

# **GBN-Paradigm Shift of New Crane Smart Services Model**

<b>Starting Date:</b>	<b>[01 05 2014]</b>
<b>Completion Date:</b>	<b>[31 07 2018]</b>
<b>Number of Team Members:</b>	<b>[3]</b>

# Team Members



No.	ID	Name-Surname	Contribution	FG	Dept.	Company Name
1	48147	Apichat Bamrungwong	Team leader	PDS	PMI	PTTEP
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# Project Objectives

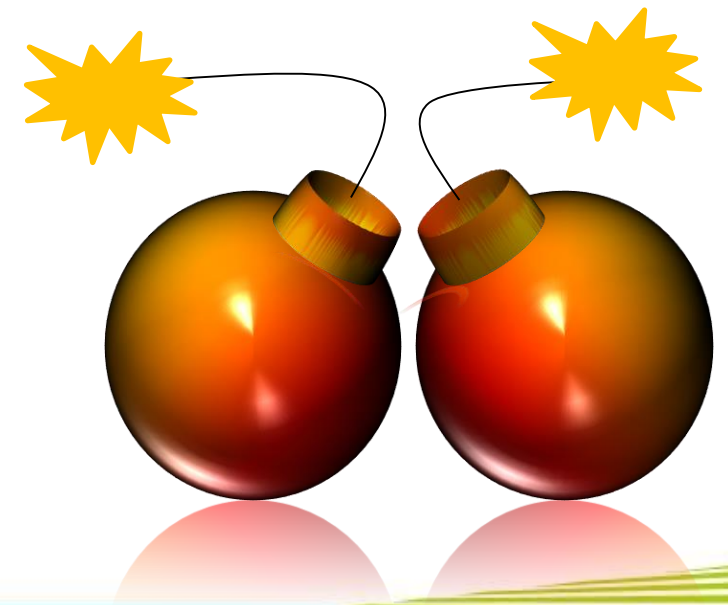


- Smart Maintenance Cost Saving.
- Managing flexibility of Preventive Maintenance (PM) and Corrective Maintenance (CM).
- PTTEP gains knowledge, knowhow, technique and procedure for Smart Maintenance and Inspection Program of Pedestal Crane to establish the Body of Knowledge as a powerful source of innovation.

# Project Summary

**[Situation]** Since 2008-2016, practice of pedestal crane maintenance and inspection was the M&I turned key contract. Preventive and Corrective Maintenance activities including tools, special tools and spare parts are prepared and performed by contractor.

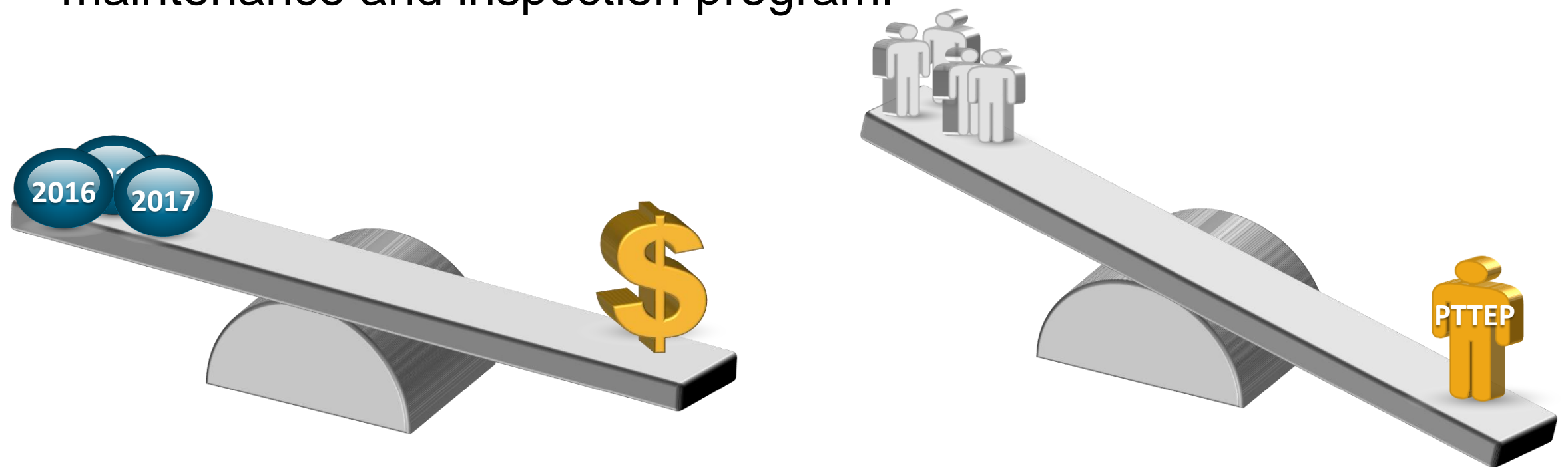
During phase of contract execution, PTTEP experienced several problems caused by contractor's poor performance and unsatisfied management which lead to PTTEP icebergs cost.



