



Making Reliability a Core Business Value

Topsides UK 2020

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Presentation outline

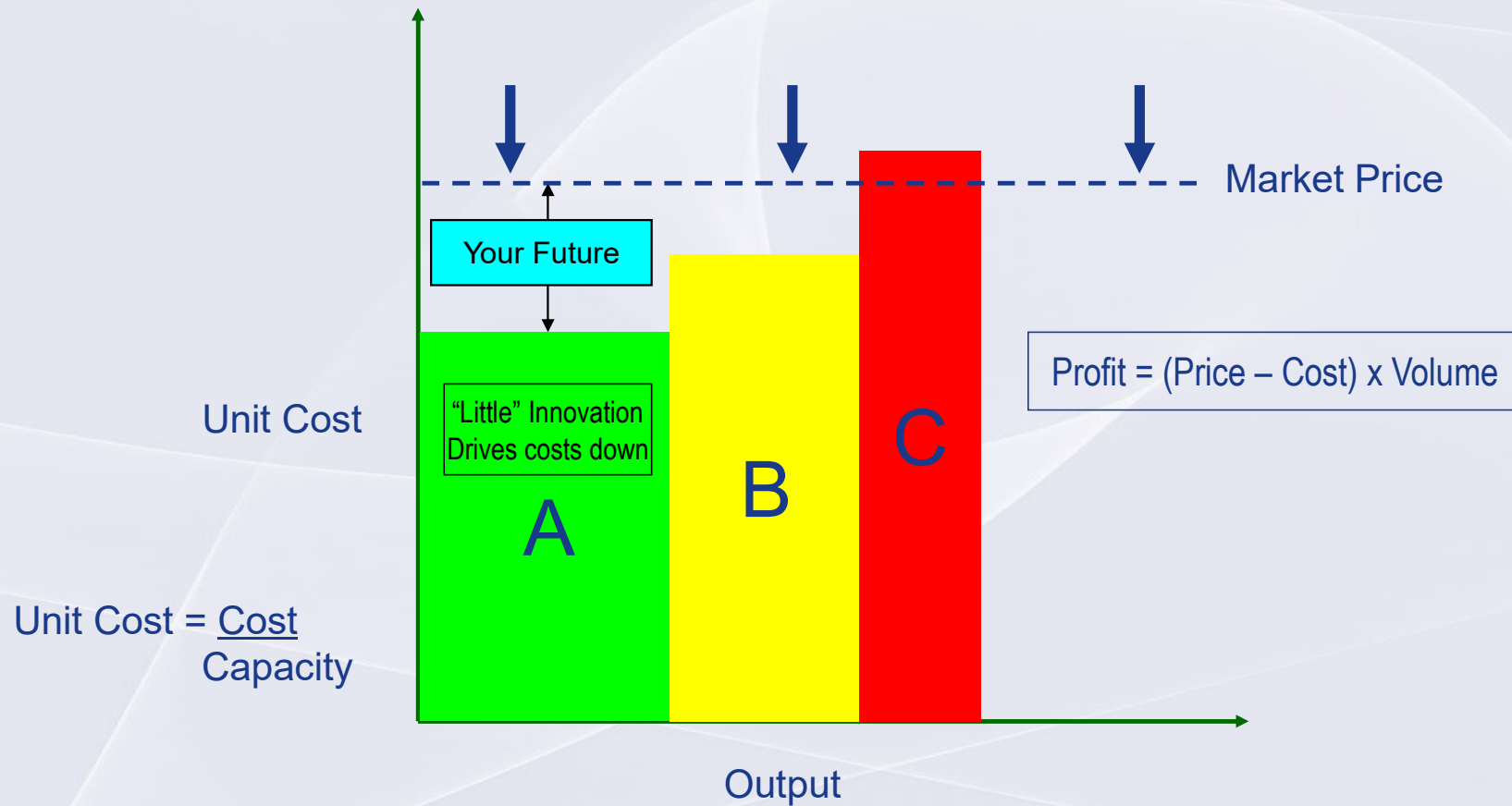


- The business case for reliability
- A holistic strategy for high reliability performance
- Creating a high reliability performance culture

A core business value?

