

Staying True to Your Reliability Journey

GDA Conversation

June 2020

Presented by Kevin McQuillan



**Solomon
Associates**



Agenda

01 Maintenance Strategy

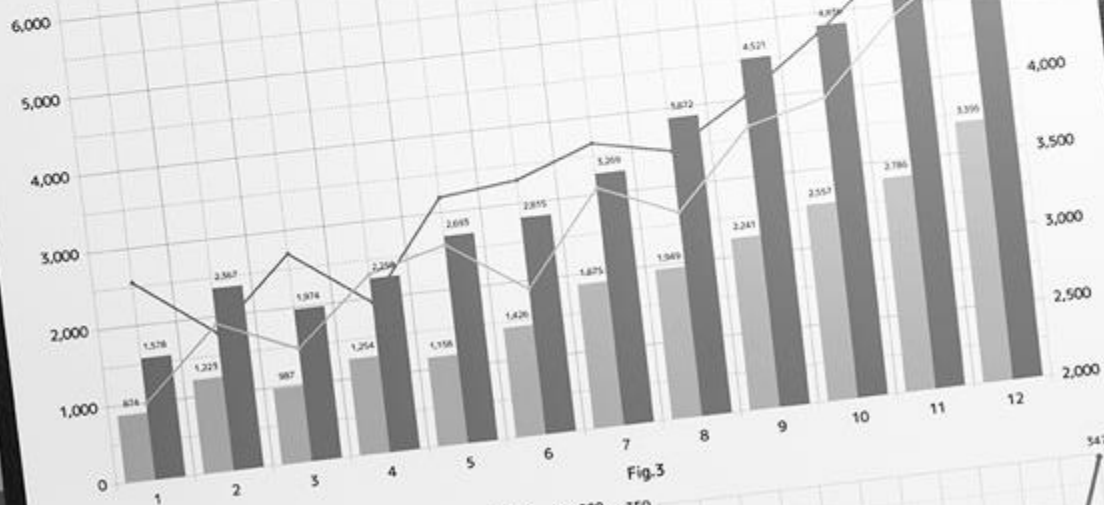
02 RAM Benchmarking

03 Maintenance Effectiveness and Efficiency

04 Key Messages

05 Discussion

Maintenance Strategy



Maintenance Is a Cost to the Organization

