

Operational Excellence

A framework for Sustainable Operational Excellence

IPAMC Conference October 2016

Legal Protection

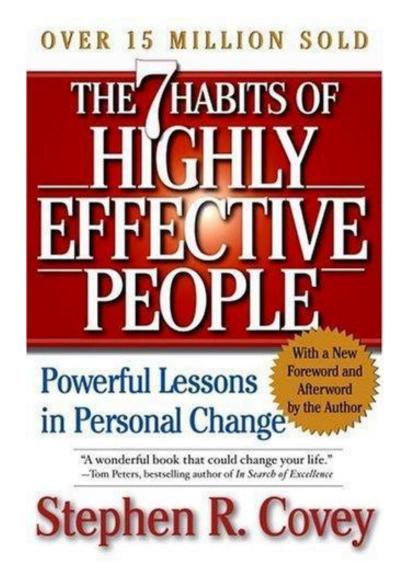


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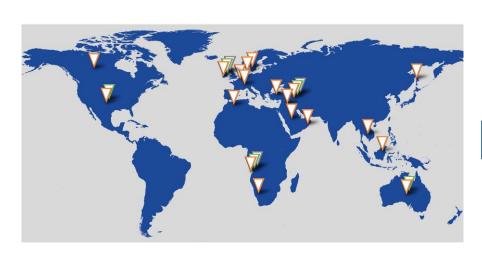
HABITS OF HIGHLY **EFFECTIVE** PETROCHEMICAL **OPERATORS**

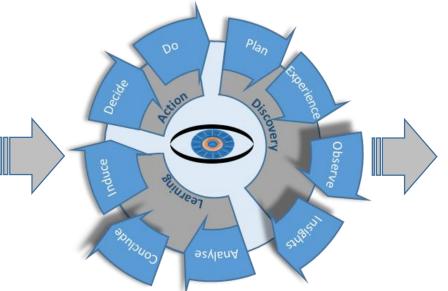




THE HABITS OF HIGHLY EFFECTIVE PETROCHEMICAL OPERATORS







THE HABITS OF HIGHLY EFFECTIVE PETROCHEMICAL OPERATORS



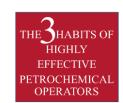
HABIT Number

Continual Maturity of the company's

Operational Management System with

Operational Discipline and Sustainability

focus



Law

RC

14001

ISO

14001



HABIT Number

Best

Practice

Law

OHSAS

18001

ISO

9001

What the

Boss Wants

ISO

20000

Continual maturity of the company's **Operational Management System** with **Operational Discipline** and **Sustainability** focus



People

operating leaders are competent echibit visible, purposeful and systematic leadership and are respected by the organizations

have fit for purpose

competent people

and agile

organizations

staffed with

and teams

Processes

workforce at all levels of our

ostanization understands and

reduce damage to the

operations

environment and to achieve

competitive performance

manages operating risk to prevent

accidents and harm to people, to

Leadership

- Operating Leaders
- Operating Strategy
- Planning and Controls Resource and
- Implementation
- Accountability
- Communication and
- Engagement

Culture

- Organization
- Organization Structure People and Competence
- Operating Discipline
- Organizational Learning
- Working with Contractors

Risk

- Risk Assessment and Management Personal
- · Process Safety
- Health and Industrial Hygiene
- Security
- Environment
- Transportation

Procedures

- · Management of Change
- · Incident Management
- Crisis and Continuity Management and **Emergency Response**

Plant

plants, facilities, assets and floating systems are fit for purpose throughout the lifecycle of the operation

operations are

continuously

assets

Assets

- Project Management
- Design and Construction
- Asset Operation
- Inspection and Maintenance
- Decommissioning and Remediation
- Marine Operations

Optimization

- Plant Optimization
- Energy
- . Feedstock and Product Scheduling and Inventory
- Quality Assurance
- Technology
- Procurement
- Materials Management
- Continuous Improvement

Performance

optimized to improve

performance and

delivery from our

deliver what is promised and address issues raised by our key stakeholders

Regulations

- Regulatory Compliance · Community and
- Stakeholder Relationships
- Social Responsibility
- Customer Focus
- Product Stewardship

Measurement is used to understand and sustain performance

- Results
- Metrics and Reporting Assessment and Audit
- Performance Review
- Budget Management



