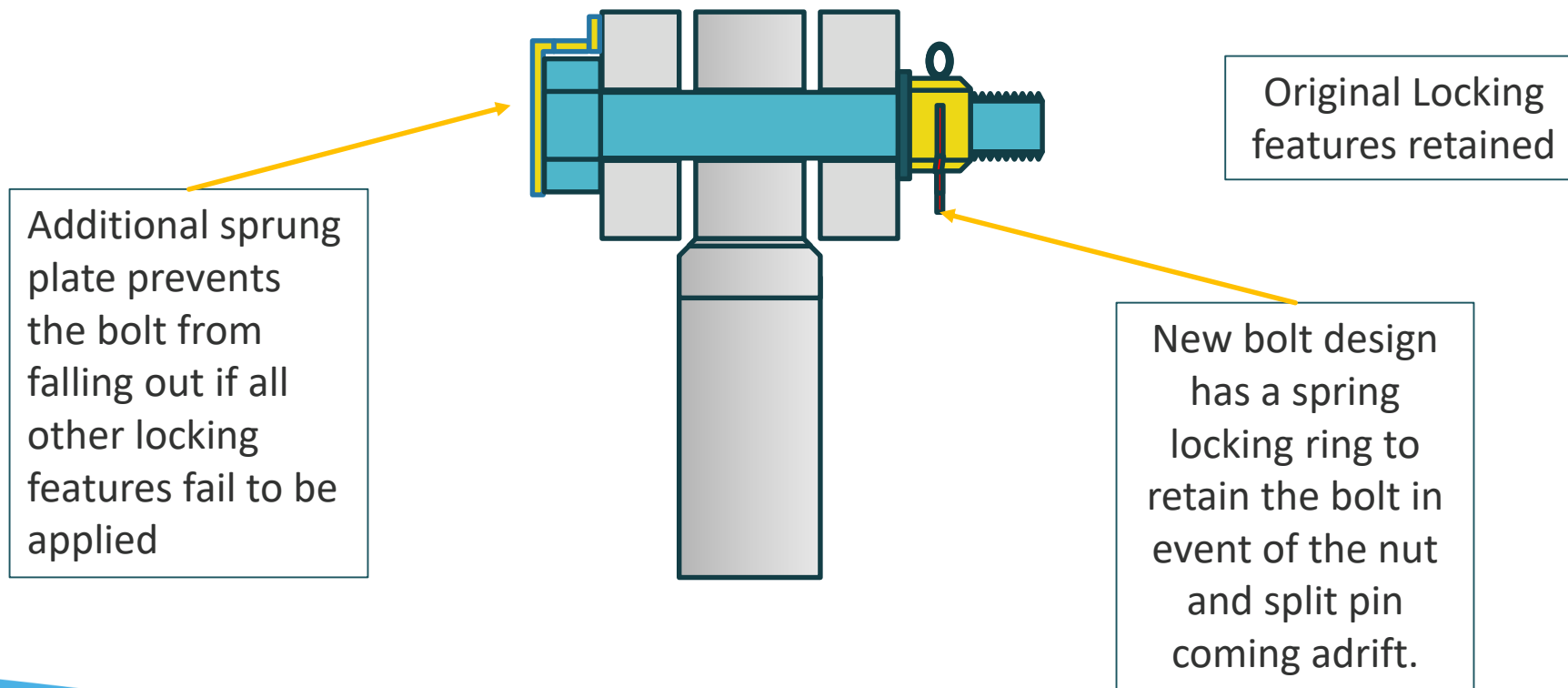
- Prevent Error
- Reduce Error Magnitude
- Reduce Error Frequency
- Ensure Timely Detection and Recovery (Maintenance)
- Ensure Timely Detection and Recovery (Indication to Flight Crew)



