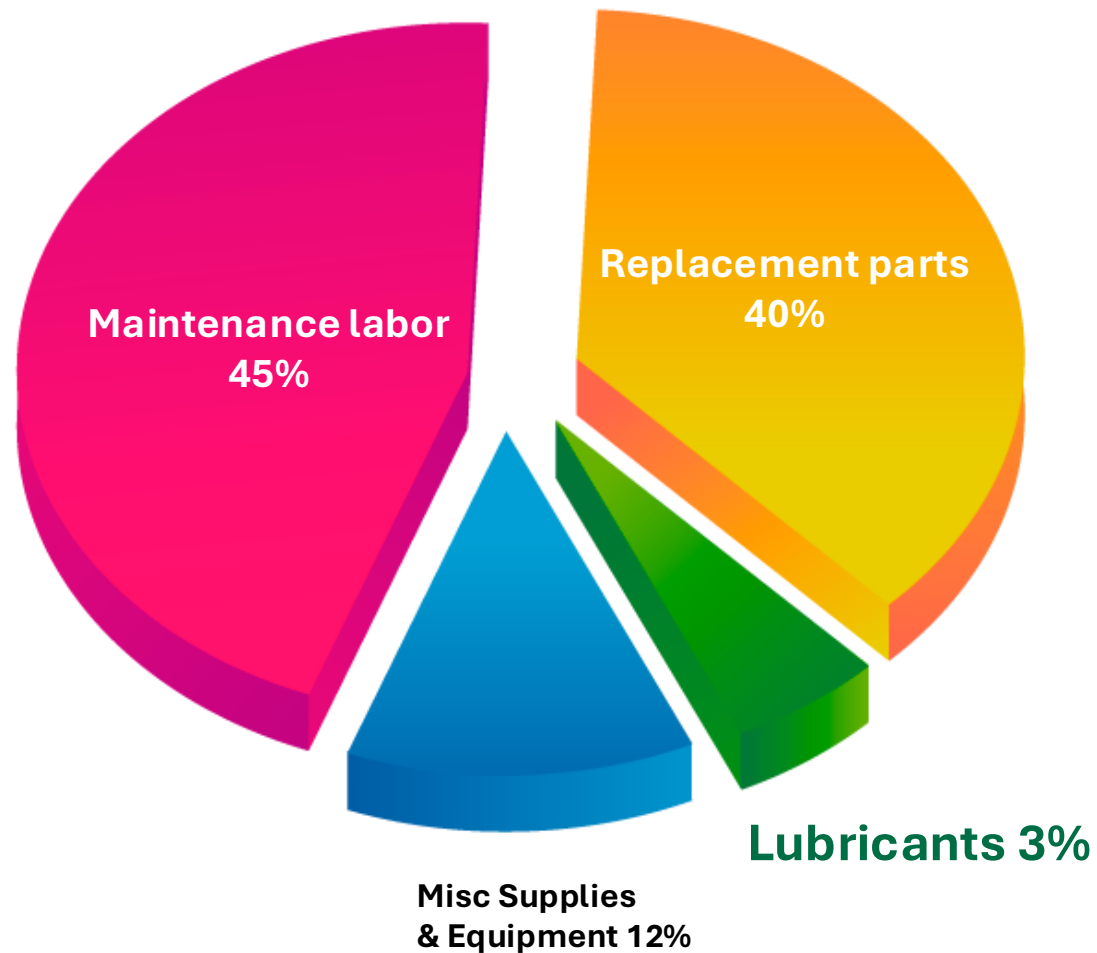




***IMPACT OF LUBRICATION
ON
EQUIPMENT PERFORMANCE***

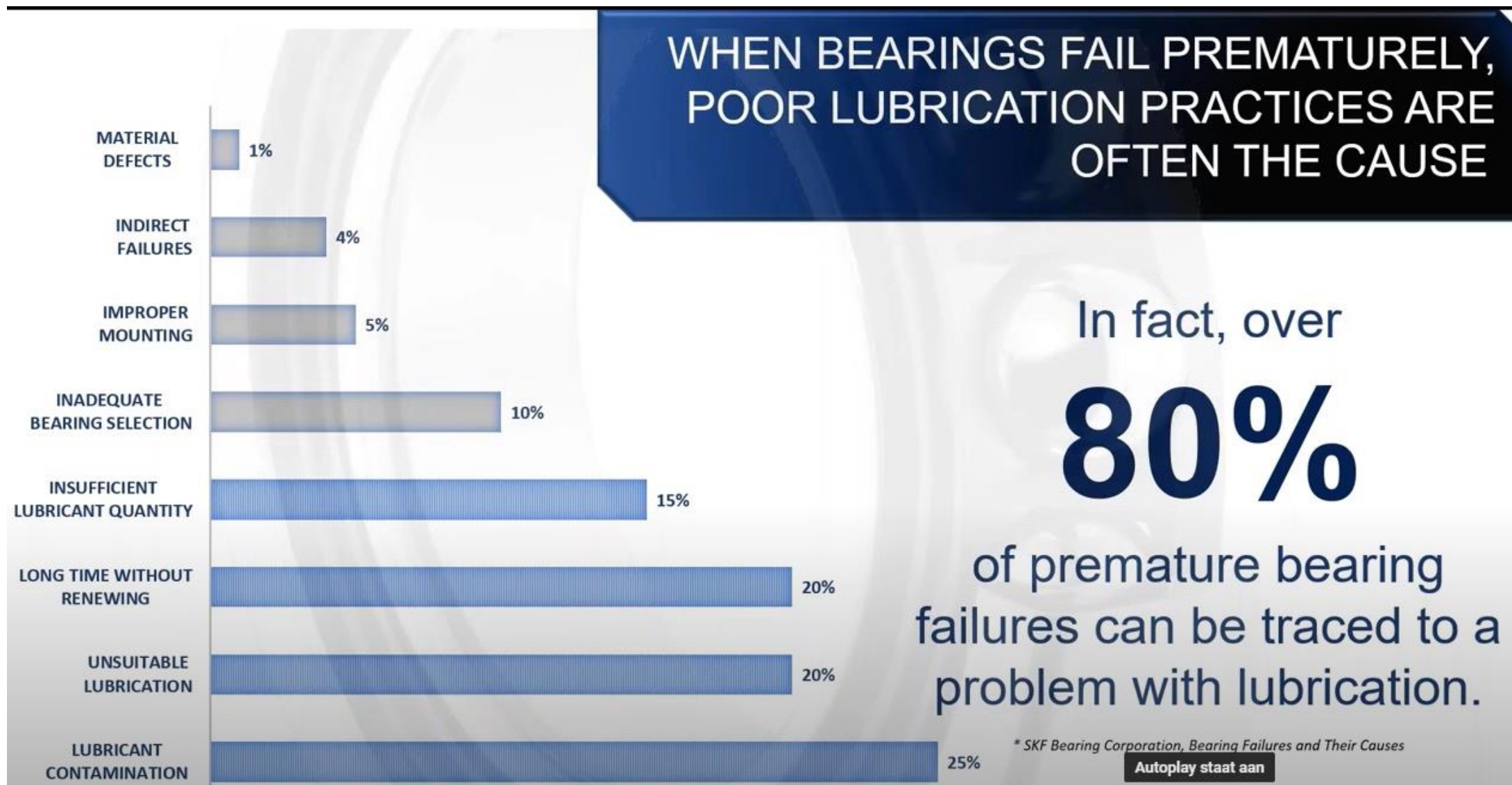
Typical Maintenance Budget



Only **3%** of the maintenance budget is spent on the **purchase of lubricants.**

Therefore the **price** of the lubricants has an **insignificant impact** on the maintenance costs

SKF Statistics about bearing failures



Impact of lubrication on equipment performance

Approx. 26% of the total maintenance costs in steel mill operations are lubrication related maintenance expenses.

