

# 10<sup>th</sup> Chemical Process Safety Sharing (CPSS)

## The Next Chapter of PSM in SCGC

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# Content :



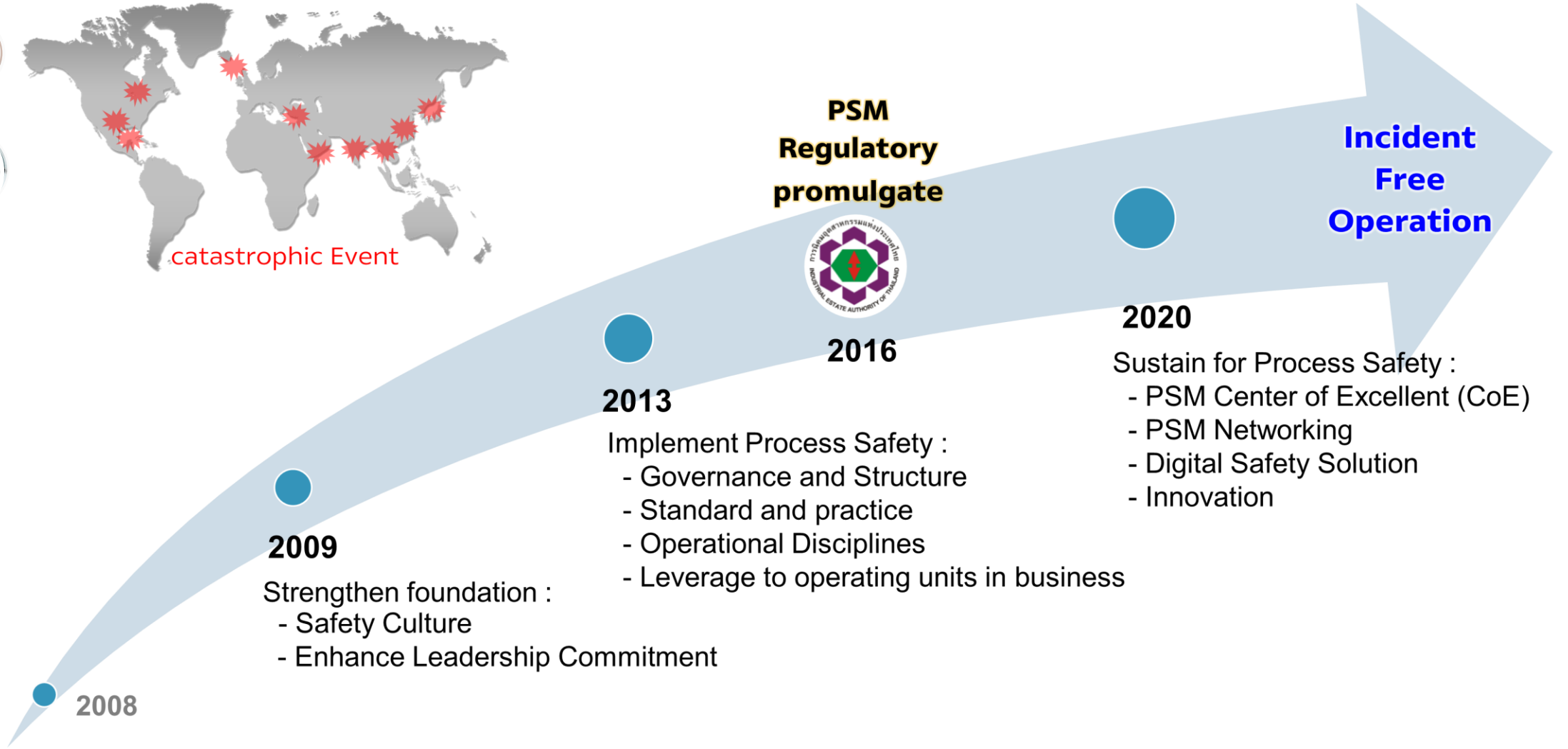
- SCGC PSM Transformation Journey
- The Challenge
- Digital Safety Development framework
- SCGC Safety Innovation & Digital
- Digital Safety way forward