# Project Summary

## [Target]

- Smart Maintenance Saving Target : 40%.
- Develop a model to improve capability of PM and CM flexibility management and prompt response to serve operation need.
- Develop technique and procedure for pedestal crane smart maintenance and inspection program.

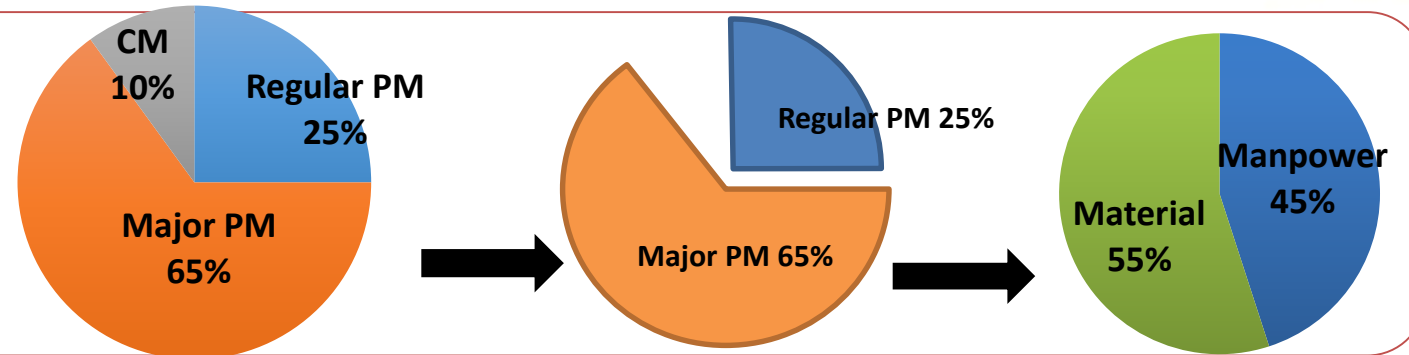


# Project Summary

**[Action]**

**Business  
Analysis**

- **Major PM 65% and Regular PM 25%**
  - > Material 55%
  - > Manpower 45%



**M & I  
Strategy**

- **Step changed Major PM – 4Y/8Y PM by Meter Base (Running Hours) for Remoted Wellhead Platform Crane and RP Crane**
  - > 500 Running Hours (same scope of work 4YPM)
  - > 1,000 Running Hours (same scope of work 8YPM)
- **Step changed Regular PM-3M,6M,1YPM and Preservation Program by Time Base**
  - > Engine oil changing from 6M to 1Y
- **Planning and Scheduling-Major PM by using Numerical Method (Trend Projection)**
- **Sustainable continuously improvement by RCM (Reliability-Centered Maintenance)**
- **Parts Sourcing by PTTEP**
- **Establish Crane Services by PTTEP**

**M & I  
Management**

- **Smart Asset Register**
  - Determine common crane type among GBN/GBS/ART
- **Smart PM Master Program**
  - 3M, 6M, 1Y, 4Y(500 hrs.), 8Y(1,000 hrs.) PM and Preservation Program
- **Smart Job Task Card/Job Plan PM**
  - Crane Type, O&M Manual, API RP 2D, Thai Law, RCM and Failure History, Industrial Standard
- **10 years look ahead plan**
- **RCA and RCM**
- **Smart Parts Sourcing**
  - Parts Sourcing to OEM by PTTEP
- **Smart Services by PTTEP**
  - Tools and Competent person



# Project Summary



## [Result]

### Objective 1

*Smart Maintenance Cost Saving*

- Gain significant cost saving **45%**.

### Objective 2

*Managing flexibility of Preventive Maintenance (PM) and Corrective Maintenance (CM) .*

- Obtain a model which improve capability of PM and CM flexibility management
- Prompt response to serve operation need.

### Objective 3

*PTTEP gains knowledge, knowhow ,technique and procedure for Smart Maintenance and Inspection Program of Pedestal Crane to establish the Body of Knowledge as a powerful source of innovation.*

- Develop technique and procedure for pedestal crane maintenance and inspection.