Source: 1986 Annual Conference of the German Society of Tribology, sponsored by the German steel industry

> 50% of all electro-motor failures relate to bearing malfunctioning, most of which result from too little or too much lubrication

Source: Plant Engineering & Maintenance
Motor Failures: Common causes (and solutions)
December 20, 2010, Thomas H. Bishop

70 % of failures causing costs, are due to inadequate maintenance, within this 70 %, the largest part (43 %) is due to incorrect CHOICE and USE of lubricants.

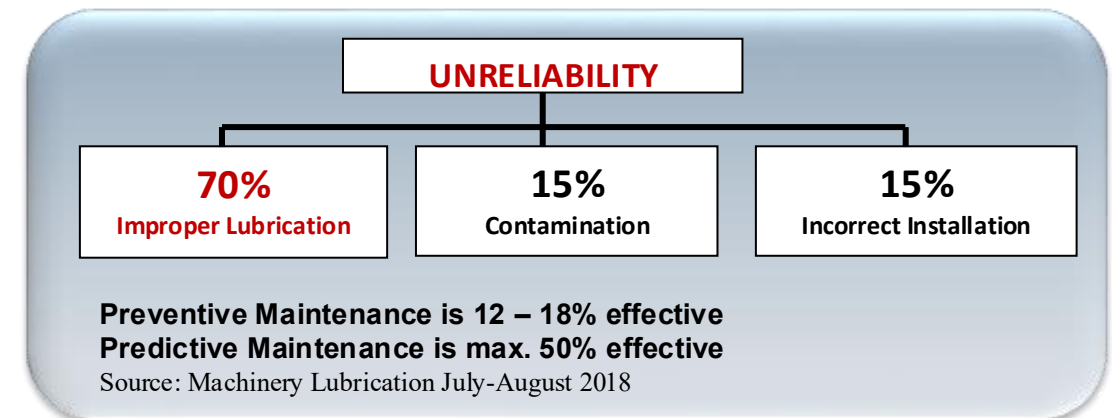
Source: AIMAN (Italian Association of Maintenance Engineers) & IRI (International Research Institute) in conjunction with SKF during the 1998 conference

Every \$1,000 invested in proper lubrication yields a saving of \$ 40,000

Source: Institute of Mechanical Engineers USA

80 % of mechanical failures relate to poor or improper lubrication practices.

Source: I.Mech.E UK (Institute of Mechanical Engineers UK)



Impact of lubrication on equipment performance

***Losses due to lubrication amount to 10 – 20% of the maintenance budget
(especially heavy industry, steel, base-metals, mining, P&P etc)***

Source: Machinery Lubrication 9/2008

***Losses due to lubrication amount to 26% of the maintenance budget in
steel mill operations***

Source: Source: 1986 Annual Conference of the German Society
of Tribology, sponsored by the German steel industry

***Losses due to lubrication amount to 30% of the maintenance budget in
underground mining applications***

Source: Komatsu Mining Corp. Group/ Joy Global (Africa) (Pty) (Ltd)
October 2025 during the Afton Chemical "Passion for Africa Conference"

Impact of lubrication on equipment performance

- Example:

An opencast copper mine using approx. 6 million litres of lubricants per annum
Hence will spend approx. *\$ 15 million* on the purchase of lubricants

- This means:

The lubricants costs represent 3% of the maintenance budget therefore the maintenance budget is 33 times the expenditure on lubricants hence the maintenance budget is $33 \times \$ 15$ million equals ~ *\$ 500 million*

- Impact of lubrication:

The losses due the lubrication amount to approx. 20% of the maintenance budget which equals *\$ 100 million.*

- Opportunity for improved lubrication:

- 70 – 80% of all mechanical issues are somewhere lubrication related
- An investment of \$ 1,000 in proper lubrication yields a cost saving of \$ 40,000

The costs of lubricants are disproportional low compared to the cost-saving potential

Do you want to save 10% on the purchase of lubricants or on the lubrication related costs ?

