

Procedure Based Maintenance

Taking Your Maintenance to the Next Level

RELIABLEPLANT 2018

CONFERENCE & EXHIBITION

BROUGHT TO YOU BY  **NORIA**

James Kovacevic, MMP CMRP CAMA

Who am I?

- ❑ 15+ years of experience in maintenance & reliability functions
- ❑ Host of the Rooted In Reliability Podcast
- ❑ Principal Instructor at Eruditio LLC.



What is Eruditio, LLC?

- ❑ An adult education firm in Asset Management
- ❑ Eruditio utilizes a unique training approach, Inspired Blended Learning



USS Thresher SSN-593

April 10, 1963



129 Lives Lost

Beginning of Procedure Based Maintenance

SubSafe covers;

- Design
- Material
- Fabrication
- Testing

Procedures are used for;

- Design & Construction
- Routine Maintenance in depots
- Maintenance for operating subs

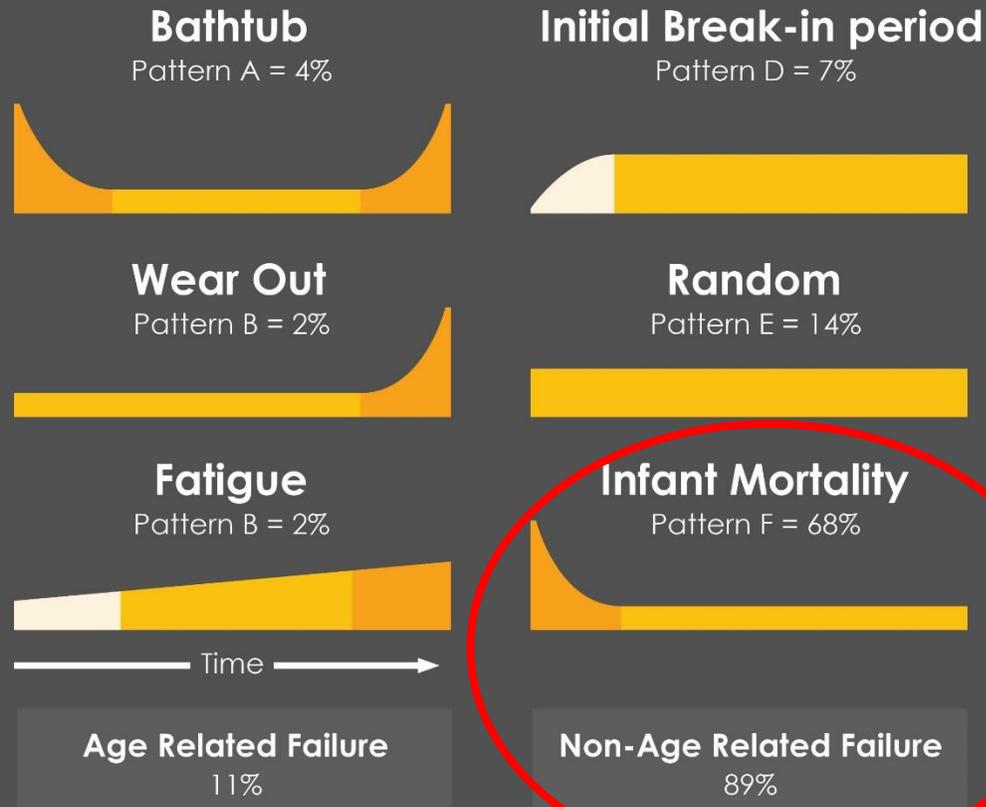
Procedures include;