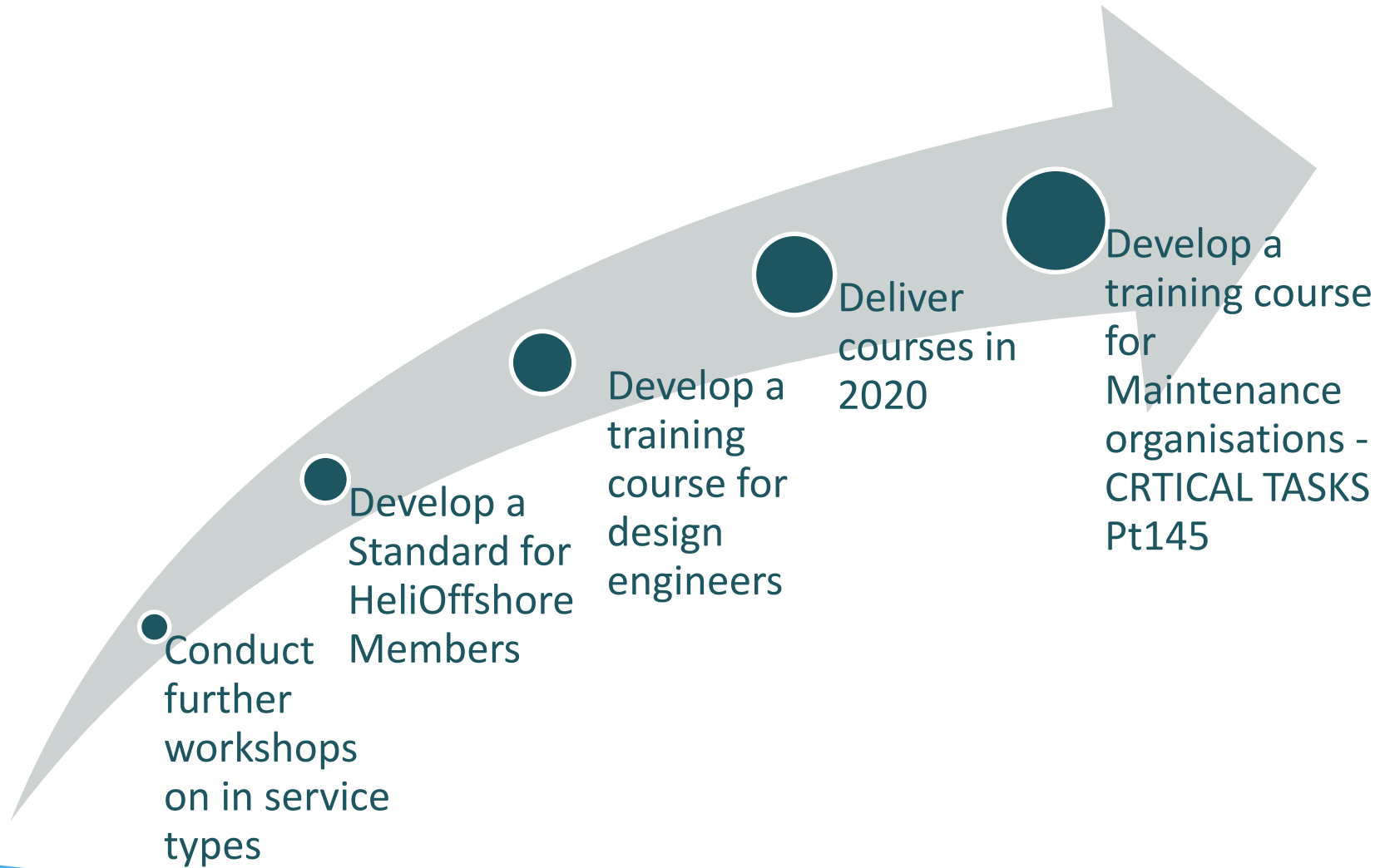
# Priorities Turn to Actions



# Alternative Design following Human Error Modes & Effects Analysis – X4 Locking Features



# Human Hazard Analysis – Next Steps



# QUESTIONS

Thank You

Airbus Helicopters

Leonardo Helicopters

Sikorsky Helicopters

Dr Simon Gill

Dr Hazel Courteney

HeliOffshore