The business case for reliability

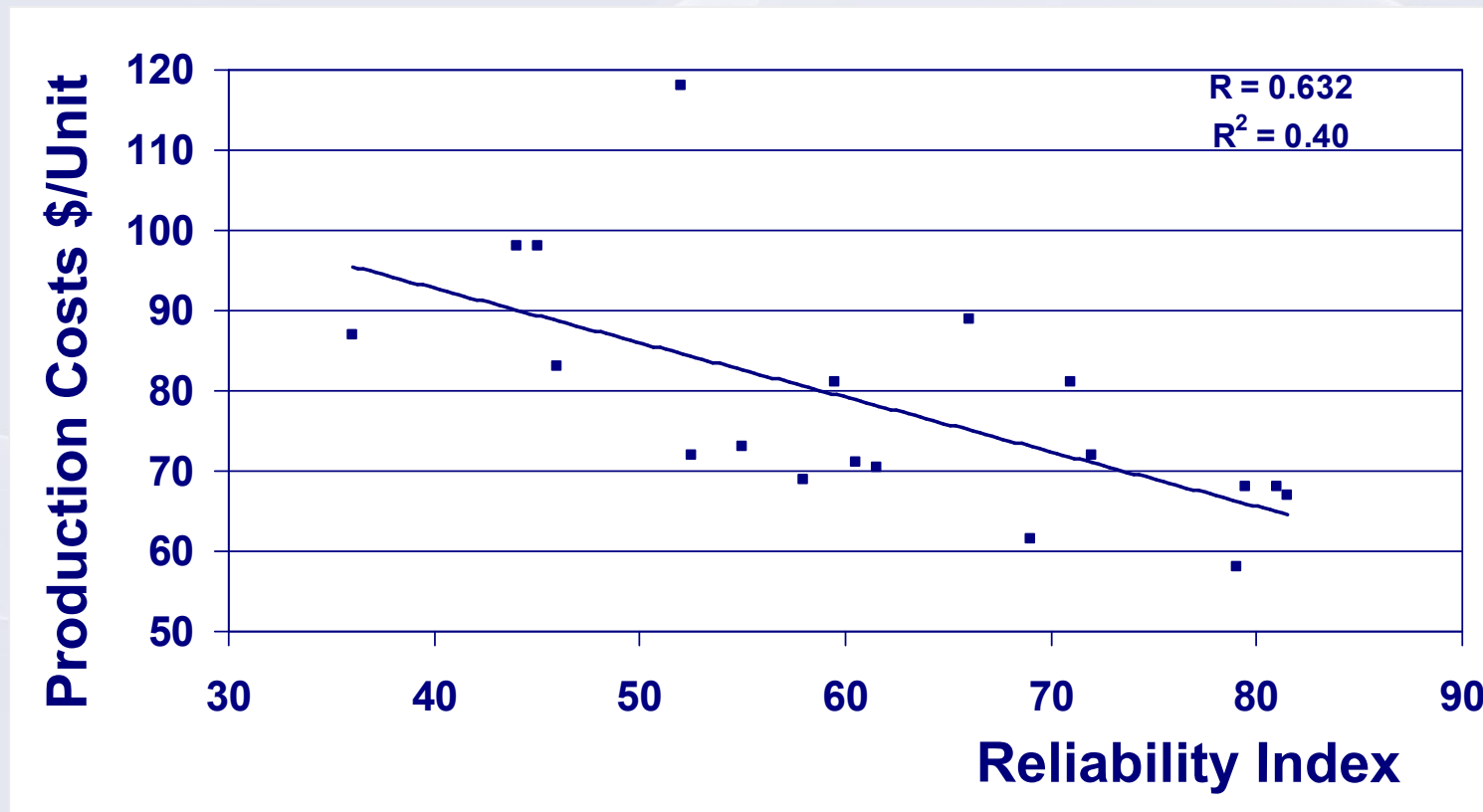
Market Survivor Profile



$$\text{Unit