All reliability focussed
organizations recognize
LUBRICATION
as the cornerstone of asset
management

Spending money on machines that are not broken

Reliability Centred Maintenance (RCM)

We check tire pressure, alignment and balancing to prevent failures
Root Cause Centred
“Proactive Maintenance”

Light bulbs we replace on failure
“Reactive Maintenance”



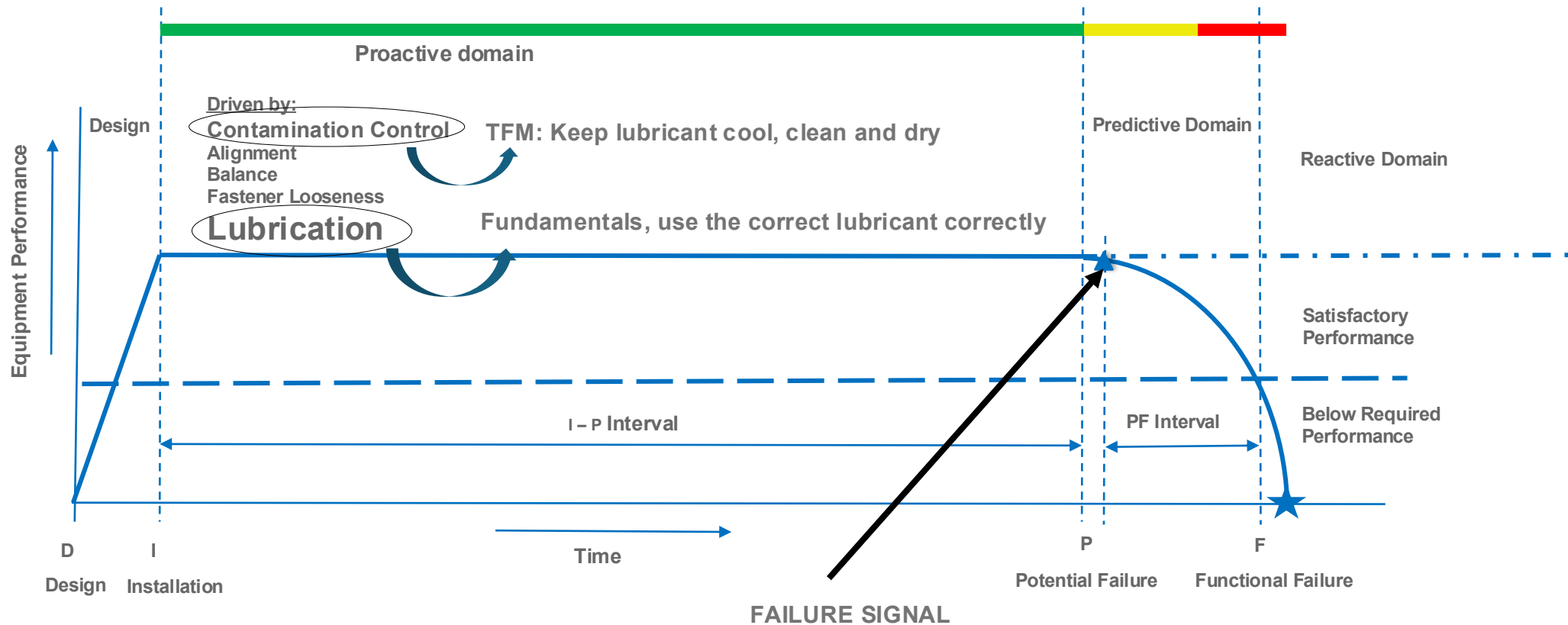
Brake pads we replace on condition (wear)
“Predictive Maintenance”