# Our PSM Transformation Journey :



catastrophic Event



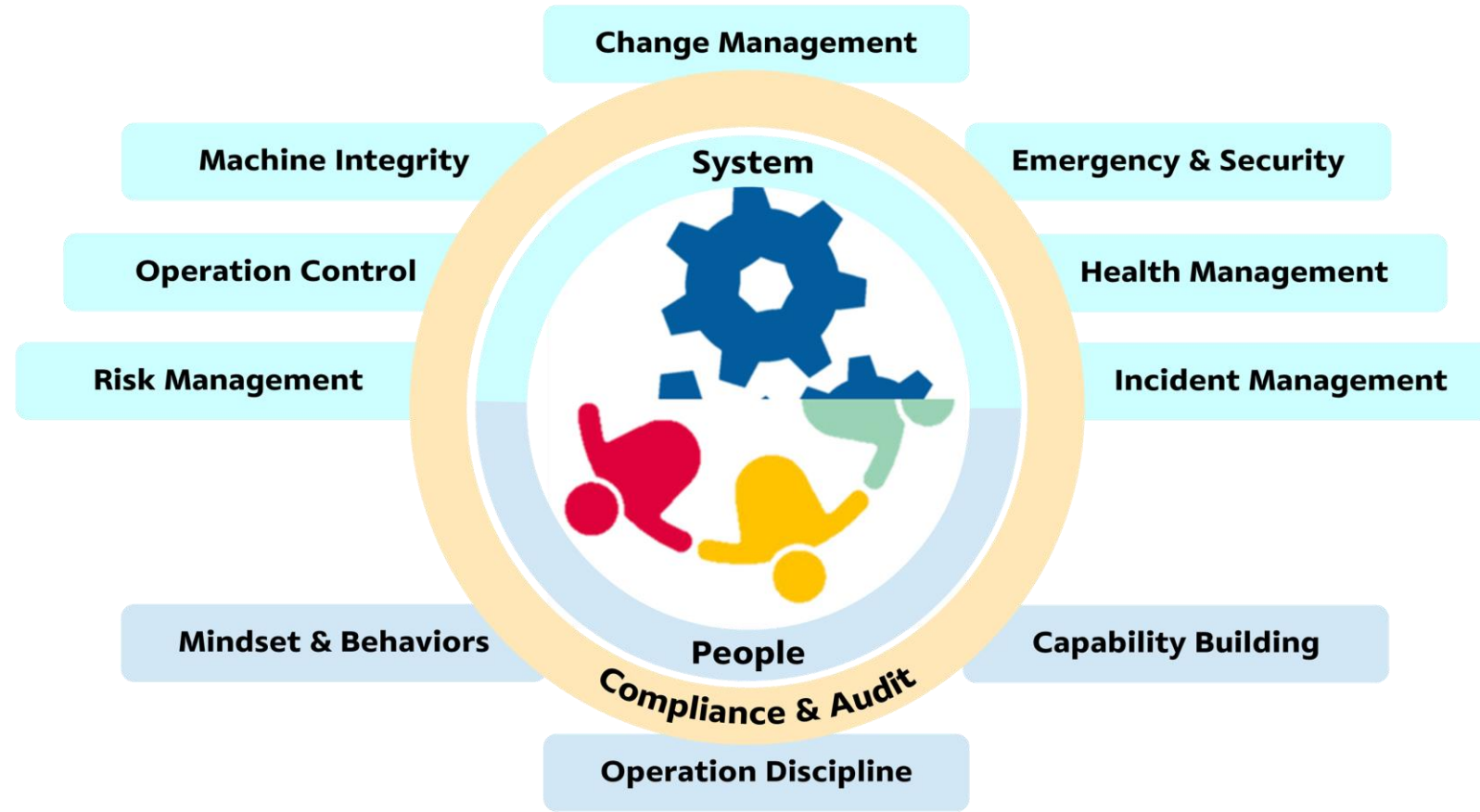
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# Traditional Safety management :

## OHS Operational Management

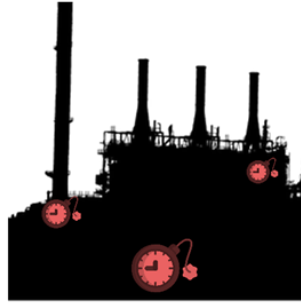


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# Challenge : During and Post COVID-19



