HSE Management Systems

What they are, how they work, and how to implement or improve your HSE Management System to successfully manage HSE in your organization

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Define what an HSE Management System (MS) is...
HSE MS Essential Elements...
How to create or better your own HSE MS...
What HSE MS does...
HSE Responsibilities

- Leadership
- Fire Prevention
- Driving Safety
- Investing
- Assessing
- Leadership
- Accountability
- Risk Assessments
- COR
- ISO
- Accountability
- Heavy Equipment
- ERP
- PTW
- Driving Safety
- DOT
- PPE
- HSE Meetings
- Audits
- Assessments
- Competency
- BBP
- CPR
- Suppliers
- Vendors
- Cranes
- Performance Monitoring
- Budget
- Journey Management
- Loss Reporting
Does your HSE job feel like...
HSE Systematic Management
**HSE Management Systems**

**Not a program but a process. . . .**

- **Company ABC**

  Hazardous Communication Program

  1. Written Program
  2. Chemical Inventory
  3. MSDS Management
  4. Labeling
  5. Training
HSE Management Systems

- HSE Management Systems (HSE MS) brings order to chaos.
- It gives a *systematic* process an organization needs to *manage* everything HSE related.
- It is the strategy implemented by an organization focusing critical resources for an organization’s success.
- Needs to be customizable to fit your organization HSE needs.
- Everything HSE related fits in the HSE MS; if not, it is either inadequate or not needed.
Common Elements of MS

Corrective, Preventive Actions, Continuous Improvement.

- **PLAN**
- **DO**
- **CHECK**
- **ACT**

Plan → Do → Check → Act
Common Elements of MS

ANSI Z10
OHSAS 18001
ISO 9001
ISO 14001
H&M EI
SEMS
BSSE
HSG65 UK

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9
Common Elements of MS

Plan

- Commitment, Leadership
- Policy & Objectives
- Haz Identification, Risk Assessment, Risk Control
- Regulatory/Legal requirements
- HSE Programs

Do

- Organization Structure
- Training, Competence
- Employee participation
- Documentation Record Keeping
- Emergency Preparedness

Check

- Performance Measurement, Monitoring
- Loss Event Reporting and Investigation
- Audit

Act

- Management Review
- Accountability

Corrective, Preventive Actions, Continuous Improvement.
Management Leadership

Top management directs the organization to establish, implement and maintain an HSE Management System in conformance with the requirements of the organisation that is appropriate to the nature and scale of the company and its occupational health and safety risks.

- Top Management sets the vision and direction of the company.
- Signs off on the Company HSE Policy.
- Sets HSE expectations company.
- Provides the resources needed to meet the expectations.
Risk Management (MS Element)

- Risk Identification
- Risk Assessment
- Risk control

Risk Mgt
- Identify
- Assess
- Evaluate
- Control Monitor

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## Risk Identification

*What are your HSE Risks at your organization?*

### Risk Registry

<table>
<thead>
<tr>
<th>Hazards we are exposed to</th>
<th>Severity</th>
<th>Likelihood</th>
<th>Risk</th>
<th>Safety Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>ascending/descending ladders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ascending/descending stairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cold extremes</td>
<td></td>
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<tr>
<td>driving</td>
<td></td>
<td></td>
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<tr>
<td>fatigue</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>fire/flammables/combustibles</td>
<td></td>
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<tr>
<td>H2S</td>
<td></td>
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<td></td>
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<tr>
<td>handling (pinch points)</td>
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<td></td>
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<tr>
<td>handling chemicals/hazardous substances</td>
<td></td>
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<tr>
<td>heat extremes</td>
<td></td>
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<tr>
<td>working at heights</td>
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<tr>
<td>lifting</td>
<td></td>
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<tr>
<td>mechanical lifting</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>office safety (ergonomics)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>operating heavy machinery</td>
<td></td>
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<tr>
<td>slips, trips, falls</td>
<td></td>
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</tr>
<tr>
<td>environmental spills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>using hand tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>work in high noise areas</td>
<td></td>
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<td></td>
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<tr>
<td>working alone</td>
<td></td>
<td></td>
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<tr>
<td>working in confined space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>working on electrical equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>working on pressurized equip</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>working with contractors</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Risk Assessment

- How do you define Risk…

<table>
<thead>
<tr>
<th>SEVERITY</th>
<th>Likelihood – Probability – Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impractical - Improbable - Rarely</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Catastrophic (4)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Unlikely - Not Probable - Infrequent</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>Major (3)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Likely - Probable - Frequent</td>
</tr>
<tr>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Serious (2)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>More Likely - More Probable - More Frequent</td>
</tr>
<tr>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Minor (1)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Very Likely - Very Probable - Very Frequent</td>
</tr>
<tr>
<td></td>
<td>(5)</td>
</tr>
</tbody>
</table>
# Risk Management (Severity)

