Technical Integrity Management Programme (TIMP)

From TIMP to TIMP KPI

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From TIMP to TIMP KPI

- Technical Integrity Management programme
  - The challenge
  - Building and developing the program
  - Implementing TIMP
  - The TIMP model
  - Key learnings
- Verifications – TTS and OTS
- Technical Integrity indicator – TIMP KPI
The challenge

Managing technical integrity ensures predictable and sustainable operations

• Industry challenges:
  – operate in various environments with different regulatory regimes and operating conditions
  – lack of a uniform approach to asset integrity management
  – sharing of information
“It is particularly crucial to distinguish between process safety and occupational safety”.

Source: 2005 "Baker Panel report"
Building and developing the program

- Define project
  - mandate
  - scope
  - resources
  - steering committee
  - project risks
Learning from others

- Airport express train (Flytoget)
- Avinor (airport operator)
- ConocoPhillips Norway
- Det Norske Veritas
- ExxonMobil
- Incident investigation reports
- Kuwait Petroleum Corporation
- McKinsey North Sea Roundtable
- Petrobras
- Shell Exploration & Production
- TATA Steel
Implementing the program

- Comprehensive preparations
- Ambitious plan
- Correlated with operating activities
- Support
- Dedicated core team
- Local champions / owners
Knowledge exchange

Discipline competence

Operational competence

SAP

DISP

SYNERGI

QRA

SAMS

STID

Key

<table>
<thead>
<tr>
<th>System</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>SAP</td>
<td>Maintenance administration system</td>
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<tr>
<td>DISP</td>
<td>Dispensation system</td>
</tr>
<tr>
<td>SYNERGI</td>
<td>HSE incident reporting</td>
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<tr>
<td>QRA</td>
<td>Quantitative Risk Assessment</td>
</tr>
<tr>
<td>STID</td>
<td>Technical information</td>
</tr>
<tr>
<td>SAMS</td>
<td>Audit management and reporting system</td>
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TIMP model

A portal visualises the status of technical barriers.

Overall technical integrity of the plant is assessed and documented.

Technical condition is assessed on equipment, system and barrier level.

Information through indicators form the basis for technical assessment.
Technical Integrity Management Portal
**Value creation**

**Competence**
- Improved competence on risk and barriers
- More than 9600 key personnel trained

**Assessment methodology**
- Information through indicators form the basis for technical assessment
- Discipline evaluations transformed to basis for management decisions

**Work process**
- Standardised approach for following up technical integrity
- Clarified roles and responsibilities
- Reduced workload through simplification (automated data collection)
- Holistic overview of technical integrity as basis for prioritisation of risk reducing measures

**Technical Integrity Management Portal (TIMP)**
Key learnings

Preparation
- Clear objective
- Focus on value creation
- Early senior management buy-in and ownership
- Learning from others

Development
- Dedicated core team
- Regular updating of strategy towards target
- Simultaneous development of all TIMP elements

Implementation
- Strong focus on building competence
- Designated support function during roll-out and implementation
- Ensure implementation
## Verification and continuous monitoring

<table>
<thead>
<tr>
<th>TIMP</th>
<th>TTS</th>
<th>OTS</th>
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</thead>
<tbody>
<tr>
<td>Technical Integrity Management Program</td>
<td>Technical Safety Condition</td>
<td>Operational Safety Condition</td>
</tr>
<tr>
<td>• Equipment</td>
<td>• Functionality</td>
<td>• Competence</td>
</tr>
<tr>
<td>• System</td>
<td>• Integrity</td>
<td>• Procedures</td>
</tr>
<tr>
<td>• Performance Standard</td>
<td>• Survivability</td>
<td>• Roles &amp; responsibilities</td>
</tr>
<tr>
<td>• Plant dashboard</td>
<td>• Maintenance</td>
<td>• Management, etc.</td>
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</tbody>
</table>

- Verification
- Continuous monitoring
Overview of the TTS/OTS structure

TTS verify 23 defined Technical Performance Standards
OTS verify 7 defined Operational Performance Standards

On the basis of the checklist each Performance Requirement is given a scoring on a scale from A - F

The checklists are evaluated through activities such as:
- Document review
- Analyse data
- Interview / Questionnaire
- Inspection / testing
- Observation

Gaps marked as findings!

Each barrier is divided into Performance Requirements
Each Performance Requirement consist of checklists

Finding 1  Finding 2  ....  Finding n
Technical integrity KPI

Basis: Technical integrity for safety barriers – manually quality assured evaluations

Evaluation scores converted to numbers

Weighting of barriers importance based on expert judgement

Calculation of plant specific TI indicator

TI indicator with status and trend
Technical integrity KPI – Alt 2

Barrier score
- Manual evaluation
- Score converted to predefined numbers

Weighting and calculation
- Pre defined barrier weighting
- KPI calculation

TI indicator
- Plant specific
- Trend and status
**TI indicator - Pros and cons**

<table>
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<tr>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td>• Provides incentives for continuous improvement</td>
<td>• May camouflage important issues through aggregation</td>
</tr>
<tr>
<td>• Highlights the «best in class» experience transfer and learning</td>
<td>• May turn focus to the indicator itself rather than underlying issues and improvement actions</td>
</tr>
<tr>
<td>• Provides decision support for prioritization</td>
<td>• May give better grade than without KPI to appear good (or worse grade to get more resources)</td>
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