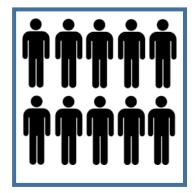
document and rigorously follow procedures for safe, reliable and compliant

- Procedures and Practices
- Information Management and Document Control
- Control of work

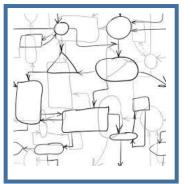




OMS

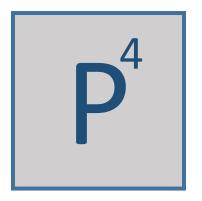








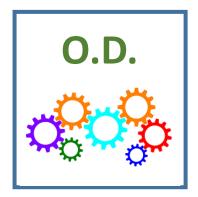










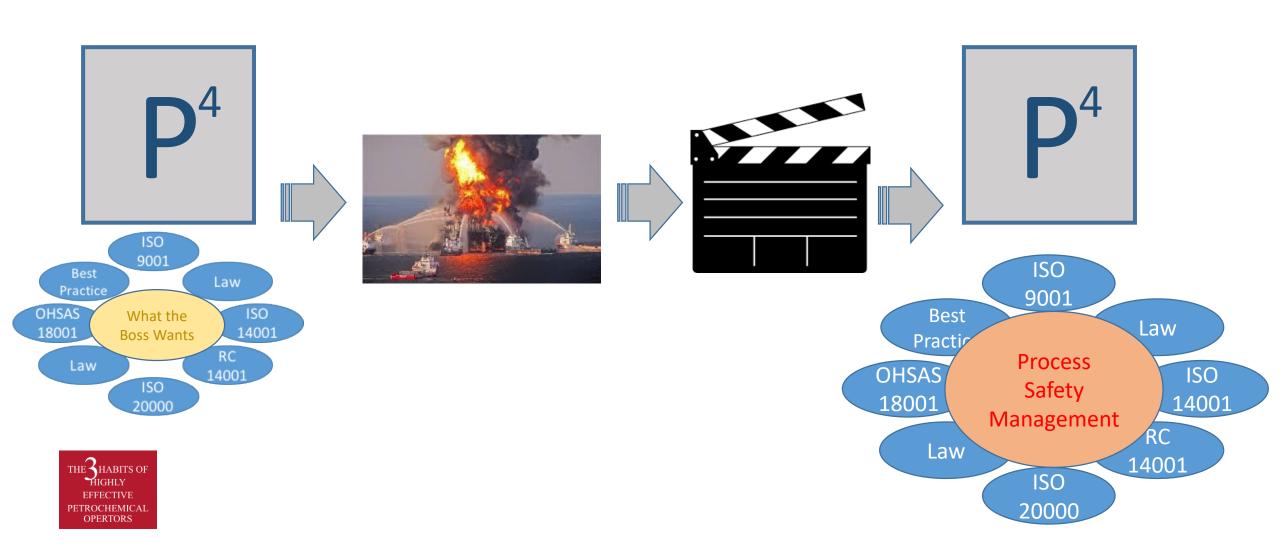


Operational Discipline

- Policy Statement
- OMS
- Organization and who is accountable at governance and management level
- Practitioners understand what and why and their part in the process
- Rules are followed because people fully understand the business consequences of failure
- Comprehensive verification at every level
 - you maintain the level of standards that you inspect not that you expect
- High standards maintained









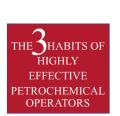






2020+ 2020+





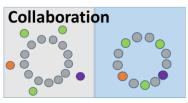


Drivers

Climate

uality of life



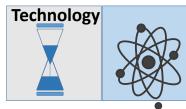


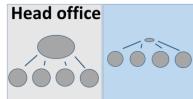


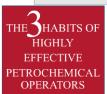












Tomorrow

Drivers Safe and clean

clean production Benchmark

Strategy

- Ops discipline
- Brownfield projects
- Clean energy
- New partners
- Performance manage