- Evidence for each step
- Internal & external audits



Findings From Nowlan & Heap

Failure Curves



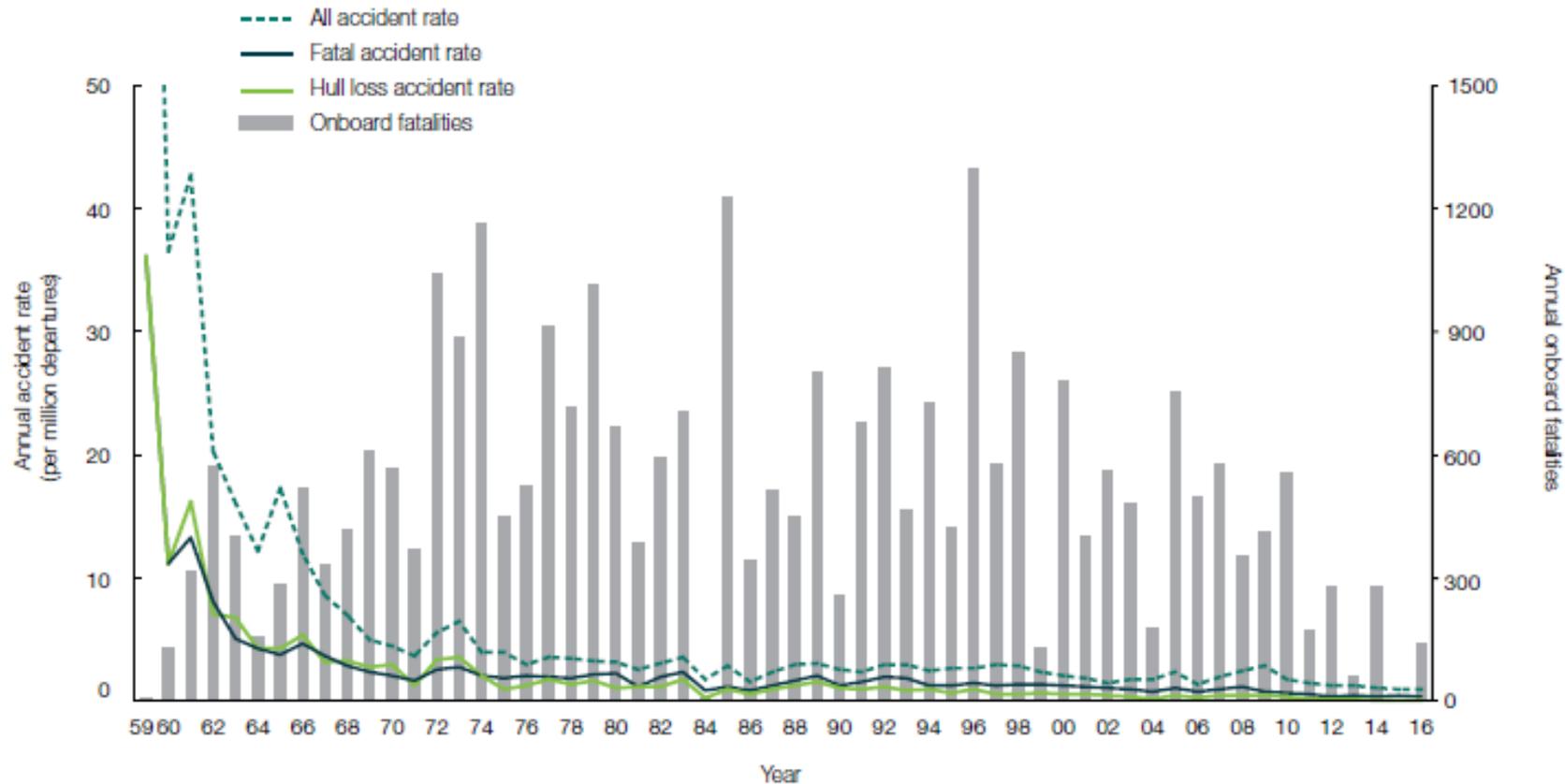
Causes of Infant Mortality;

- Design
- Manufacturing Defects
- Installation Defects
- Improper Commissioning
- Improper Routine Maintenance
- Maintenance Workmanship