Cost} = \frac{\text{Cost}}{\text{Capacity}}$$

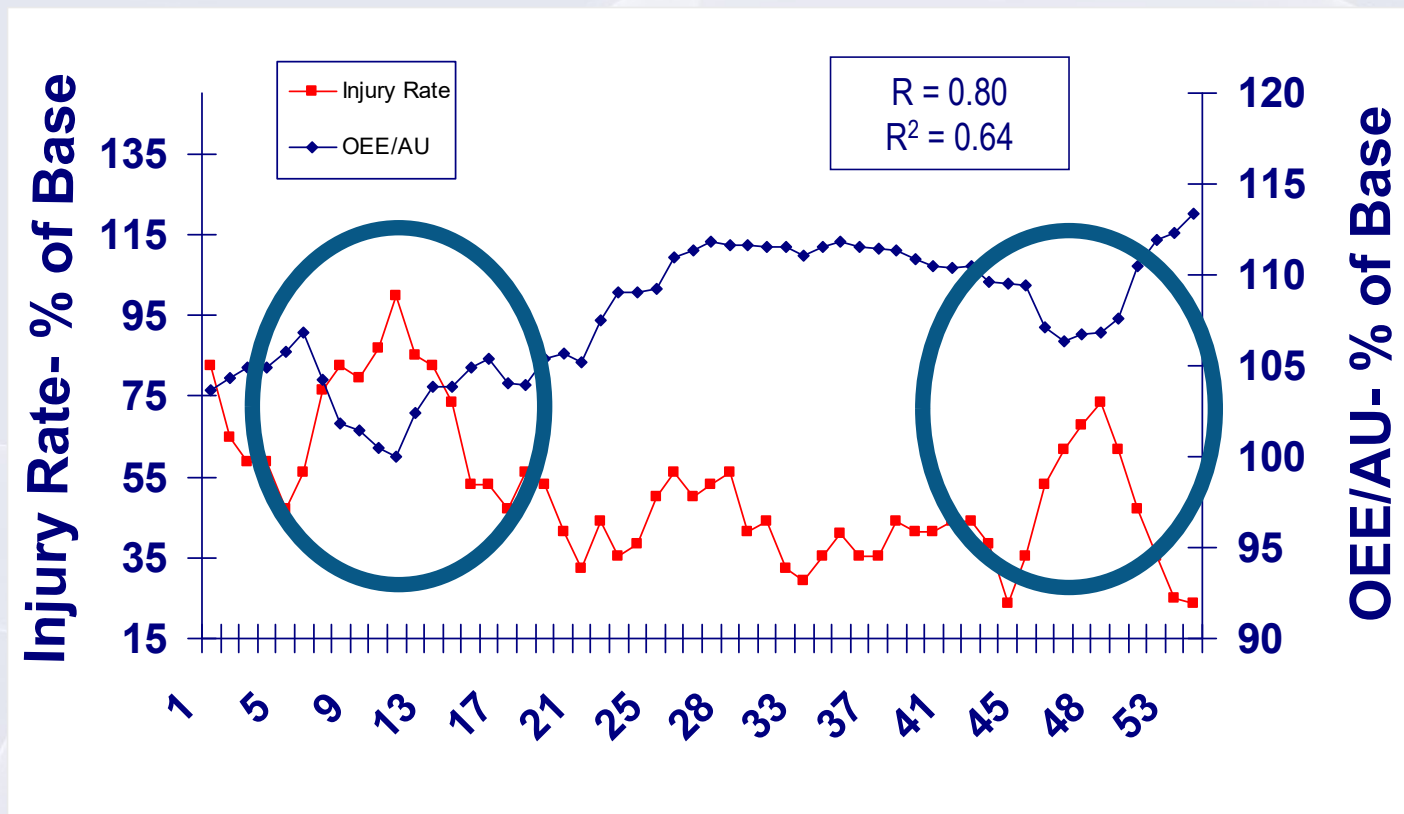
Reliability impacts both parts of this equation!