but it delivers value by ensuring plant availability

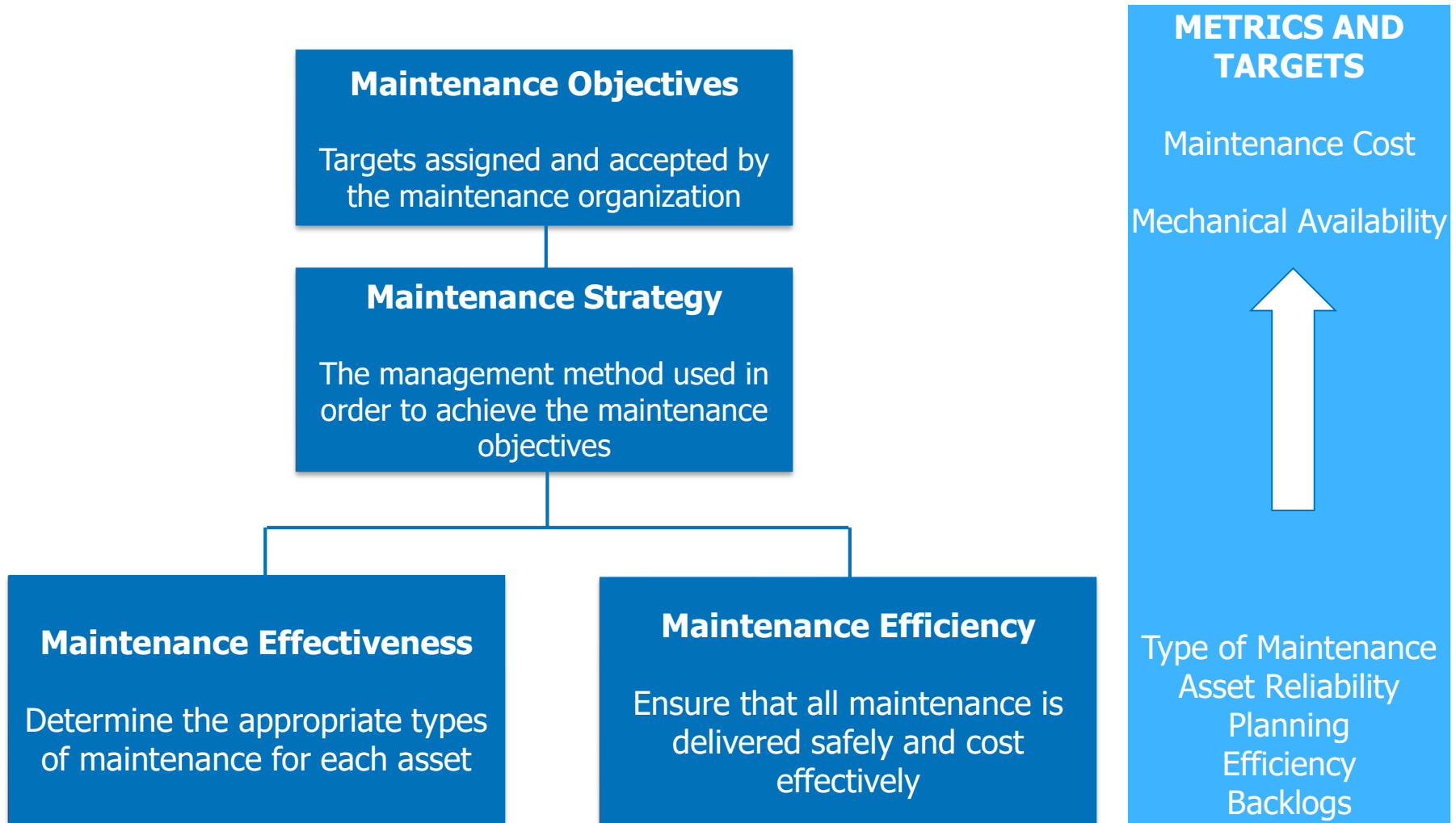
Visible Cost

- The money that is spent maintaining the assets

Less Visible Cost

- The value of lost production associated directly with lack of maintenance (breakdowns)
- The value of lost production associated directly with maintenance (overhauls or turnarounds)