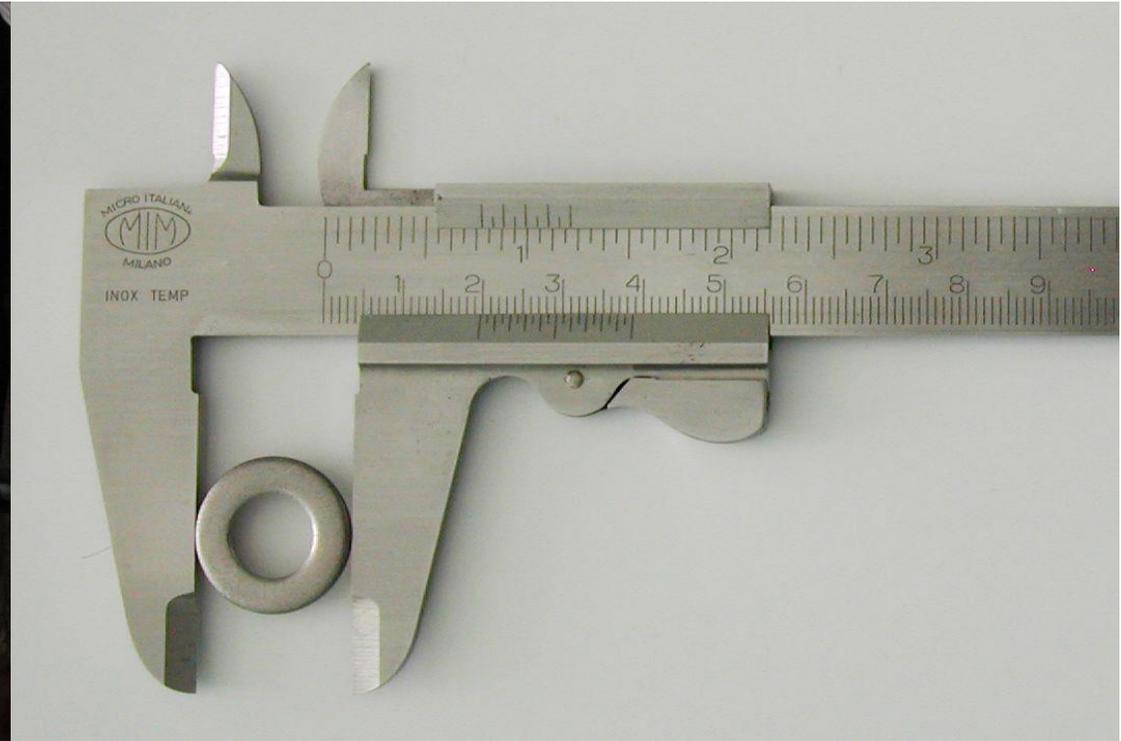
Impact on Aviation

Accident Rates and Onboard Fatalities by Year

Worldwide Commercial Jet Fleet | 1959 through 2016

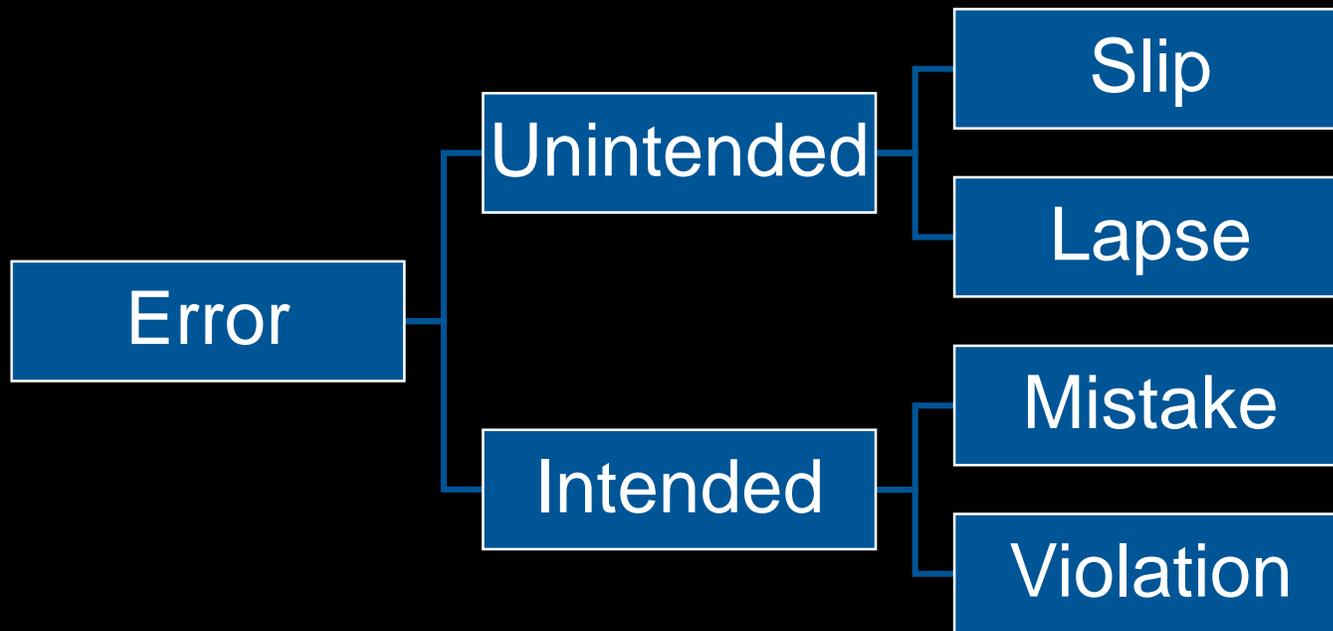