Impact of reliability practices on unit cost

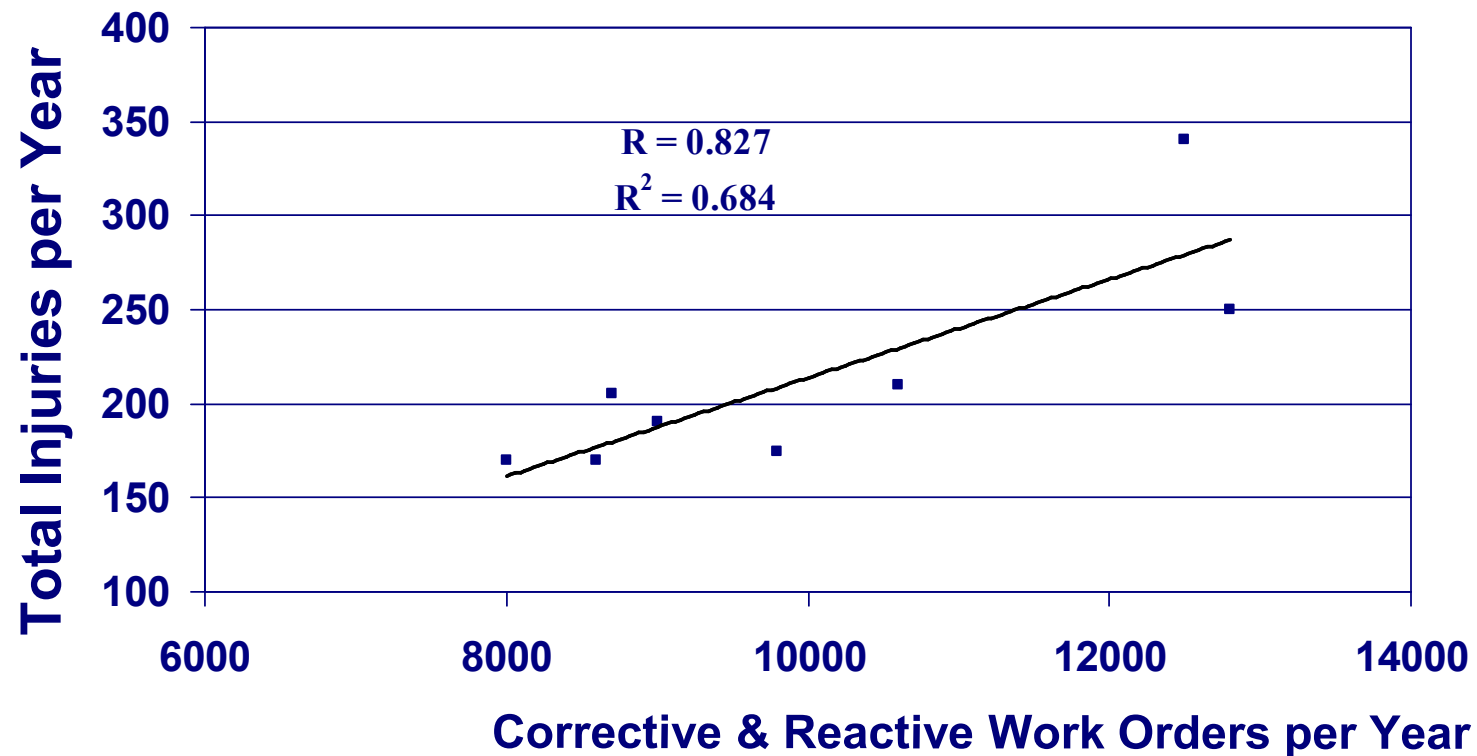


Reliability and Safety

Injury rate v. AU/OEE over time



Correlation of Corrective & Reactive Work Orders with Injury Rate



More data

- DuPont reported that the most likely person to be injured is:^{*}
 - a maintenance technician,
 - with less than two years experience,
 - doing reactive work
- Exxon-Mobil reported that accidents are five (5) times more likely in maintenance when doing breakdown work than when doing planned and scheduled work^{**}