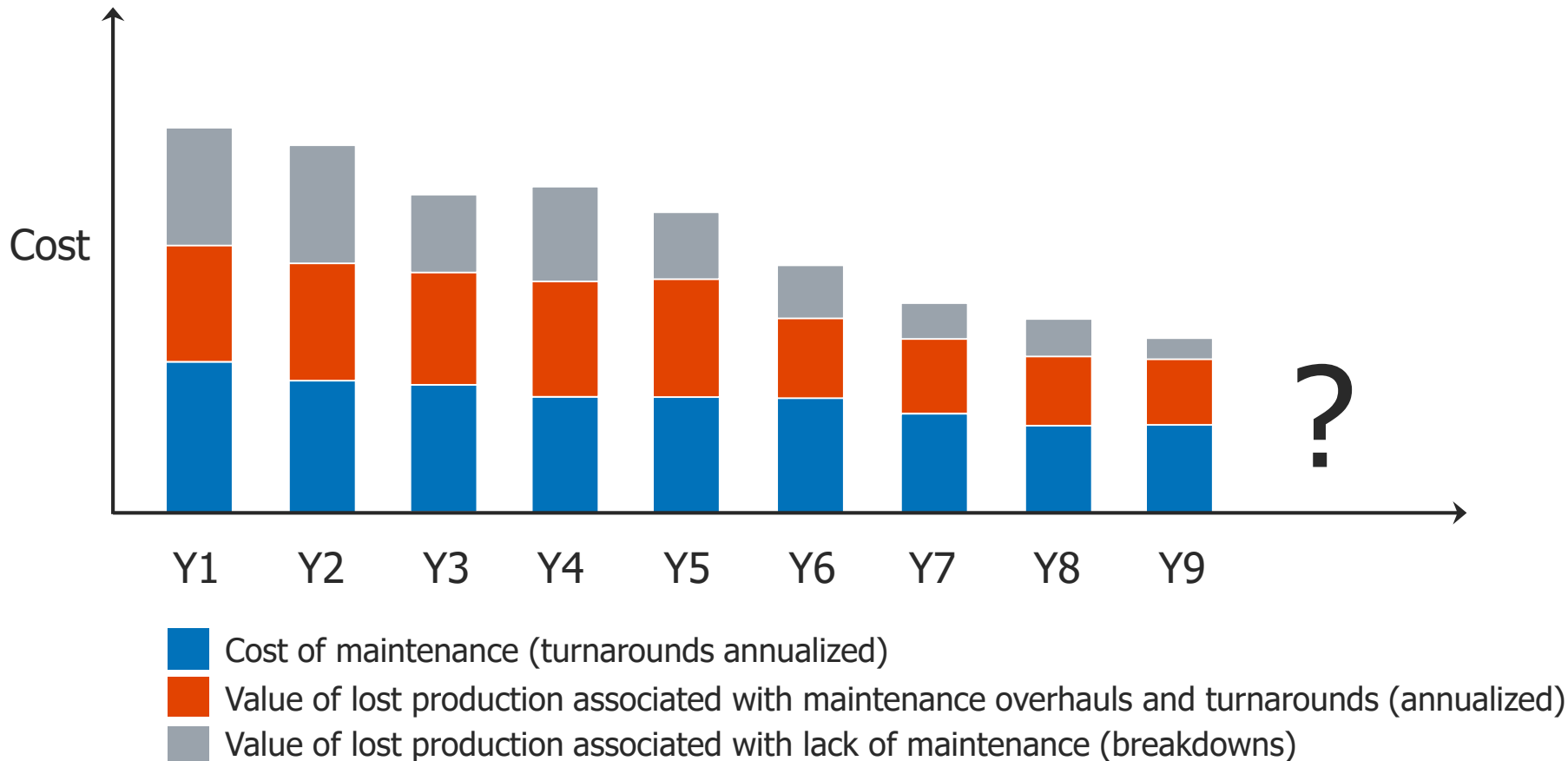
Maintenance Strategy



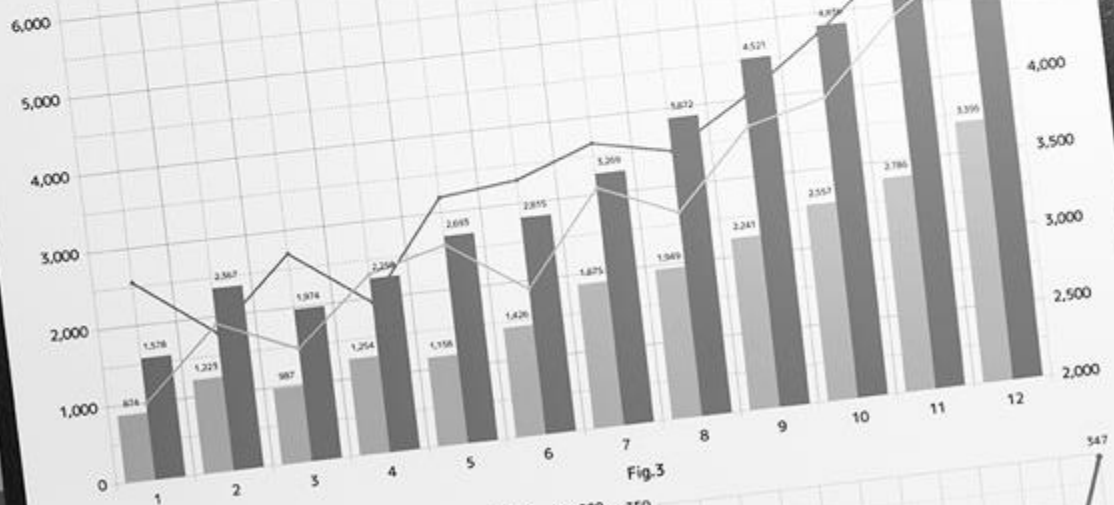
ISO 13306 "Maintenance Terminology" is a useful reference