# Project Summary

## Situation

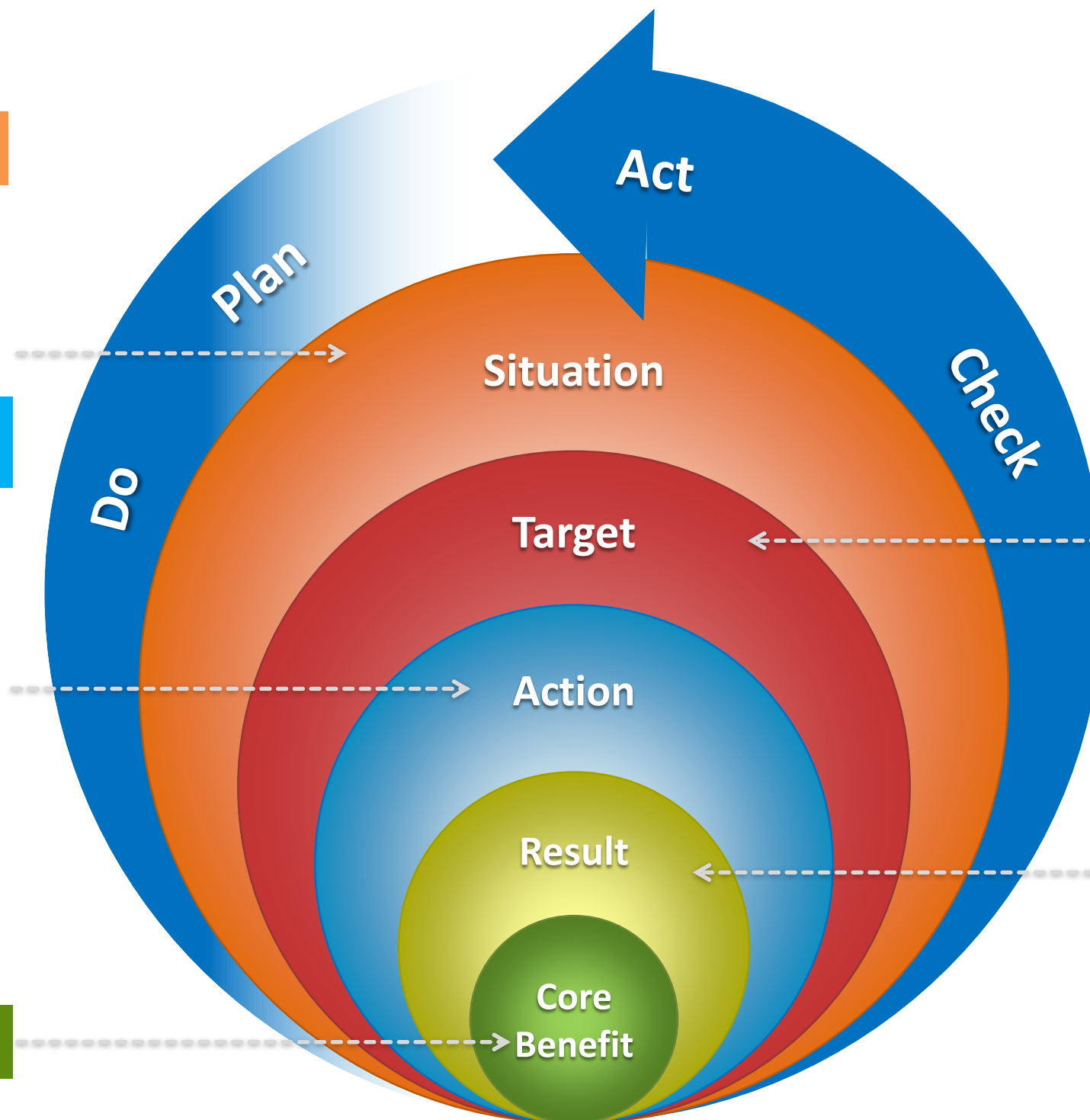
Icebergs cost from M&I  
turned key contract

## Action

- Develop & Improve Smart Regular & Major PM program
- Determine PM/CM spare parts and part sourcing to OEM
- Develop Smart Services

## Core Benefit

- Benefit to PTTEP
- Linkage to SPEND SMART



## Target

- Smart Maintenance Cost Saving Target : 40%.
- Develop a model to improve capability of PM and CM flexibility management and prompt response to serve operation need.
- Develop technique and procedure for pedestal crane smart maintenance and inspection program.

