

BUSINESS ASSURANCE

Asset Integrity Excellence in Process Industries

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07 August 2018

What are the key issues emanating from Asset integrity failure



EHS Performance and Reputation



THE NEW INDIAN EXPRESS

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NEWS / CITY NEWS / VADODARA NEWS / FOUR WORKERS DIE, 13 INJURED IN FIRE AT FERTILIZER COMPANY AT NANDESARI

Four workers die, 13 injured in fire at fertilizer company at Nandesari

Jay Pachchigar | TNN | Updated: Jan 22, 2018, 06:59 IST

✉ 🖨️ A- A+



Fire fighters dousing fire that broke out in GSP Crop Sciences Pvt Ltd.

VADODARA: Four workers died and 13 others were injured in a massive fire that broke out in GSP Crop Sciences Private Limited at Ranoli GIDC in the early hours of Sunday. The fire was triggered due to a blast in a reactor in one of the plants, which manufactures fertilizers and pesticides.

Firemen recovered bodies of three persons after dousing the fire. while the fourth worker

Impact on Operational Costs



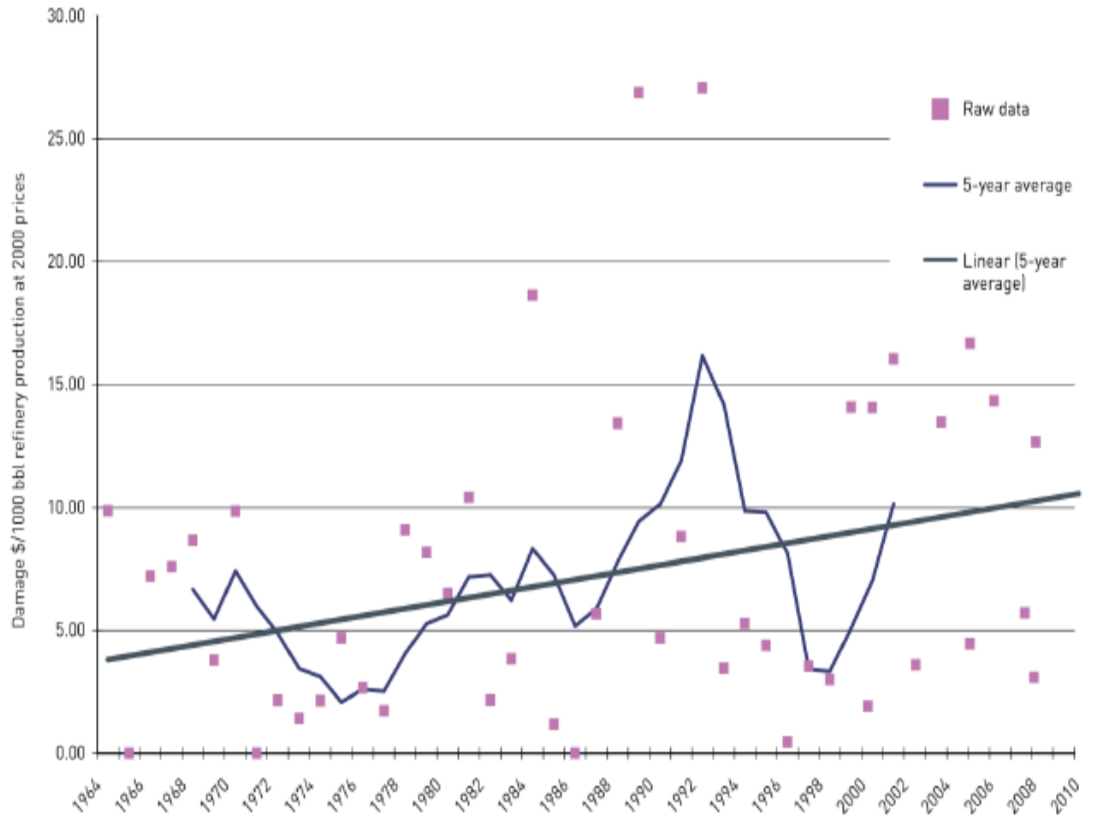
Energy Practice

THE 100 LARGEST LOSSES 1974-2013

LARGE PROPERTY DAMAGE LOSSES IN THE HYDROCARBON INDUSTRY
23RD EDITION



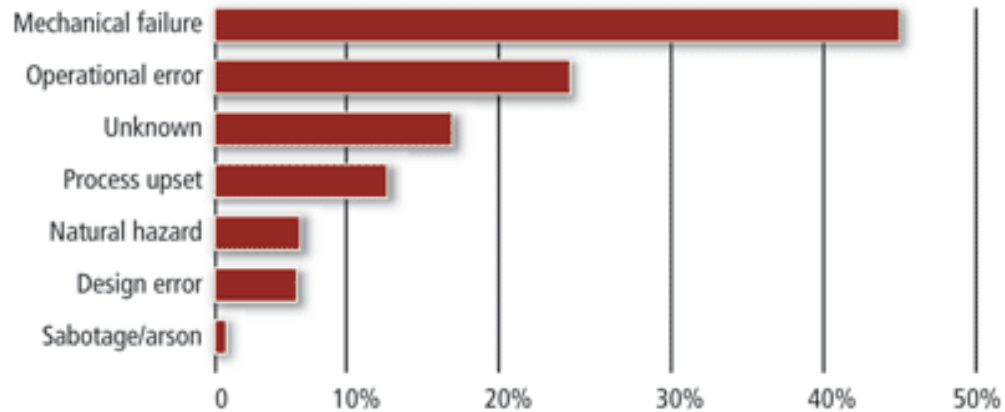
Incident costs - \$ per 1000bbls refinery capacity corrected to 2000 prices