The Optimum Maintenance Strategy

- The maintenance strategy may be considered to be optimized when the **total** cost of maintenance is at a sustainable minimum



RAM Benchmarking



Solomon RAM Study

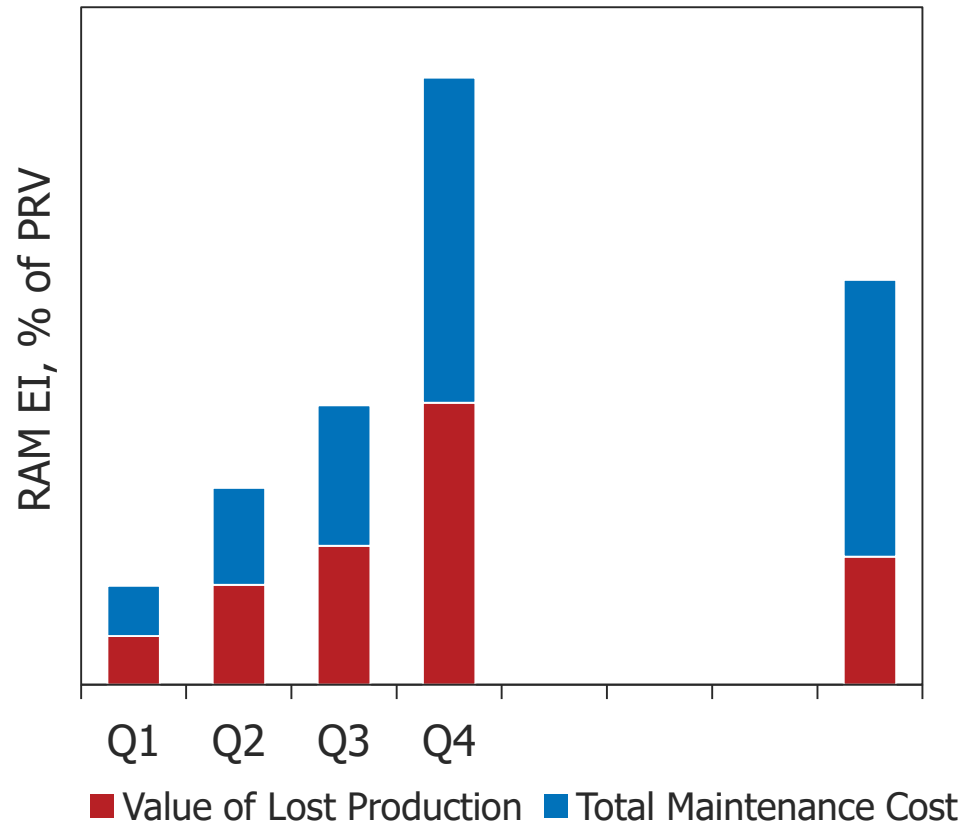
Quartiles of RAM Effectiveness Index (RAM EI) Performance

Benchmarking helps to:

- Understand what is possible
- Understand current performance
- Establish high-level targets