Importance of Procedures

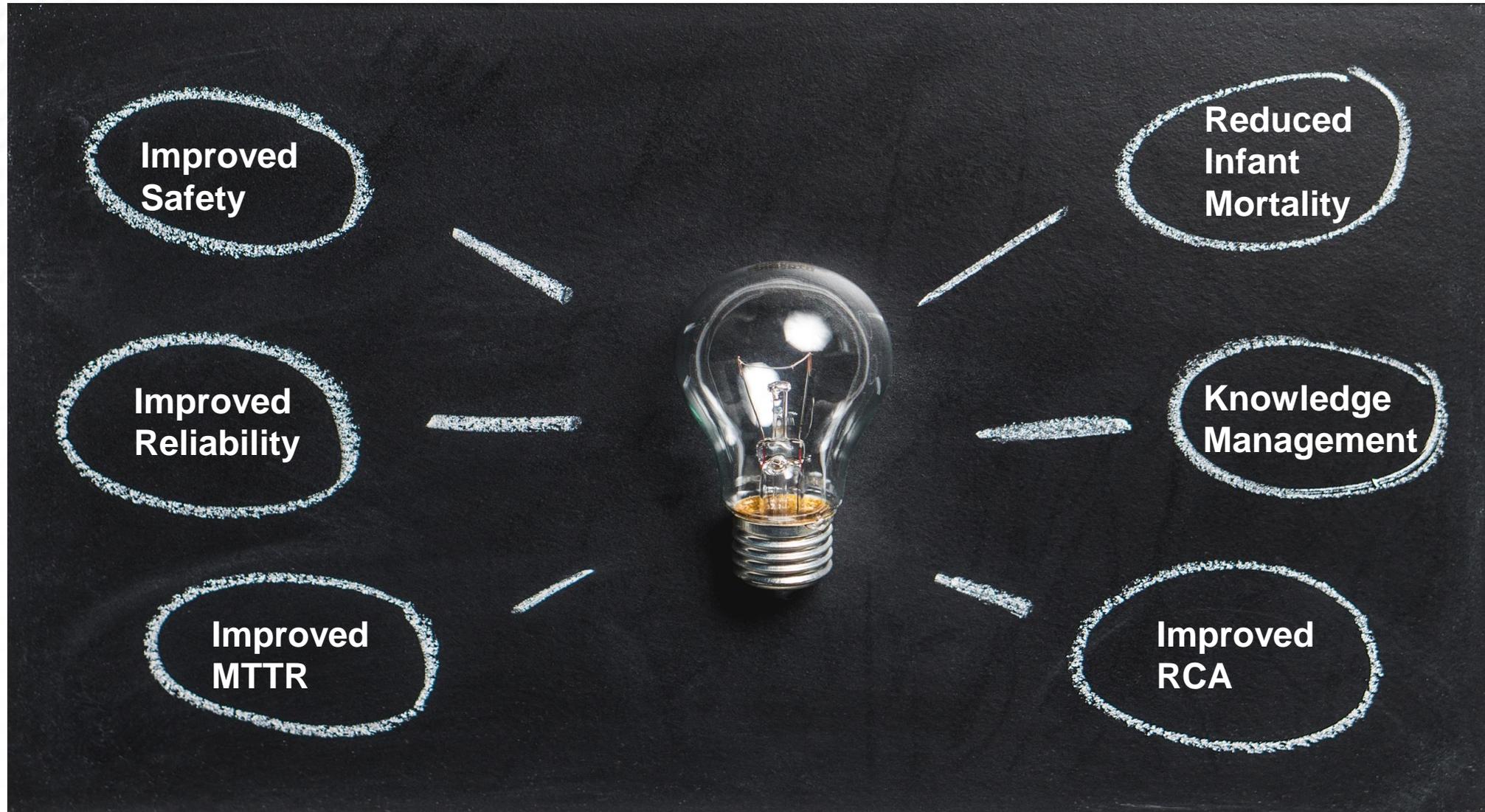


Human Performance Factors

Psychological Factors

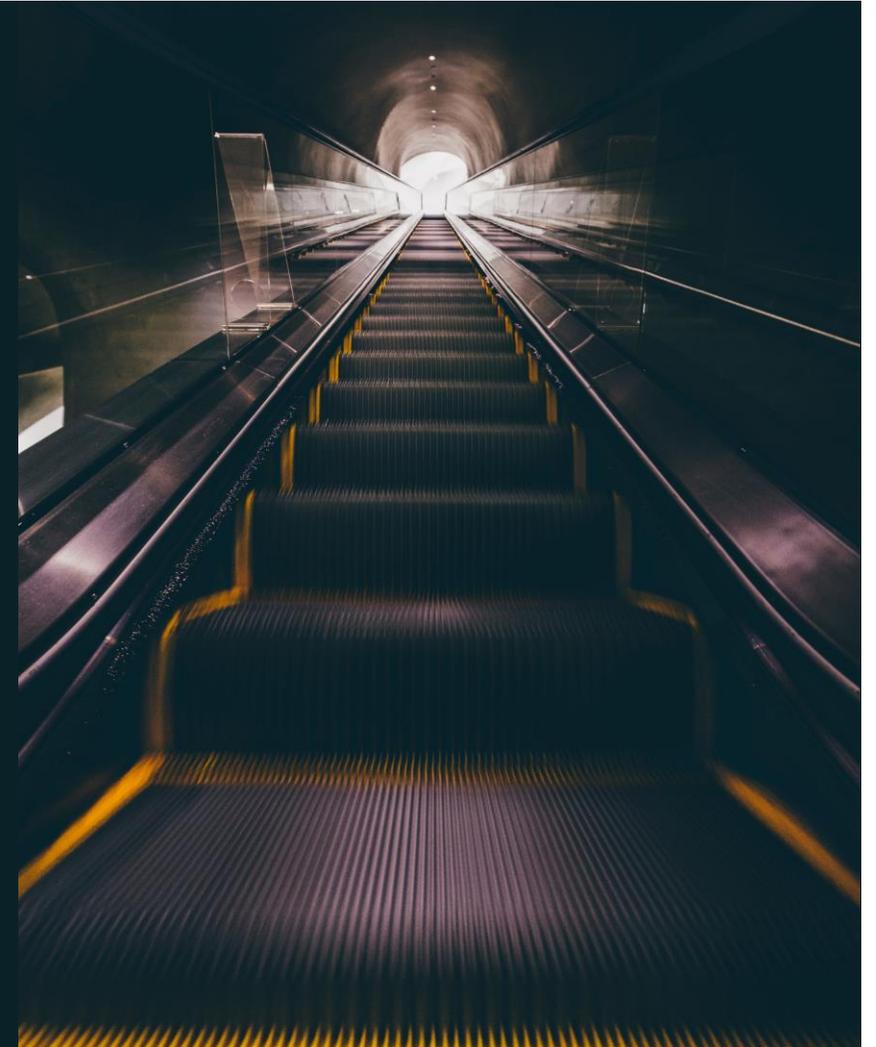


Impact of Procedure Based Maintenance



Getting Started in Procedure Based Maintenance

1. Document
2. Create checklists
3. Define training & certification
4. Reinforce
5. Utilize feedback
6. Standardize



Simplified Technical English



What is STE?