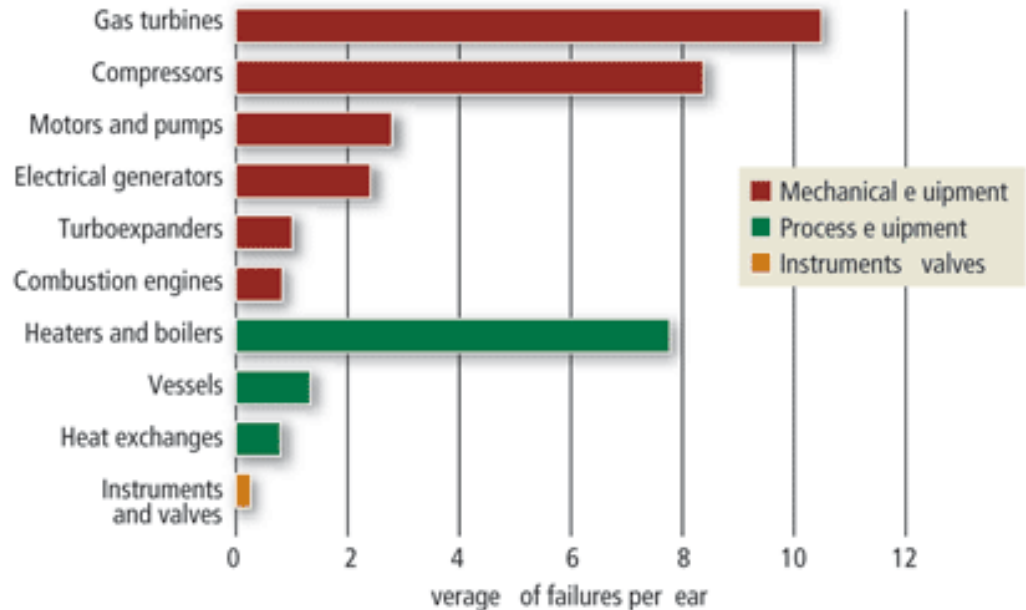
Cost of Downtime

Industry	Hourly Downtime Costs
Brokerage Operations	\$6,450,000
Energy	\$2,817,846
Credit Card Sales Authorizations	\$2,600,000
Telecommunications	\$2,066,245
Manufacturing	\$1,610,654
Financial Institutions	\$1,495,134
Information Technology	\$1,344,461
Insurance	\$1,202,444
Retail	\$1,107,274
Pharmaceuticals	\$1,082,252
Banking	\$996,802
Food/Beverage Processing	\$804,192
Consumer Products	\$785,719
Chemicals	\$704,101
Transportation	\$668,586
Utilities	\$643,250
Healthcare	\$636,030
Metals/Natural Resources	\$580,588
Professional Services	\$532,510
Electronics	\$477,366
Construction and Engineering	\$389,601
Media	\$340,432
Hospitality and Travel	\$330,654
Pay-Per-View TV	\$150,000
Home Shopping TV	\$113,000
Catalog Sales	\$90,000
Airline Reservations	\$90,000
Tele-Ticket Sales	\$69,000
Package Shipping	\$28,000
ATM Fees	\$14,500
Average	\$944,395

Causes of production losses in refineries.

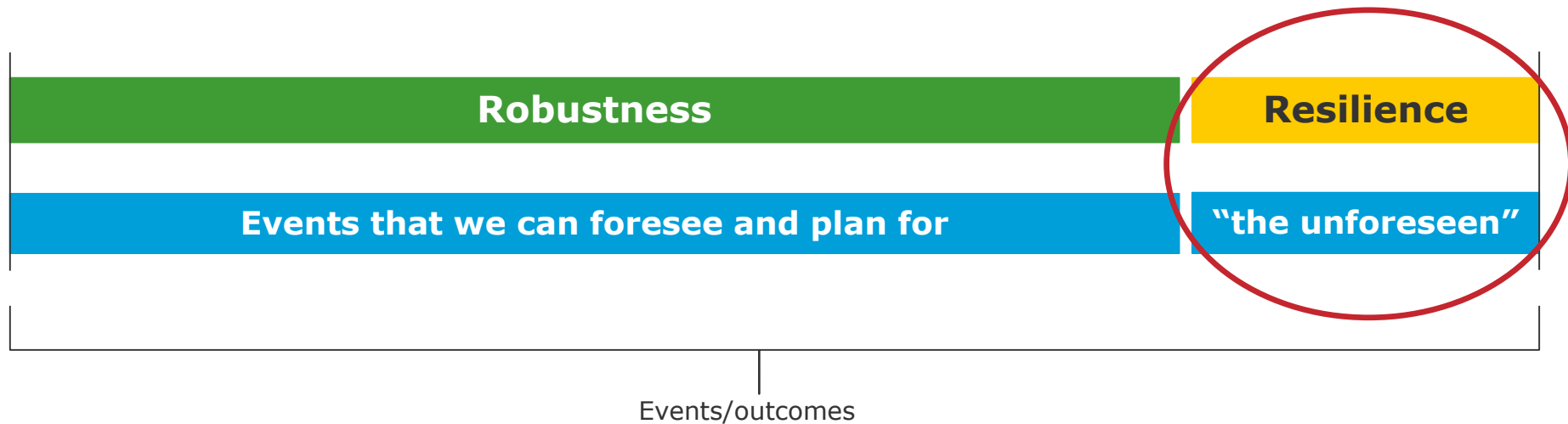


Sources of unscheduled shutdowns in oil and gas.



Sources: IT Performance Engineering and Measurement Strategies: Quantify Performance and Loss, Meta Group, Oct. 2000; Fibre Channel Industry Association