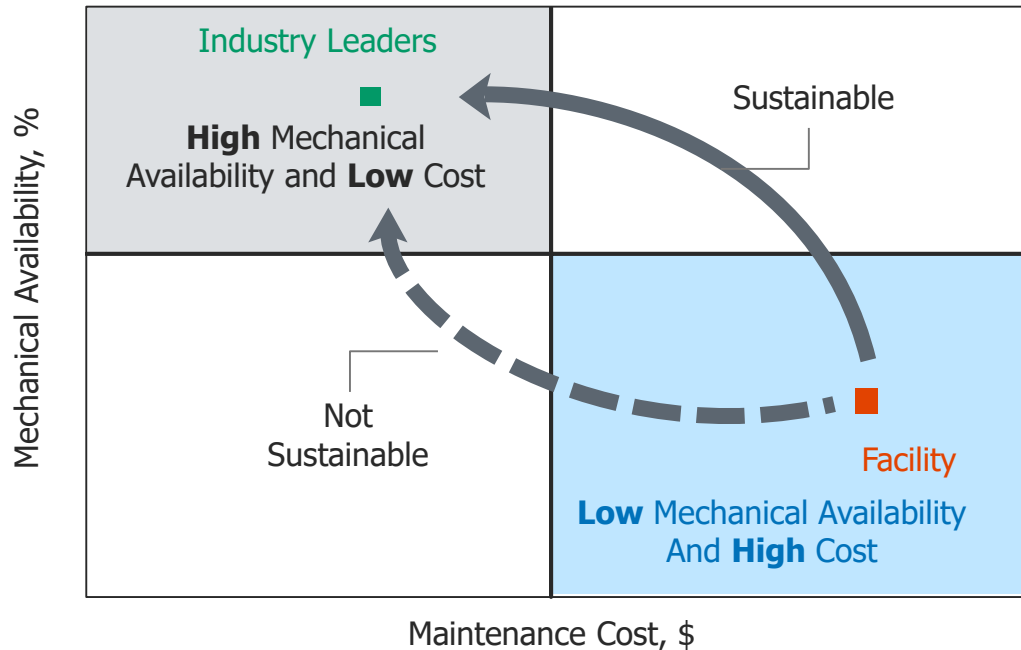
In addition, it helps to:

- Understand the characteristics of leading performers, to understand how they deliver excellence
- Set action plans
- Establish working metrics and targets



RAM EI = RAM Effectiveness Index; RAM EI = Maintenance Cost Index + Mechanical Availability Index; PRV = Plant Replacement Value

Performance Improvement



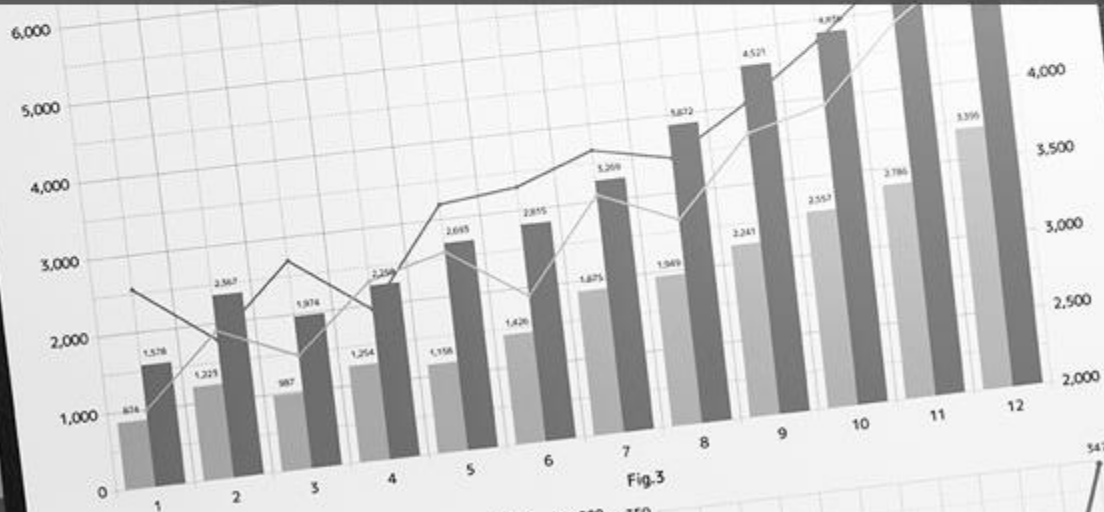
Data from repeat participants shows that:

- Performance improvement is possible, but takes commitment, competence, and time
- Sustainable performance improvement can be achieved by investing in reliability:

Of the assets	Targeted spending
Of the people	Leadership and culture

- Cost cutting can lead to short-term reduction in costs, but not to sustainable overall performance improvement

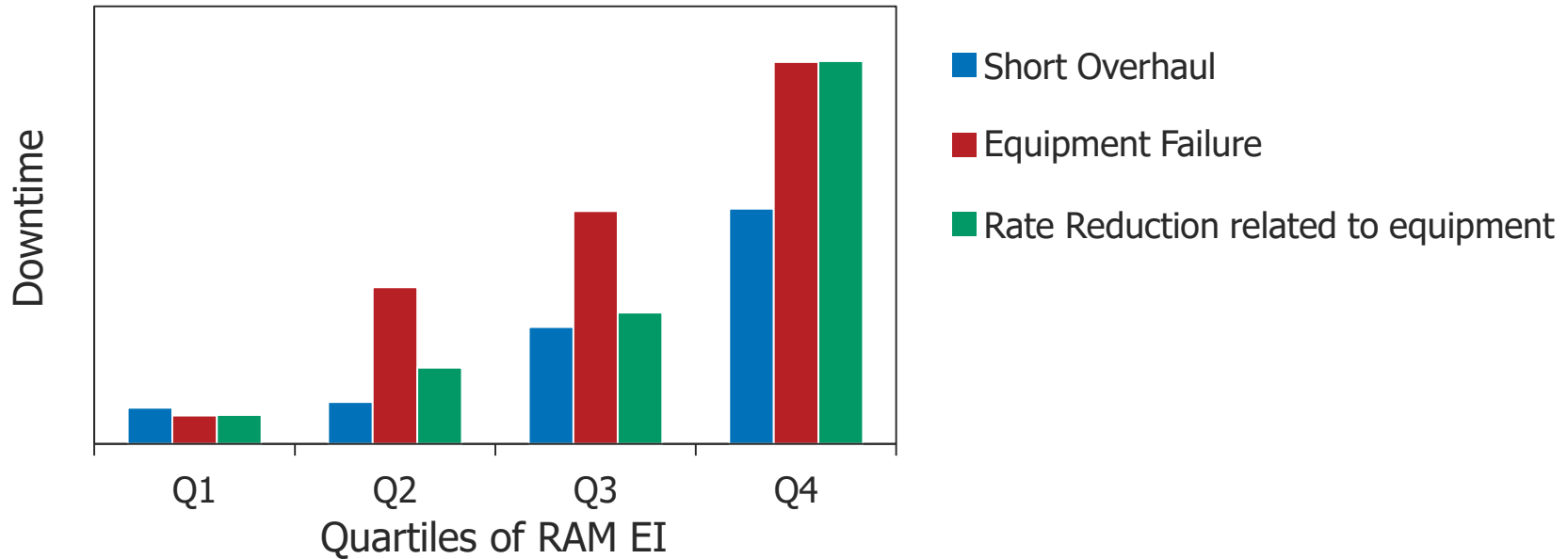
Maintenance Effectiveness and Efficiency