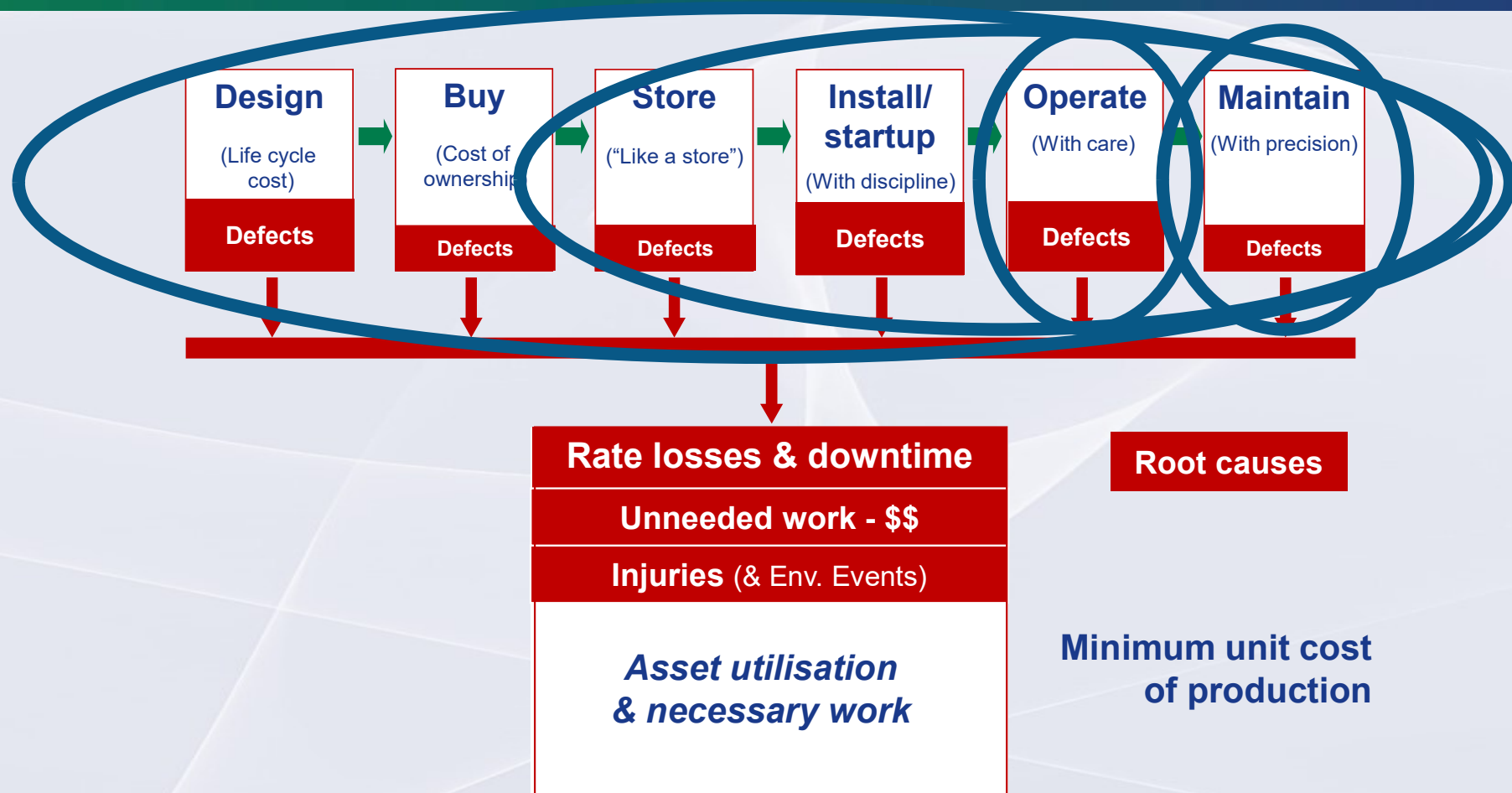
Sources: ^{*}Andrew Fraser, Reliable Manufacturing, Ltd.

^{**}Joel Levitt, Uptime Magazine, Aug/Sept 2011

**“A reliable plant, is a safe
plant, is a cost-effective plant!”**

A holistic strategy for high reliability performance

The reliability process



Reliability based Operations



- Japanese Institute of Plant Management (JIPM) reports:
 - **70% of failures are preventable by operators**
- A large manufacturer did 23 RCM analyses, resulting in 1,864 tasks to minimise failures:
 - **68% (1260 tasks) were operator tasks**
- A large chemical company did FMEA analyses at one of their plants, resulting in 475 tasks:
 - **66% (315 tasks) were operator tasks**

“Reliability cannot be driven by the maintenance organisation. It must be driven by the operating units, ...and led from the top.”