**Human Errors & Mistake**



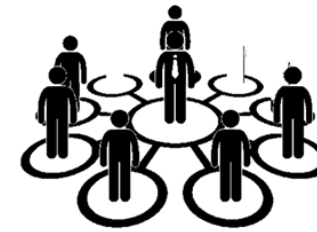
**Unidentified Hidden risks**



**Competency gaps (Business growth)**



**Limit Skills & Practice On-site**



**Lean Manpower**



**Lack of linkage & integration**



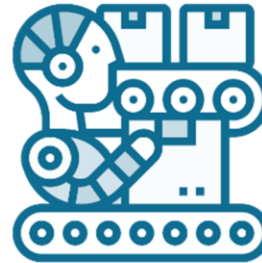
**Economy Recession**



Require Technology & Digitalization for



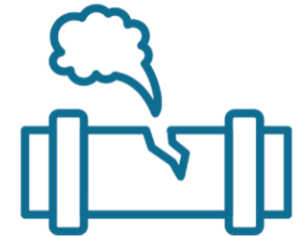
**Digitize**



**Automate**



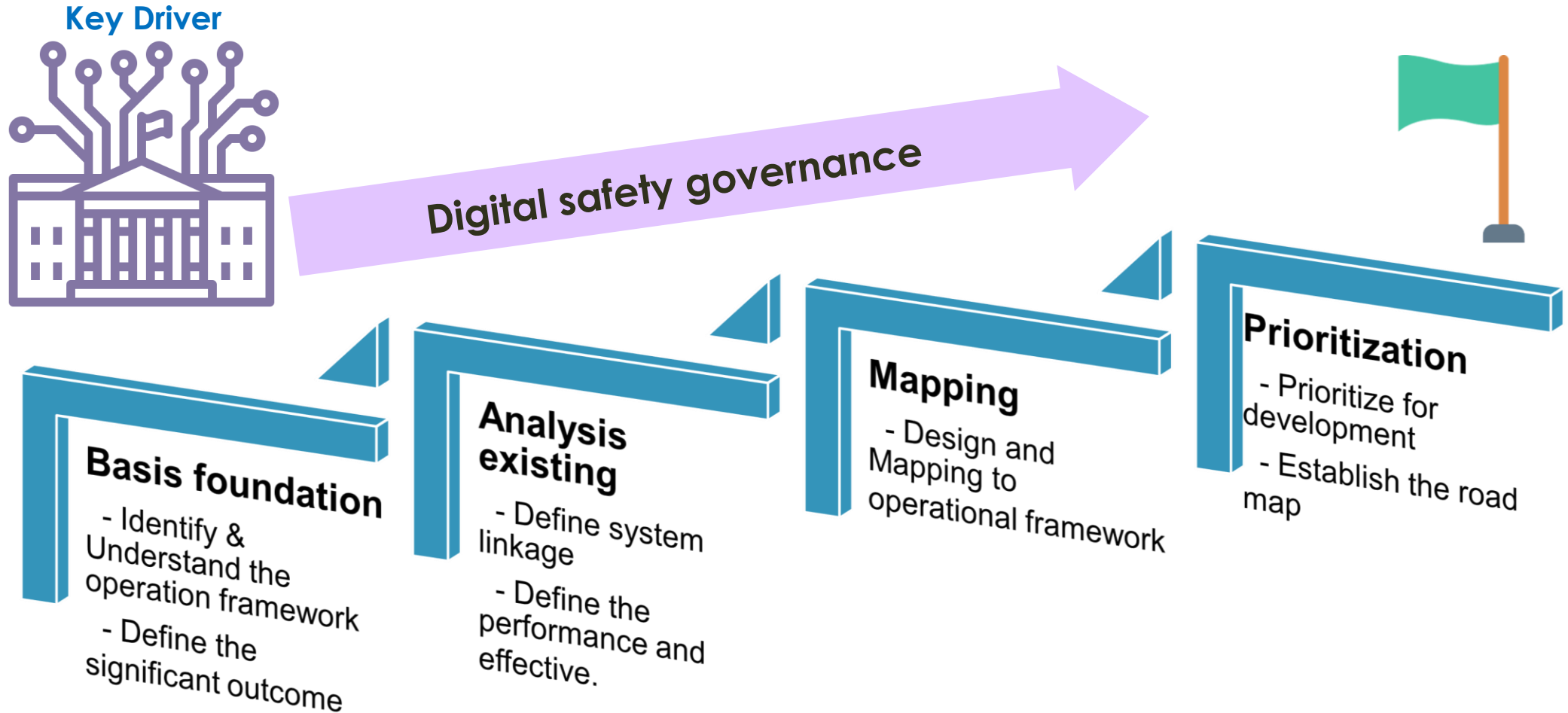
**Visualization**



**Early detect**



# Digital Safety Development framework :



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# SCGC Safety Innovation and Digital platform