Strategy

- Monetarization
- Responsible operator program
- Demonstrate improvements

Internal

Drivers

Sustainable Value

External

Strategy

- Embed Asset management
- Restore production capability

Strategy

- Finance regulation
- Oil price strategy
- Collaboration

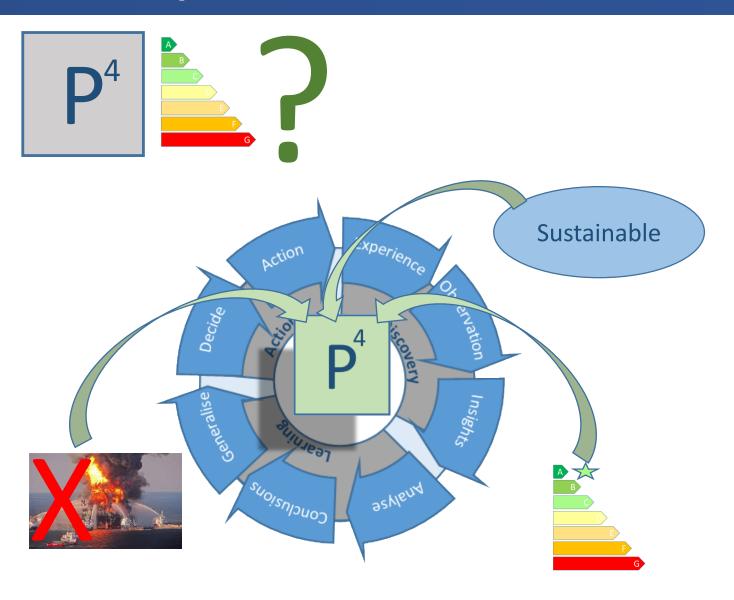
Drivers
Transparency
External

takeholders

Today

Ref "the necessary revolution" (Peter Senge, 2010)





Sustainable and Effective OMS



- Continuous learning and improvement
- Operational Discipline and process safety management
- Risk reduction and value creation
- Health check for maturity and conformance
- Focus on culture
- Sustainability built in
 - ✓ Verification of Internal capability and Gap to potential
 - ✓ Sustainability processes goals and tactics
 - ✓ Internal/External Stakeholders engagement and feedback program
 - ✓ Leadership for the future