<table>
<thead>
<tr>
<th>Loss</th>
<th>Injury/Illness</th>
<th>Environmental</th>
<th>Asset/Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catastrophic</td>
<td>Fatality</td>
<td>Any loss estimated greater than $250,000</td>
<td>Extensive Damage Estimated to be more than $250,000</td>
</tr>
<tr>
<td>Major</td>
<td>Loss workdays</td>
<td>Loss reportable government agency or estimated to between $50,000 - $250,000</td>
<td>Major Damage Estimated to between $50,000 - $250,000</td>
</tr>
<tr>
<td>Serious</td>
<td>Restricted workdays</td>
<td>Loss reportable to client or estimated to between $10,000 - $50,000</td>
<td>Serious Damage Estimated to between $10,000 - $50,000</td>
</tr>
<tr>
<td>Minor</td>
<td>Medical Treatment (Recordable)</td>
<td>Spill and or release that has a small impact on the environment estimated to be between $50 - $10,000</td>
<td>Damage estimated to be between $50 - $10,000</td>
</tr>
<tr>
<td>Near Hit</td>
<td>First Aid or other Near Hit/Loss event</td>
<td>Near Hit environmental Loss Event or under $50 loss</td>
<td>Near hit asset or vehicle loss event or under $50 loss</td>
</tr>
<tr>
<td>Proactive Reporting</td>
<td>Proactive Reporting; HazIDs, PJRA, Observations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Diagram showing a pyramid with Loss at the top, Catastrophic, Major, Serious, Minor, Near Hit, Proactive Reporting at the base, and corresponding severity levels for Injury/Illness, Environmental, and Asset/Vehicle.]
Risk Management

Risk Assessment

- How do you define Risk…

<table>
<thead>
<tr>
<th>Severity</th>
<th>Likelihood – Probability – Frequency</th>
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<td></td>
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<tr>
<td>Catastrophic (4)</td>
<td>4</td>
</tr>
<tr>
<td>Major (3)</td>
<td>3</td>
</tr>
<tr>
<td>Serious (2)</td>
<td>2</td>
</tr>
<tr>
<td>Minor (1)</td>
<td>1</td>
</tr>
</tbody>
</table>
Risk Management

Risk Control

- *How we keep losses from happening*

  - Design Controls
  - Engineering Controls
  - Isolate, Barrier
  - Substitution

  - Policies
  - Procedures
  - Training
  - Warnings
  - Signs

  - Protection for Head, Eye, Face, Body, Hand Foot, Lung, Ears, etc.
### Common Elements of MS

<table>
<thead>
<tr>
<th>PLAN</th>
<th>DO</th>
<th>CHECK</th>
<th>ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment, Leadership</td>
<td>Policy &amp; Objectives</td>
<td>Hazard Identification, Risk Assessment, Risk Control</td>
<td>Corrective, Preventive Actions, Continuous Improvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regulatory/Legal requirements</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>HSE Programs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organization Structure</td>
<td>Training, Competence</td>
<td>Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Employee participation</td>
<td>Do</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Documentation Record Keeping</td>
<td>Check</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency Preparedness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Performance Measurement, Monitoring</td>
<td>Loss Event Reporting and Investigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Audit</td>
<td>Act</td>
</tr>
<tr>
<td></td>
<td>Management Review</td>
<td>Accountability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accountability</td>
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</table>

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Create or make your own HSE MS

- Step 1: Select HSE MS
- Step 2: Audit against it
### Management Leadership and Employee Participation

#### Planning

1. Management Leadership and Employee Participation
   2. Planning
      3. Initial and Ongoing Reviews
         4. Initial Review

#### Evaluation and Corrective Action

- A. Evaluation of the OHSMS performance
- B. Developing corrective and preventive action items
- C. Implementing corrective and preventive action items

#### Communication and Operation

- A. Effective and complete communication of OHSMS issues
- B. Effective implementation of OHSMS
- C. Effective maintenance of the OHSMS

#### Planning

- A. Initial and Ongoing Reviews
- B. Initial Review

#### Monitoring and Measurement

- A. Monitoring the OHSMS effectiveness
- B. Measuring the OHSMS performance
- C. Analyzing the OHSMS performance

#### Incident Investigation

- A. Conducting incident investigations
- B. Documenting incident investigation results
- C. Preventing recurrence of similar incidents

#### Improvement

- A. Establishing improvement targets
- B. Implementing improvement actions
- C. Evaluating improvement actions

### Evaluation and Corrective Action

This section defines requirements for processes to:

- A. Evaluate the performance of the OHSMS
  - Adequate and effective performance of the OHSMS
  - Adequate and effective performance of the OHSMS
  - Adequate and effective performance of the OHSMS

- B. Develop corrective and preventive action items
  - Corrective action items
  - Preventive action items

- C. Implement corrective and preventive action items
  - Corrective action items
  - Preventive action items

- D. Track actions taken to ensure their effective implementation
  - Corrective action items
  - Preventive action items

### Communication and Operation

This section defines requirements for effective communication and operation of the OHSMS.