## Safety IIoT



Area control



Alcohol check



Face recognition

## Workplace Safety



CSM Software



e-Work permit

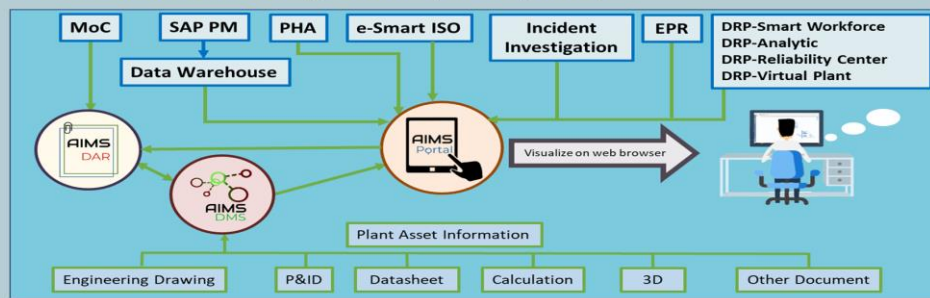
## Process Safety



HAZOP STUDY CARDS



## Asset Information Management System (AIMS)



- No Human Risk
- Improve Safety & Compliance
- Improve Productivity
- Improve Data Quality



# Total Solution for APM 4.0 for Maximize Asset Life



Unify Operation Center

Prescriptive Analytics



Digital Procedure



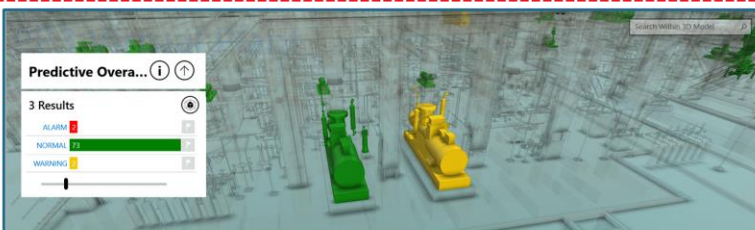
Operation Safety Management



Mobile Operator



Enterprise Learning



Asset Information Management  
3D Asset Visualization





# SCGC Digital Transformation Vision

- **Increasing Business Competitiveness**
- **Driving Asset Efficiency and Utilization**
- **Build-in Knowledge Management**
- **Expand and Leverage to Other Industries**



# Drive Business Competitiveness

## Business requirement for Asset Performance Management



<b>1. Safety</b>	<b>Zero incident</b>
<b>2.1 Uptime (%) (Downstream)</b>	<b>98.5% to 100%</b>
<b>2.2 Uptime (%) (Upstream)</b>	<b>100% (7 – 8 Years)</b>
<b>3. Maintenance Efficiency</b>	<b>40% improved</b>
<b>4. Work Capability</b>	<b>Ration per Critical Equipment</b>

From business's requirements turn into 500 of platform's function, which took two years of effort to search and try, then another two years to gain close to 400 MB in business benefit.



# Digital Transformation Critical Elements

- 10 years of Digital Transformation journey **based on Practitioner experience** concise into critical 6 bullets