HABIT Number

Continual Maturity of the company's

Operational Management System with

Operational Discipline and Sustainability

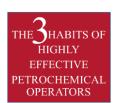
focus





HABIT Number

Operational Reliability led strategy throughout the assets <u>lifecycle</u>

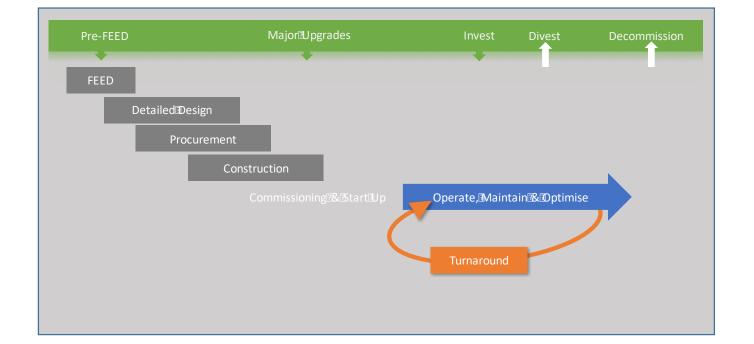




HABIT Number 2

Operational Reliability led strategy throughout the assets **lifecycle**

Operational Reliability led Strategy

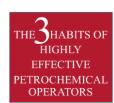








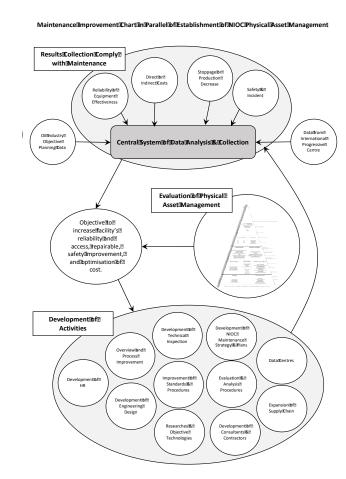


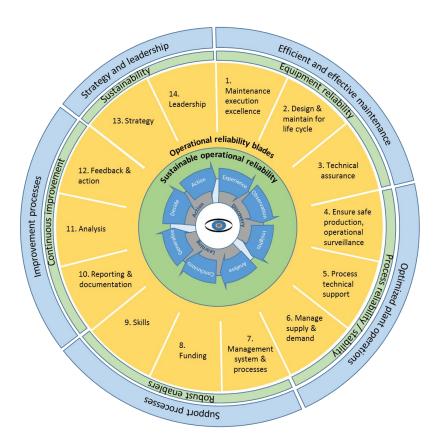


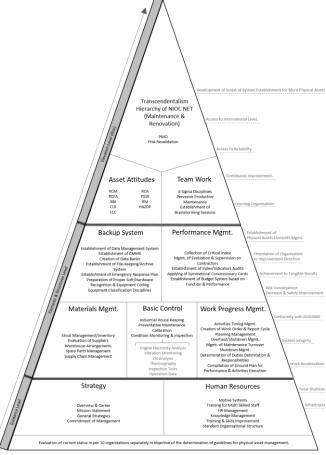


HABIT Number 2

Operational Reliability led strategy throughout the assets lifecycle

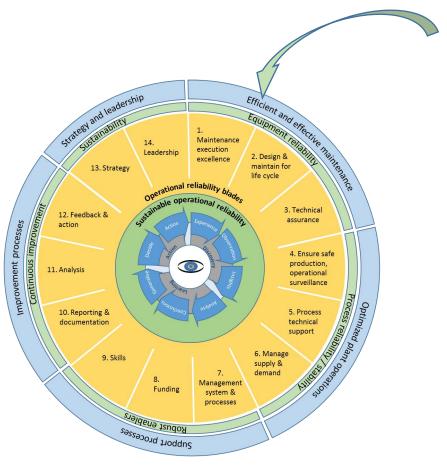




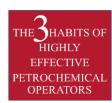






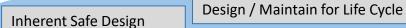


- Efficient & Effective maintenance
 Equipment reliability Specifying, purchasing, operating and maintaining equipment correctly
 - Design / Maintain for Life Cycle
 - Design standards, optimising value engineering and not purchasing the cheapest equipment but ensuring that the overall life cycle is evaluated
 - Maintenance execution excellence
 - Reliability Centred Maintenance
 - Instrumented Protective Functions
 - Equipment Integrity (RBI)
 - Ensure Safe Production
 - Efficient & effective maintenance
 - Turnaround excellence
 - Technical Assurance
 Competent staff, standards, processes and assurance All are key
 elements of Technical Assurance. Assurance should provide
 management with an independent assessment of the effective
 utilisation of the resource available
 - Operating Parameters
 - Technical Networks
 - Audit of Processes
 - Consistent and clear communication of standards
 - Skillpools / competence assurance
 - Resourcing









Inherent Reliable Design

Risk/value/life cycle cost decision making

Inherent Operability Design

Inherent Future proof Design

RCM+

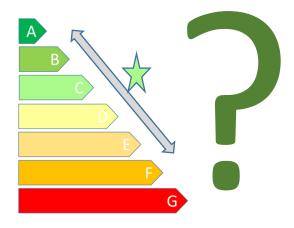
Defect elimination

Optimized plant operations

Process reliability / stability -Understanding limits and operating within them, good operations, effective controls & optimisation and disciplined monitoring **Bad Actors**











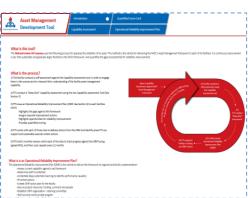
Operational Reliability Capability Assessment



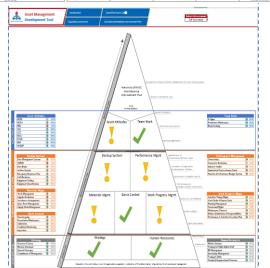
Operational Reliability Improvement Plan