Effectiveness

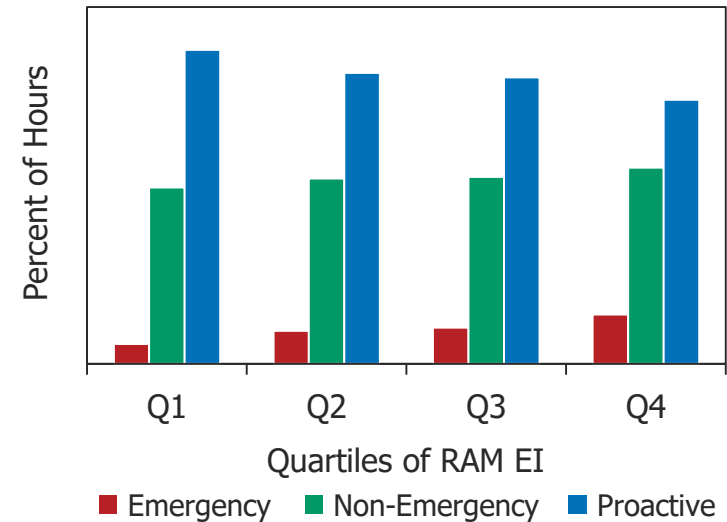
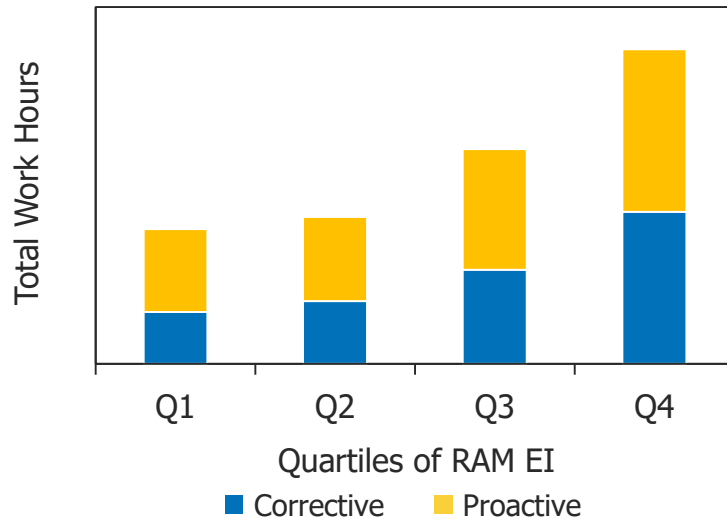
- **Effectiveness** is the extent to which the work undertaken has the desired impact:
 - Do the **right** work to the required specification
- The desired impact should be:
 - Improve the reliability of the asset
 - Restore the asset to its required function
 - Control the potential risk of future failure
 - Proactive inspection and mitigation

Non-Turnaround Downtime



- Better performers achieve better on-line reliability
- Their plants are typically running reliably between turnarounds
- Better performers also take smaller, faster, and less frequent turnarounds
- This is a major differentiating achievement

Optimization of Maintenance

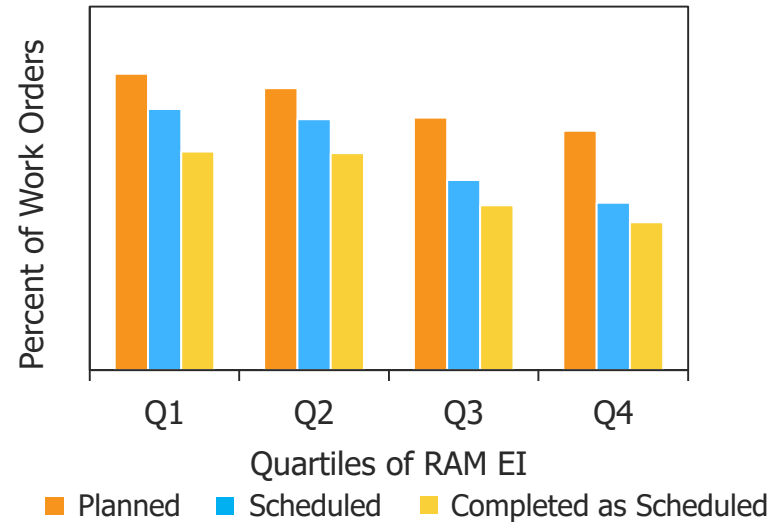
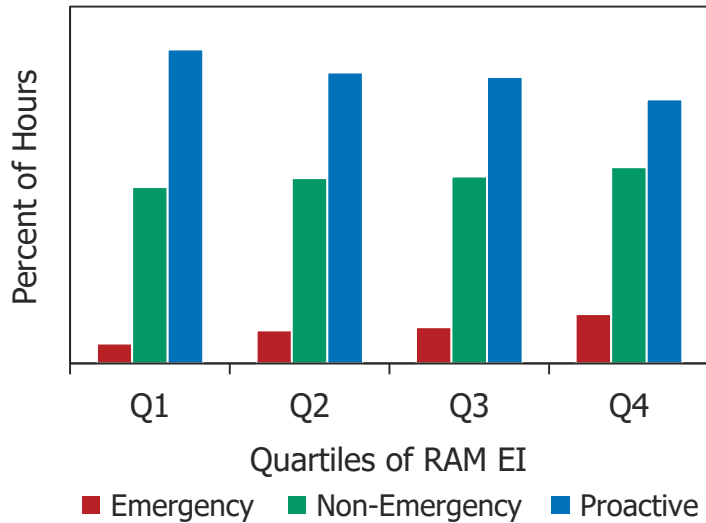