- Set of Writing Rules
- Dictionary of controlled words
- One word = one meaning

Benefits of STE

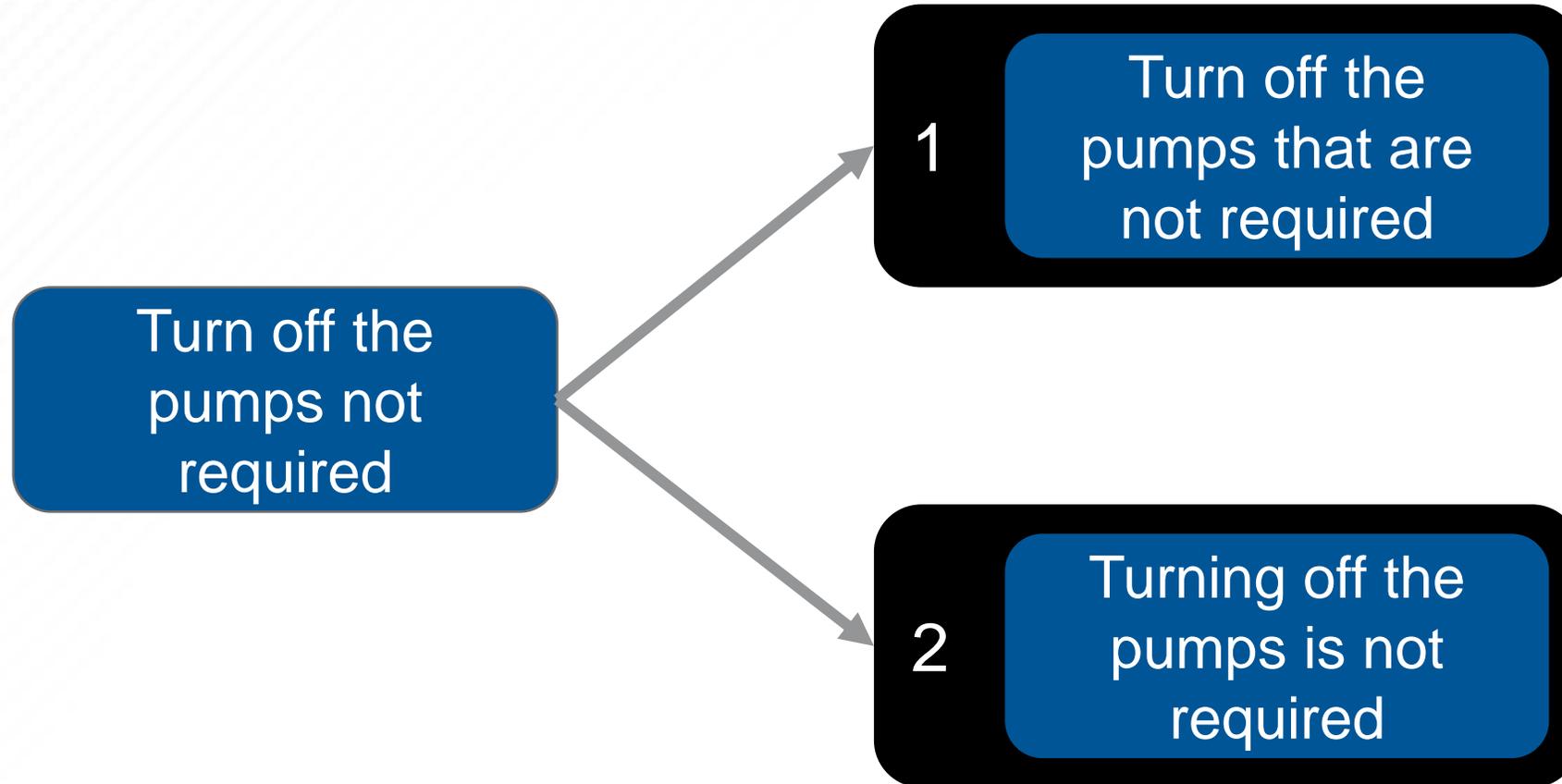
- Reduces ambiguity
- Improved clarity
- Improved comprehension
- Improved consistency

Key Points to Writing Procedures

- Short sentences
- Paragraphs less than six sentences
- No slang or jargon
- Avoid passive voice
- Be specific as possible
- Use articles such as “a/an” and “the” where possible
- Use simple verb tenses
- Sequential steps as separate sentences
- Introduce a list item with a dash
- Use graphics where need to provide clarity
- Use words such as “Warning” and “Caution”



What Does This Mean?



Before and After STE

Before

The synthetic lubricating oil used in this engine contains additives which, if allowed to come into contact with the skin for prolonged periods, can be toxic through absorption.

After

Do not get the engine oil on your skin. The oil is poisonous. It can go through your skin and into your body.