Engine oil we replace periodically/ or mileage
“Preventive Maintenance”

Maintenance Strategies

Spending money on machines that are not broken

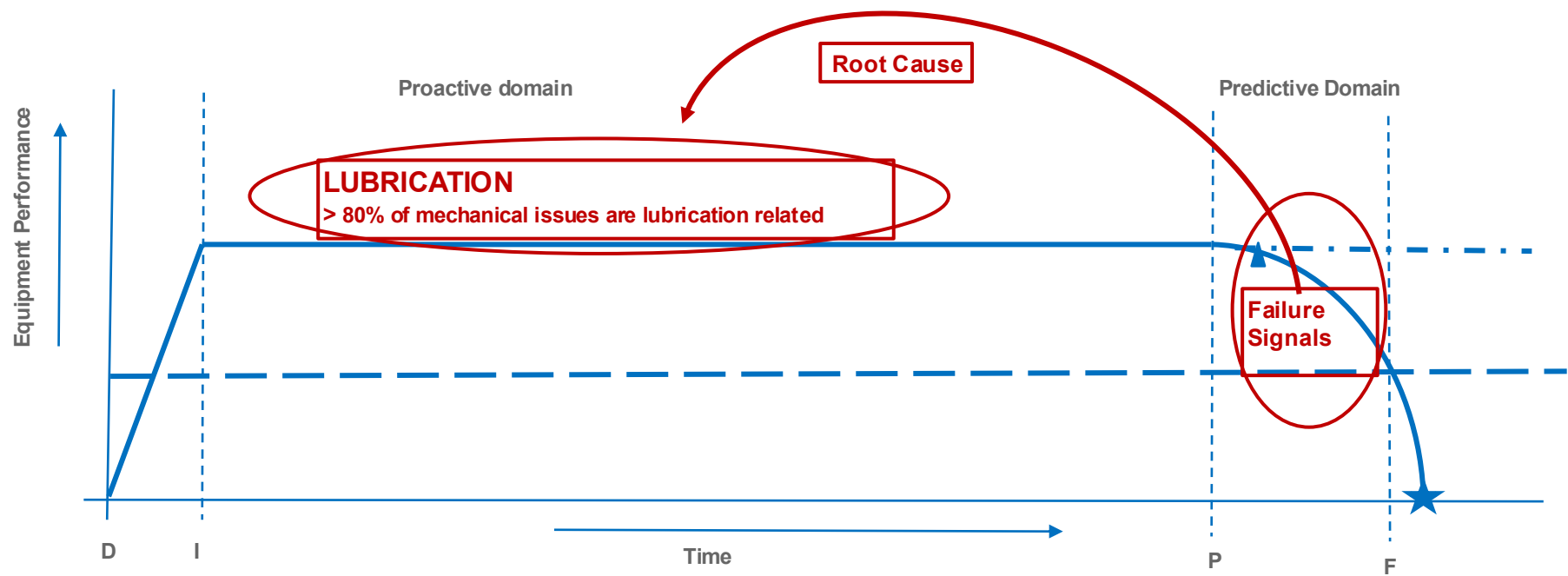
Understand the relationship between Asset Life Cycle and Reliability Tools and Methods



Maintenance Strategies

Spending money on machines that are not broken

Understand the relationship between Asset Life Cycle and Reliability Tools and Methods



Process in Practice – HPL Approach

Consistent, Structured & Transparent

1. Walkthrough & Commitment

Identify & Agree

2. Engineering Study

Understand Current Situation

ORS (Optimum Reference State = Optimum Result)

GAP Analysis

Define improvement & improvement process

3. Proposal

Value/ solution proposition

4. Implementation & Optimization

Joint effort to achieve improvements

5. Confirmation

Proof of value delivered



Cycle can take 3 months to more than 1 year

5Rtribology

THANK YOU