- Better performers work fewer hours in both corrective and proactive work
- Corrective work
 - Corrective maintenance is a function of reliability, and better performers have better reliability
- Proactive work
 - Better performers **optimize** their proactive maintenance
 - Poorer performers do more proactive work, but a lot of it does not add value

Efficiency

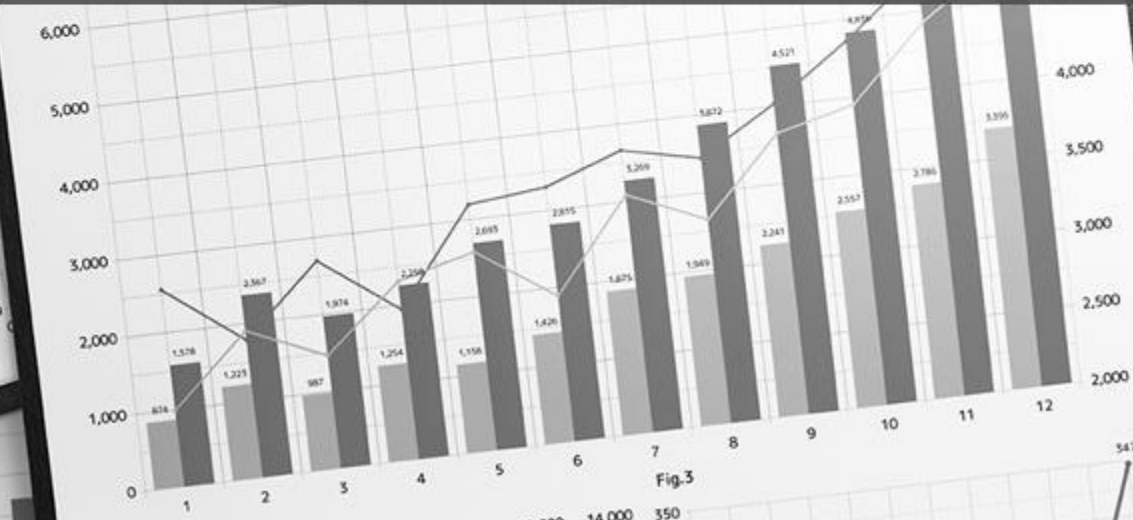
- **Efficiency** is the extent to which the work undertaken is delivered safely and at the optimum cost:
 - Are we doing the work **right**?
- This should involve consideration of:
 - Use of operators to do simple maintenance tasks
 - Creating a balance of contractors to client resources
 - Ensuring that the technicians are technically competent
 - Adhering to Best Practices and Processes

Corrective Work



- Better performers do significantly less emergency work
 - Work done in an emergency can be 6–9 times more expensive than the same work if done in a planned way
- Better performers are less reactive
 - They take the time to plan, schedule, and deliver work in an organized way to high standards

Key Messages



Key Messages

- Make sure your Maintenance Strategy addresses Mechanical Availability and Maintenance Cost.
- Think long-term.
- Avoid short-term, arbitrary cost cutting.
- Review your proactive maintenance work to ensure that all of the tasks you choose to do truly add value in the aim of protecting and improving reliability.
- Recognize your turnarounds as key contributors to overall RAM performance.

Questions and Answers





Solomon
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Improving
Competitive Performance

around the world

in pursuit of excellence

thank you!

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