Operational Resilience



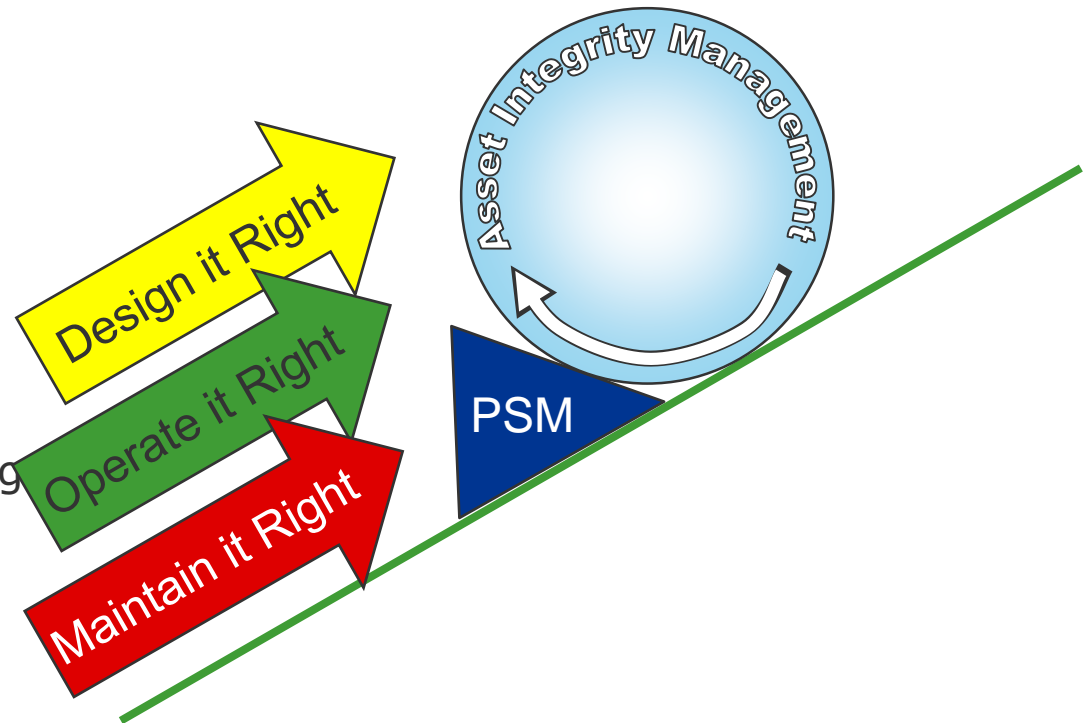
Ageing Assets



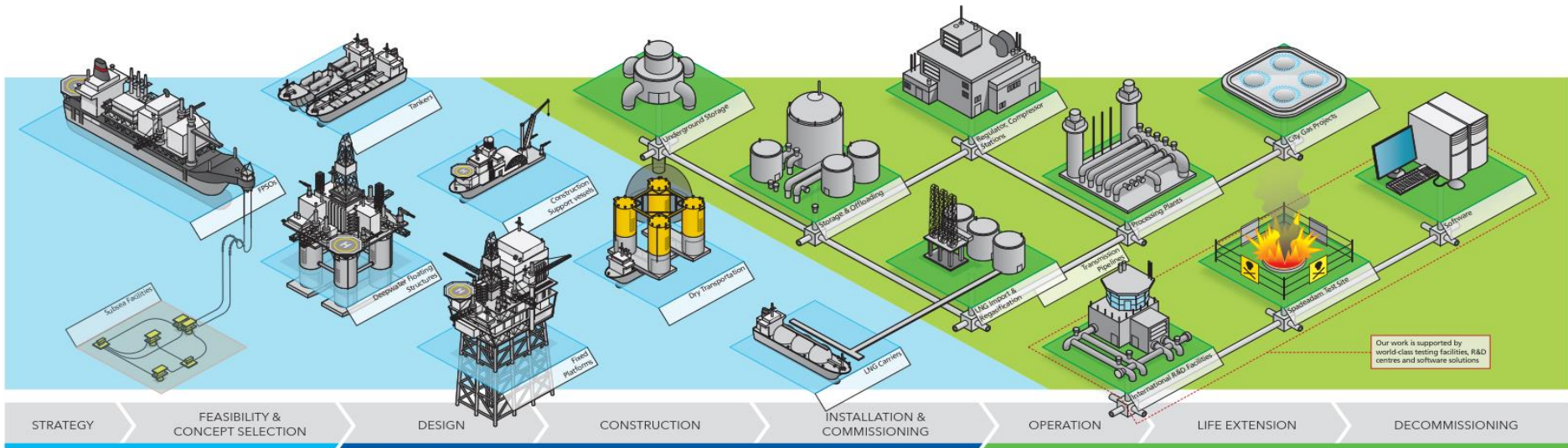
Driving Asset integrity in Process industries

Achieving Peak Performance through AIM and PSM

- To deliver world class asset risk management performance we have to ensure assets are:
 - **Designed** correctly
 - **Operated** correctly
 - **Maintained** correctly
- And we need **Process Safety Management** systematics along with competent people and knowledge to prevent performance slipping.