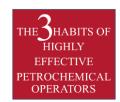




Section of Framework	Subsection	Study Area	West	Improving	Satisfactory	Good	Excellent	Score (1 - 5)	
	RCM	Has the facility used RCM to determine it's maintenance regime?	No RCM process used to determine maintenance program.	Partial use of RCM program on certain equipment classes.	RCM used on most equipment classes.	RCM processis to a high quality and people across the facility have a general awareness.	RCM is embedded in the facility, and drives almost all of the maintenance activity. Almost all question were aware of RCM.		
	RCM	How does the facility continual improve it's RCM output?	No learning embedded into RCM process	Same improvement cycle included in the RCM process.	RCM is updated on a set frequency with some input form breakdown reports and reliability teams.	RCM updated on a fixed frequency, but also on some of the high criticality breakdowns.	Embedded continual improvement of RCM program. All breakdowns are reviewed by Reliability Leaders and incorporated into process.		
	RCM	What is the average ratio of corrective/breakdown maintenance to preventative?	90% Breakdown 10% Preventative	70% Breakdown 30% Preventative	50% Breakdown 50% Preventative	30% Breakdown 70% Corrective	10% Breakdown 90% Preventative		
	RBI	What is the quality of the facility's vessel RBI assessments?	RBI not used to determine vessel inspection frequency.	Partial or out of date RBI assessment available.	All recognised RSI vessels have data, however the frequencies are not optimised.	RBI embedded into integrity strategy, and all recognised RBI vessels have an assigned and optimised frequency	RBI embedded into integrity strategy and the turnaround planning cycle.		
	Industrial House Keeping	What is the general cleanliness of the site? (E.g. tools not stored, waste left need to worksite. thip hazards, access blocked, railings damaged/comoded, chemicals not stored).	Site cleanliness very poor.	Some efforts made at site cleaniness, but significant improvements required.	Site is general clean. Level of cleanliness varies across the facility.	Facility cleanliness is good and goes beyond normal requirements	Facility cleanliness is beyond expectations. People take pride in their worksite and management regulary audit facility cleanliness.		



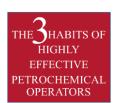
Asset Management Development Tool		Introduction			Quantified Score Card																			
		Capability Assessment		Operational Reliability Improvement Plan																				
Section of Framework	Subsection	Action Review Operator Basic Care Tasks using RCM+ module - excite and reenergize operators into implementation.		SPA	Sep 16		Oct 16		Nov 16		Dec 16		Jan 17		Feb 17		Mar 17		Apr 17		May 17			
Asset Attitudes	RCM			Reliability & Maintenance Manager	0%	o%	0%		20%		40%		60%		80%		90%		100%		100%		100%	
	RCM	Maintenance Executi Reinforce the ME pro out 'Excite and Energ to realign on process identify clear actions progress to maturity.	cess and carry ise' workshop delivery and s to ensure	Reliability & Maintenance Manager	0%	0%	0%	0%	20%	0%	40%	40%	60%	80%	80%	100%	90%	100%	100%		100%	100%	100%	
Basic Control	Calibration	[ACTION]		[SPA]																				
Strategy	Commitment of	[ACTION]		[SPA]																				





HABIT Number

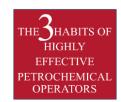
Operational Reliability led strategy throughout the assets <u>lifecycle</u>