Charles Bailey, VP of Operations
Eastman Chemicals (Retired)

Eastman Chemicals Results



Maintenance Focussed

Uptime + 2%

Maintenance Cost - 5%

Operations Focussed

Uptime + 10%

Maintenance Cost - 40%

Why the dramatic improvement in results?



Operations took greater care of the equipment!

- Stopped destroying equipment on start-up
- Operating it within its design envelope
- Trained operators on how equipment works and how it can fail and their role in preventing failure
- Paid attention to signals from condition monitoring
- Worked with maintenance to ensure essential PMs got done and equipment was ready when required

Reliability based Operations



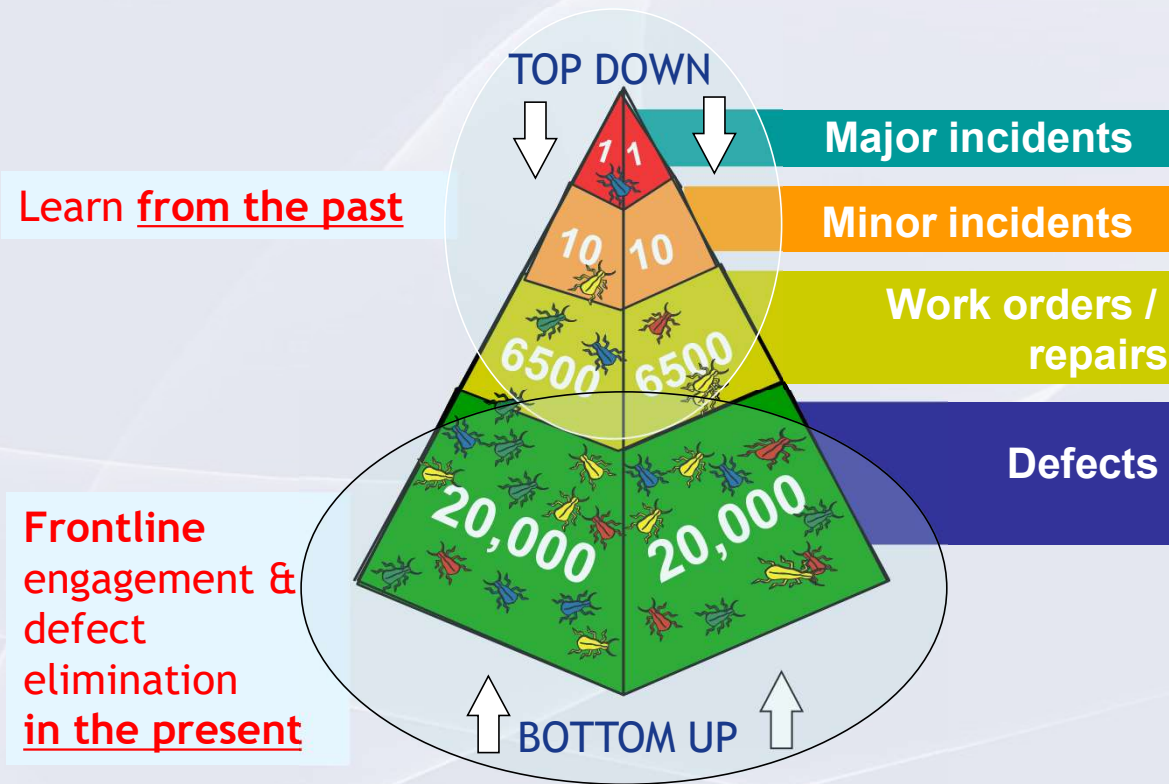
To expect maintenance to “own” reliability is like expecting the mechanic at the garage to “own” the reliability of our cars

Creating a high reliability performance culture

Learning's from safety



The Reliability Pyramid



Source: Defect Pyramid
Ledet Enterprises
Manufacturing Game

Remember



***“Proactive defect elimination
by frontline operations and
maintenance staff is the
bedrock of reliability!”***

Andrew Fraser

Thank You for Listening



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