## Result

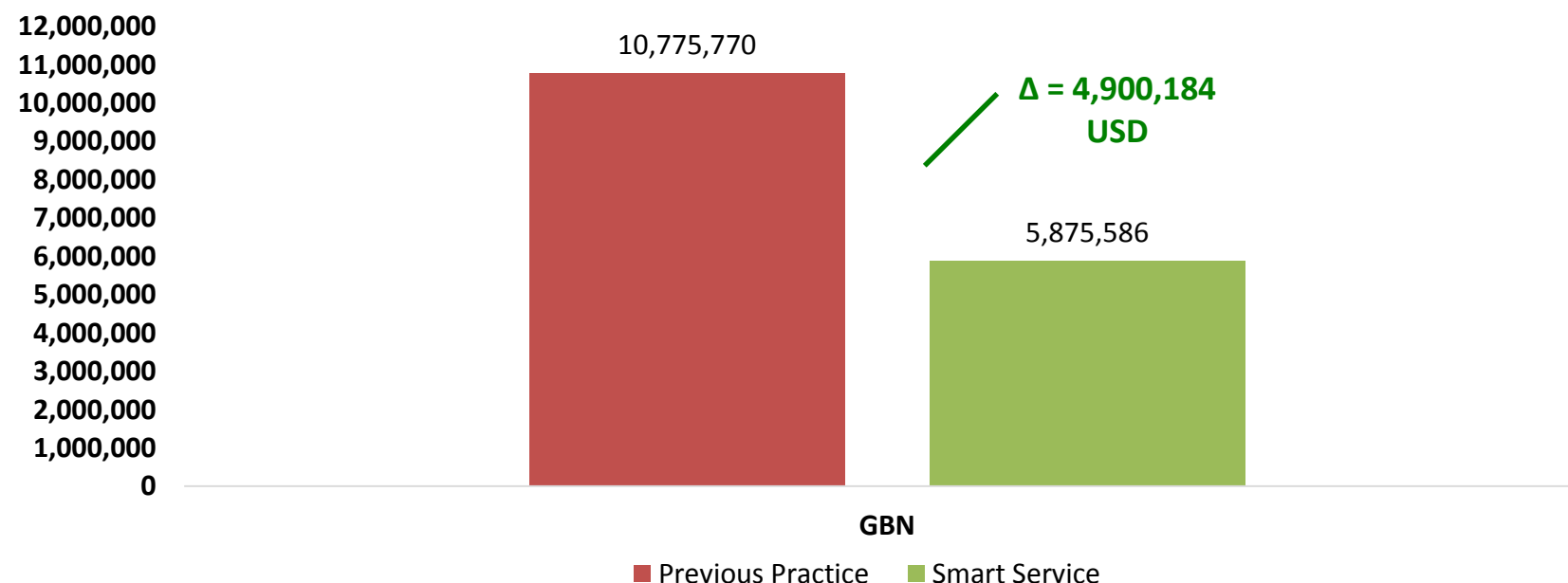
- Gain significant cost saving 45%
- Develop a model to improve capability of PM and CM flexibility management
- Prompt response to serve operation need.
- Develop technique and procedure for pedestal crane smart maintenance and inspection program

# 1) Benefits to PTTEP



➤ Cost Benefit Impact to reduction **45%** from previous practices

Pedestal Crane Maintenance Cost for Regular PM & Major PM	Previous Practice Material & Manpower Cost (USD)	Smart Service Model Material & Manpower Cost (USD)	COST SAVING Material & Manpower (USD)	SUM Cost Saving by End of contract (USD)	SUM Cost Saving by End of contract (%)	SUM Cost Saving by M&I Life Cycle (USD)	SUM Cost Saving by M&I Life Cycle (%)
Year	GBN	GBN	GBN	GBN	GBN	GBN	GBN
2018	1,196K	634K	562K	1,253K	36%	4,900K	45%
2019	1,204K	872K	333K				
2020	1,034K	675K	358K				
2021	1,262K	689K	573K				
2022	1,674K	970K	704K				
2023	1,756K	896K	859K				
2024	1,475K	540K	935K				
2025	1,176K	599K	576K				
Summary Maintenance Cost (USD)	10,776K	5,876K	4,900K				



# 1) Benefits to PTTEP (Cont.)



- Better work quality because more ownership of personal under PTTEP supervision
- Reduce CM caused by poor PM
- Knowledge and Knowhow are remained with PTTEP team
- No boundary between PM and CM job due to both PM, CM perform by the same team.
- Better response time in case of CM and emergency work
- Historical data and fact for analysis
- Know benchmark price for parts and services

## 2) Linkage to SPEND SMART



### 2.1) Cost Benefit Impact

Cost Benefit Impact = Benefit / Investment

Benefit = 4.9 MM USD

Investment = Tools (0.16 MM USD)

Cost Benefit Impact Crane Smart Services Model = 30 times

## 2.2) 8 Wastes of LEAN



### Defects

Rework due to workmanship and part quality

### Waitings

Spare parts, tools and special tools are prepared and managed by PTTEP which eliminate downtime from waiting for emergency case.

### Transportation

Reduce transportation cost regarding mobilization base change from Chonburi to Songkhla

### Extra-Processing

Reduce line of commands

### Inventory

Eliminate inventory dead stock

### Non-utilized Talent

Job owner gains expertise in crane maintenance and inspection

# End of Presentation