**Business Direction**

**Culture Transformation**

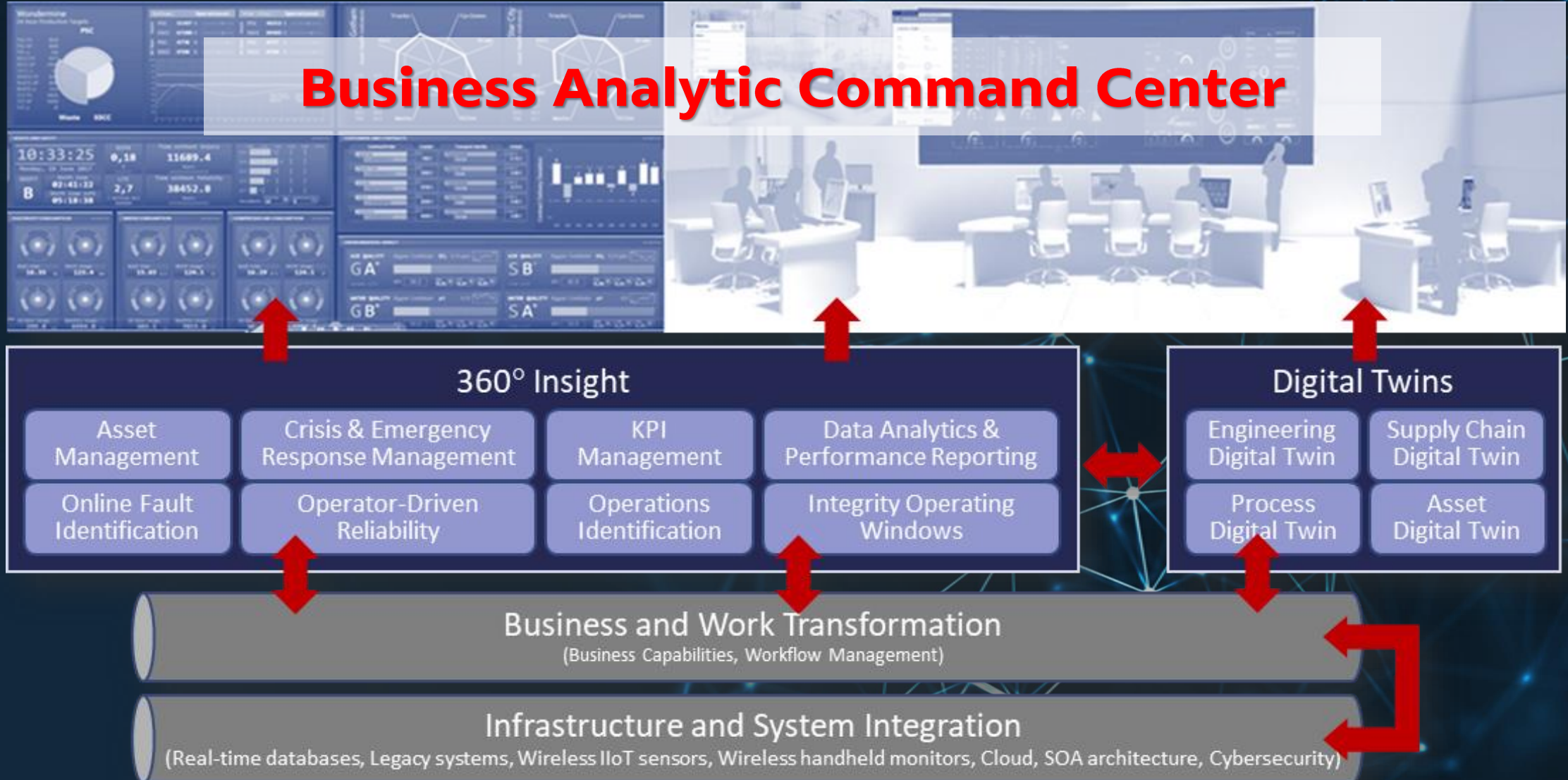
**Customer Experience**

**Working Process**

**Capability & Capacity**

**Technology**

# Digital Acceleration Enabler: Operations Lifecycle Envision (Smart Manufacturing Envision)





Digital Reliability Platform



# REPCO NEX Digital Reliability Center (Unify Operation Center for Asset Digital Twin)



**Plant Asset Digital Twin**

**Integrated more than 20 platform**

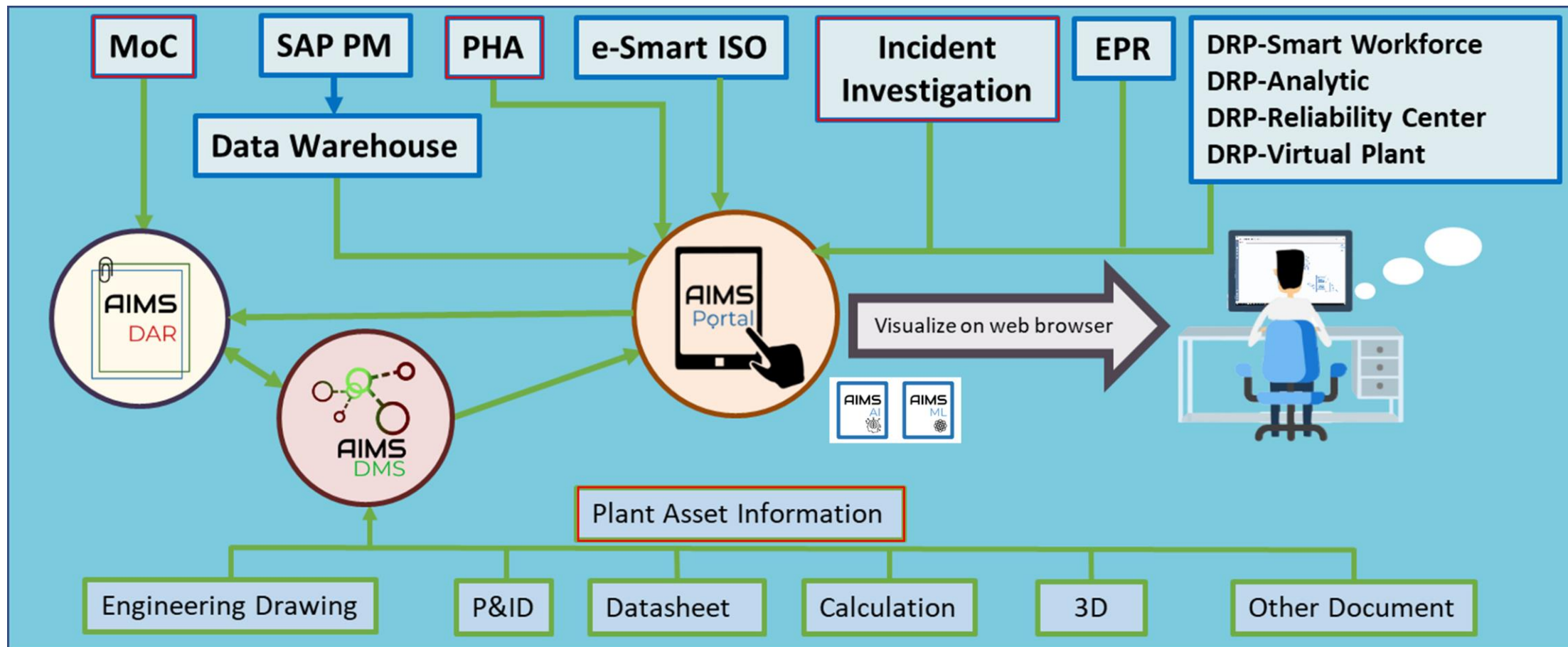
**REPCO NEX Digital Reliability Center  
(Unify Operation Center for Asset Digital Twin)**







# Asset Information Management System (AIMS)





# Fully digital twin with health monitoring



Explore Machine Health in Detail :  
Show health status in the summary of health indicators from various health monitoring approaches





# Fully digital twin with health monitoring



Explore Machine Health in Detail :  
Show health status in detail with related asset information such as machine spec and failure history

