DIGITAL TURNAROUND (TAR) MAINTENANCE FOR PROCESS INDUSTRY

Pre-Integrated digital solutions enabled over a wireless network providing higher transparency and visibility of people and assets post shutdown, leading to a faster and cost effective turnaround.
Unprecedented scenario being faced by Oil & Gas and other manufacturing industry with higher levels of production and low consumption due to COVID-19 initiated lockdown.

Enterprises are looking at accelerating their planned shutdown. Post Shutdown turnaround maintenance poses several execution challenges that cannot be addressed by planning and scheduling actions alone. Higher concentration of contractor workforce leading to heightened safety risks and budget overruns due to low productivity and billing leakage discrepancies. Improved execution efficiency combined with a good planning can help enterprises save 10-15% of their turnaround costs. Typical industry spend for turnaround maintenance – 10-100 M$ for an intense activity spread over 1-2 months.

TechM TAR solution suite addresses these key issues enabling enterprises to cut down their TAR duration, improved Safety and higher Transparency & Visibility of people and assets today and future proofing today’s investments to drive plant efficiencies post turnaround.

**KEY CHALLENGES**

Significant dollars being spent on small pit stops shutdowns (10-30$Mn) to large complex programs Turnarounds (100- 200$Mn+) with individual activities amounting to 150000. 80% go over budget more than 10% of time. *

Shutdown delayed by 20% of time for approximately 50% of the project.*

Safety risk is heightened: 300% greater usage of contractors (3000-7500+) in an intense 20-60 day single event

https://www.digitalrefining.com/article/1001320,Achieving_turnaround_success.html#Xqf1GWgzbIV*
TechM’s TAR maintenance solution suite comprising a set of pre-integrated, production ready digital solutions over wireless network.

HOW IS TECH MAHINDRA COMING INTO PLAY?

- CONNECTED WORKER
- SAFE WORKER
- CONNECTED ASSETS
- CONNECTED PLANNING
Tech M’s Turnaround Maintenance solution suite leverages technologies like AI/ML, AR/VR, IoT, Smart Wearables to deliver faster Turnaround, improved Safety & higher Transparency & Visibility of People, Assets and Plants post shutdown.

Planning & Scheduling:
Increased productivity (5-15%)

Work Force Management:
Reduced billing discrepancies (5-10%)

Maintenance:
Reduced MTTR

Health & Safety:
360 deg Safety Monitoring
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<th>CONNECTED WORKER</th>
<th>SAFE WORKER</th>
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<td><strong>Digital MRO</strong></td>
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<td><strong>Track and Trace</strong></td>
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<td><strong>Digital Operator Round</strong></td>
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<td><strong>AR assisted maintenance, Remote Technical Support, Real time Track &amp; Trace of personnel</strong></td>
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**Augmented Reality assisted maintenance**

**Remote Technical Support through See What I see**

**Track and Trace of personnel - area, zone**

**Automated Checklist For asset start up**

**Automated E-log of maintenance actions/observations**

**Vitals measurement by smartphone cameras**

**PPE adherence**

**Thermal screening & whole body sanitization**

**Confined work space and Fall Detection**

**Emergency Call and Virtual Buddy**

**Automated social distance**

**Alert/Alarm to first responder**

**Worker Safety & compliance through PPE enforcement, Social Distancing norms and emergency response**
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<td><strong>Track and Trace</strong></td>
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**Real time visibility** to spares, Tools/Assets Improve productivity through drone inspection

- Track and Trace of Spares for maintenance
- Track and Trace of Tools and assets like cranes, drilling equipment
- Hazardous area inspection like flare stacks, tank farms
- Inspection of corrosion, leak detection of pipes and structures
- Environment safety, dangerous gases, heat, oxygen level alerts
- Map assist to assets for maintenance

**Enable End to End planning** for turnaround work management

- Automatic logging of Maintenance Actions & observations integrated with Asset Management
- Integrated Planning and scheduling
- Integrated spares plan

**Upstream & Downstream Operations, Process Manufacturing industry**
SOLUTION FEATURES

CONNECTED PLANNING
Integrated planning and scheduling for faster turnaround work management

CONNECTED ASSETS
- Real time visibility to spares, Tools/Assets
- Improve productivity through drone inspection

SAFE WORKER
- Worker Safety & compliance through PPE enforcement
- Social Distancing norms
- Emergency response

CONNECTED WORKER
- AR assisted maintenance
- Remote Technician Support
- Real time Track & Trace of personnel
Complete Turn-key Technology solution provider from connectivity, devices, digital solutions, set of services ranging from system integration, network deployment, Application engineering and Security

Pre-Integrated Production
Ready Secure e2e Enterprise
digital solution

Solutions enabled through partnerships and alliances with industry leading technology providers
INTEGRATED ENGINEERING SOLUTIONS (IES)
Is a Connected Engineering Solutions business unit of Tech Mahindra. At Integrated Engineering Solutions, customers are at the core of every innovation. We align Technology, Businesses and Customers through innovative frameworks. We deliver future-ready digital convergence solutions across Aerospace and Defense, Automotive, Industrial Equipment, Transportation, Consumer Products, Energy and Utilities, Healthcare and Hi-Tech products. Our ‘Connected’ solutions are designed to be platform agnostic, scalable, flexible, modular and leverage emerging technologies like Networking, Mobility, Analytics, Cloud, Security, Social and Sensors, that enable launching of smart products and deliver unique connected consumer experiences, weaving a connected world. Coupled with this, our strong capabilities in Electronics, Mechatronics and Mechanical Engineering along with domain understanding and product knowledge, bring excellence to the entire lifecycle of these connected ecosystems.

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