HABIT Number 3

Relentless pursuit of **Excellence** and **Continuous Improvement**

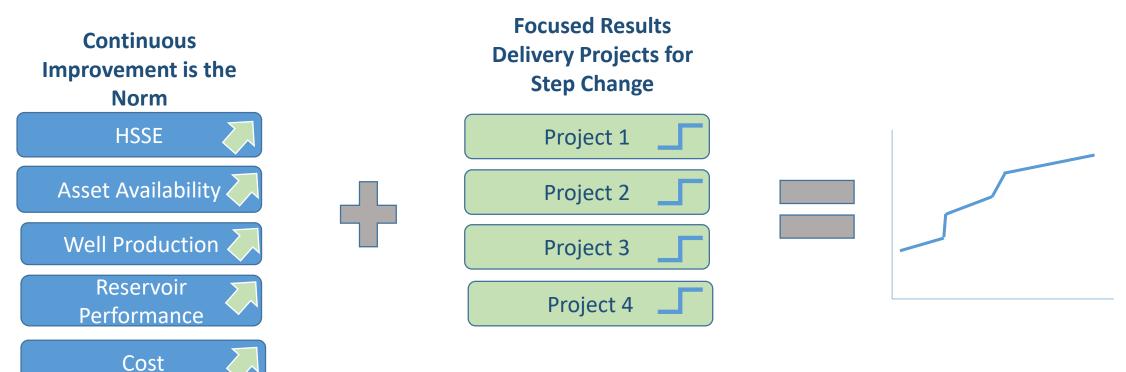






Relentless pursuit of **Excellence** and **Continuous Improvement**

✓ Chronic Unease about any gaps to maximum potential







HABIT Number 1



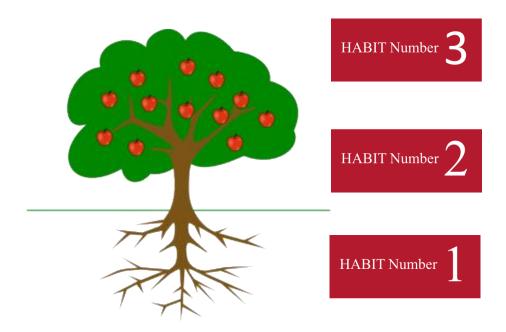
HABIT Number



HABIT Number



THE HABITS OF HIGHLY EFFECTIVE PETROCHEMICAL OPERATORS



Relentless pursuit of **Excellence** and **Continuous Improvement**

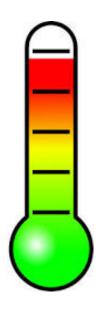
Operational Reliability led strategy throughout the assets <u>lifecycle</u>

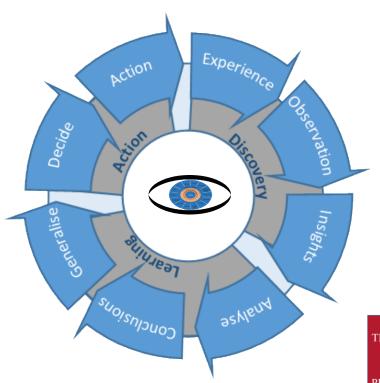
Continual maturity of the company's <u>Operational</u> <u>Management System</u> with <u>Operational Discipline</u> and <u>Sustainability</u> focus

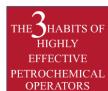










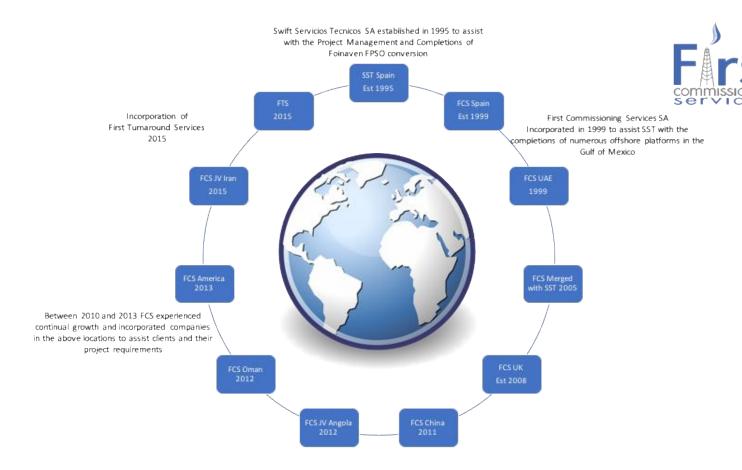


FTS: About The Company



FCS & FTS

- FCS 20 years experience
- FCS + now FTS
- Global reach
- Strategic partnerships
- Loyal commitment to a strong client base
- Track record of strong values and delivery



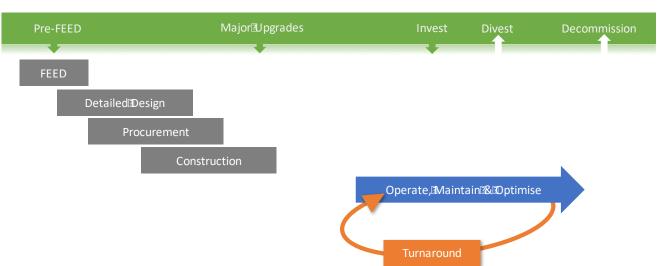
Strictly Private and Confidential

Our core principles

- Safety is paramount with relentless focus on risk reduction, costs and maximizing value
- Lead and deliver through our values
- Build our clients enduring capability
- o Energize the people to work as one team for sustainable Operational Excellence

FTS: First Turnaround Services



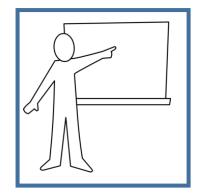








- OMS
- Process safety
- HSE
- Operational Reliability Improvement Plan
- Outages and turnarounds
- Maintenance execution excellence
- Turnarounds (outages) assurance and optimization program with execution capability
- Brownfield projects : as per BLUEPRINT

















- Project assurance
- Value engineering
- Inherent safe, reliable, future proof, Operability: Design
- Operational Readiness, Organizational Readiness, Commissioning, Flawless delivery



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