What If We Don't Want STE

- Define a company standard
- Develop template
- Define procedure numbering format
- Define acceptable terms
- Define use of "Warning" and "Caution"
- Define writing rules to follow
- Define use of images
- Define a review process
- Define change control process

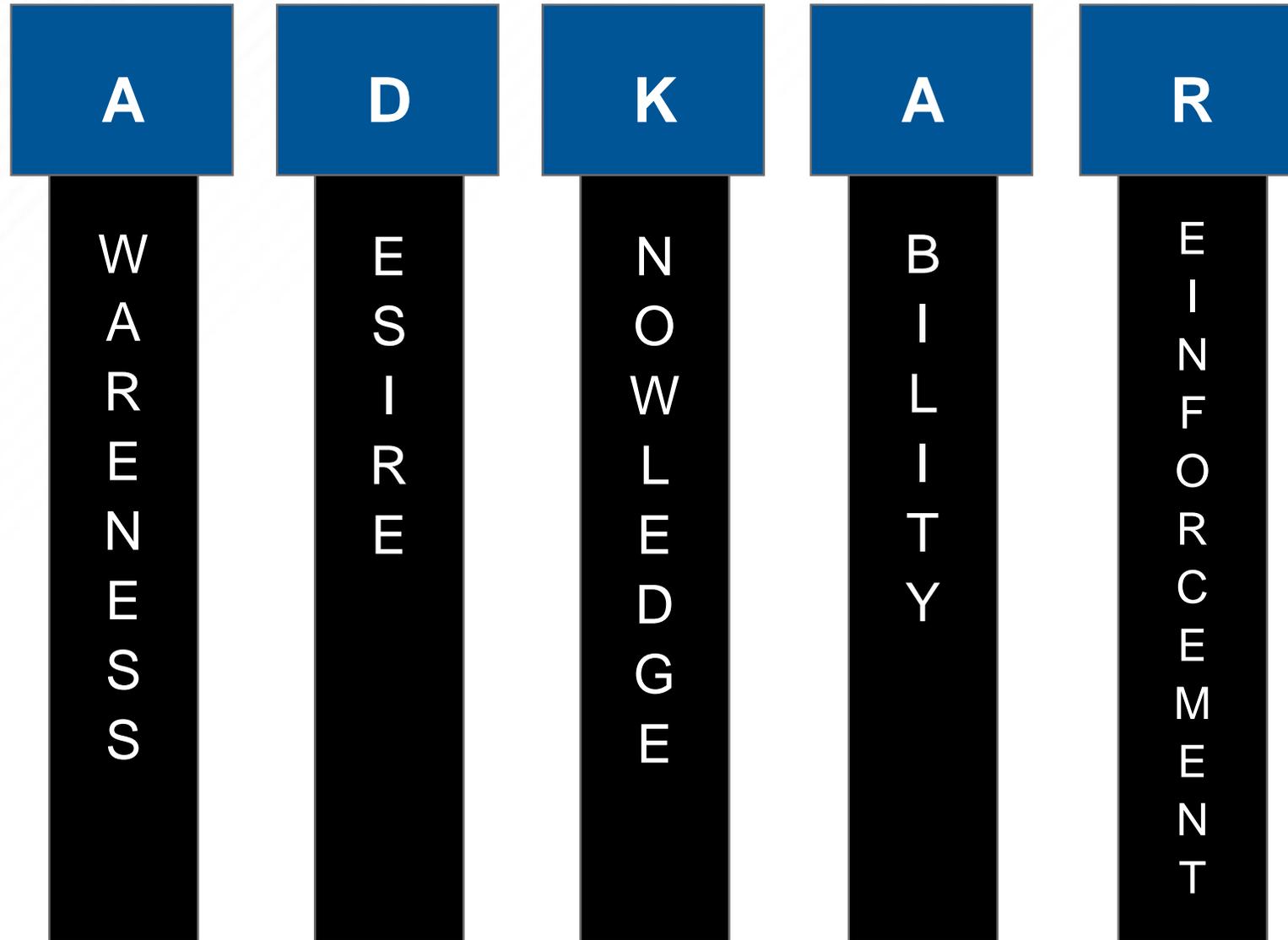


Gaining Support

- Communicate the benefits of procedures
- Have staff assist with the procedures
- Create a training & certification scheme
- Utilize feedback from staff



Manage the Change



Is Procedure Based Maintenance for You?



Question?



Thank you.

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