Operationalising Asset Integrity through Process Safety



Asset Integrity Management

***RISK MANAGEMENT AND
MITIGATION***

**ASSET LIFECYCLE
MANAGEMENT**

**MAINTENANCE
AND OPERATIONS**

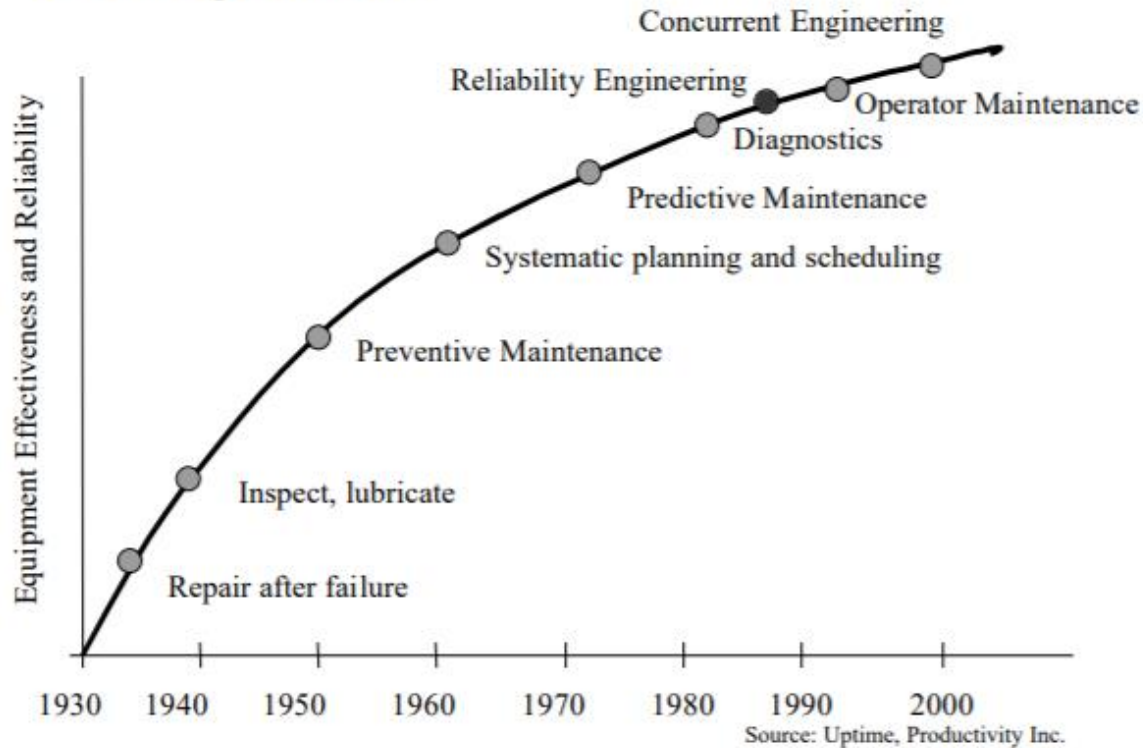
**CONDITION AND
PERFORMANCE
ASSESSMENT**

**ASSET DATA AND
QUALITY**

MONITORING AND EVALUATION

Evolution of Maintenance Maturity

Emerging Strategies for Maintenance Management



6

Key Talking Points

SHOW OF HANDS PLEASE



Do you have a clear line of sight about the %non availability of EHS Critical Elements in your operations?

What is the remaining life of critical infrastructure assets? Was the risk for aging assets determined?

Do you have an Operational strategy/procedure with regards to your assets. Has this also been considered in you ERM and BCP

At what level of maintenance maturity are you operating ? How do you plan to incorporate IoT and AI in your Operational Integrity

Thank you..!!

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