Search Within 3D Model

Predictive Overa... *i* *↑*

3 Results *🔍*

ALARM 2 *▶*

NORMAL 73 *▶*

WARNING 2 *▶*

PP3 Digital Asset Operations

Equipment - EPP3MD-P3202 (P-3202)

Health Status (RUL: 100 Hours)

- PROCESS CORROSION
- VIBRATION
- OIL ANALYSIS
- OPERATOR SOUND
- PREDICTIVE ANALYTIC - PREDM
- PREDICTIVE ANALYTIC - SMARTORA

Information

Plant	PP3
Criticality	+
EQ No	EPP3MD-P3202 (P-3202)
EQ Description	AXIAL PUMP
Discipline	ROTATING
ObjectType	PUMP_OTH
FL No	10PFS-P3202
FL Description	FL for Acoustic Emission of HDI
Manufacturer	ISB
Reference	AMS Workplace Reliability Report

Improvement Projects

Date	Project	Status	By
No records found.			

Failure History

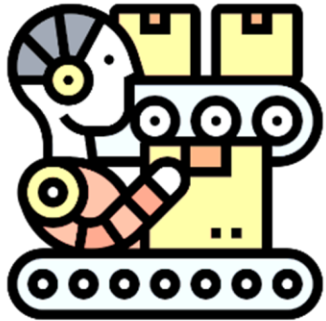
Date	Problem Identified	Root Cause	Action By
*****			

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# Digital Safety way forward :



**Design autonomous  
& Un-man Process**



**Barrier  
Management**



**Risk forecast  
Model**

**Integrate PSM into Operation to maximize Plant Efficiency**



Thank you for your attention