- A. Effective and complete communication
  - Communication of OHSMS issues
  - Communication of OHSMS
  - Communication of OHSMS

- B. Effective implementation
  - Implementation of OHSMS
  - Implementation of OHSMS
  - Implementation of OHSMS

- C. Effective maintenance
  - Maintenance of OHSMS
  - Maintenance of OHSMS
  - Maintenance of OHSMS

### Planning

- A. Initial and Ongoing Reviews
  - Initial Review
  - Ongoing Review

- B. Initial Review
  - Initial Review
  - Initial Review

### Monitoring and Measurement

- A. Monitoring the OHSMS effectiveness
  - Monitoring effectiveness
  - Monitoring effectiveness
  - Monitoring effectiveness

- B. Measuring the OHSMS performance
  - Measuring performance
  - Measuring performance
  - Measuring performance

- C. Analyzing the OHSMS performance
  - Analyzing performance
  - Analyzing performance
  - Analyzing performance

### Incident Investigation

- A. Conducting incident investigations
  - Conducting investigations
  - Conducting investigations
  - Conducting investigations

- B. Documenting incident investigation results
  - Documenting results
  - Documenting results
  - Documenting results

- C. Preventing recurrence of similar incidents
  - Preventing recurrence
  - Preventing recurrence
  - Preventing recurrence

### Improvement

- A. Establishing improvement targets
  - Establishing targets
  - Establishing targets
  - Establishing targets

- B. Implementing improvement actions
  - Implementing actions
  - Implementing actions
  - Implementing actions

- C. Evaluating improvement actions
  - Evaluating actions
  - Evaluating actions
  - Evaluating actions

### Evaluation and Corrective Action

- A. Evaluation of the OHSMS performance
  - Evaluation performance
  - Evaluation performance
  - Evaluation performance

- B. Developing corrective and preventive action items
  - Corrective action items
  - Preventive action items

- C. Implementing corrective and preventive action items
  - Corrective action items
  - Preventive action items

- D. Track actions taken to ensure their effective implementation
  - Corrective action items
  - Preventive action items

### Communication and Operation

- A. Effective and complete communication
  - Communication issues
  - Communication issues
  - Communication issues

- B. Effective implementation
  - Implementation of OHSMS
  - Implementation of OHSMS
  - Implementation of OHSMS

- C. Effective maintenance
  - Maintenance of OHSMS
  - Maintenance of OHSMS
  - Maintenance of OHSMS

### Planning

- A. Initial and Ongoing Reviews
  - Initial Review
  - Ongoing Review

- B. Initial Review
  - Initial Review
  - Initial Review

- C. Effective implementation
  - Implementation of OHSMS
  - Implementation of OHSMS
  - Implementation of OHSMS

- D. Track actions taken to ensure their effective implementation
  - Corrective action items
  - Preventive action items

### Monitoring and Measurement

- A. Monitoring the OHSMS effectiveness
  - Monitoring effectiveness
  - Monitoring effectiveness
  - Monitoring effectiveness

- B. Measuring the OHSMS performance
  - Measuring performance
  - Measuring performance
  - Measuring performance

- C. Analyzing the OHSMS performance
  - Analyzing performance
  - Analyzing performance
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### Incident Investigation

- A. Conducting incident investigations
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  - Conducting investigations
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  - Documenting results
  - Documenting results

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  - Preventing recurrence
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### Improvement

- A. Establishing improvement targets
  - Establishing targets
  - Establishing targets
  - Establishing targets

- B. Implementing improvement actions
  - Implementing actions
  - Implementing actions
  - Implementing actions

- C. Evaluating improvement actions
  - Evaluating actions
  - Evaluating actions
  - Evaluating actions
Create or make your own HSE MS
Create or make your own HSE MS

Audits, Reviews

Commitment and Leadership

Performance Monitoring

Policies, Objectives

Organization and Resources

Standards, Procedures, Plans

Risk Management

Business Processes

Continuous Improvement

Audits, Reviews

Commitment and Leadership

Performance Monitoring

Policies, Objectives

Organization and Resources

Standards, Procedures, Plans

Risk Management

Business Processes

Continuous Improvement
Implement your HSE MS

- Make the HSE MS the way you do business.
- Everything you do HSE related should fit in your HSE MS. If not it is either not needed or your HSE MS is inadequate.
- If implemented and followed correctly you will:
  - PLAN your HSE needs
  - DO what your HSE needs are
  - CHECK to see it is in place
  - ACT on areas to improve
What an HSE MS can do...

The Safety Culture Ladder

Increasingly informed

PATHOLOGICAL
who cares as long as we’re not caught

REACTIVE
Safety is important, we do a lot every time we have an accident

CALCULATIVE
we have systems in place to manage all hazards

PROACTIVE
Safety leadership and values drive continuous improvement.

GENERATIVE
(High Reliability Orgs.) HSE is how we do business round here

Increasing Trust/Accountability
HSE Evolution/Inverted Culture Ladder

- **Reactive HSE**: Safety is important, we do a lot every time we have an accident
- **Calculative HSE**: We have systems in place to manage all hazards
- **Proactive HSE**: Safety leadership and values drive continuous improvement
- **Generative HSE**: HSE is how we do business around here

Keys to “Generative HSE”

Basic HSE Controls
- Engineering and design
- Regulatory compliance
- Injury/Loss Reporting
- Basic HSE training
- Investigations
- Inspections/Maint.

Advanced HSE Controls
- HSE Management System
- HSE Programs/Standards/Rules
- Pre-Job Risk Assessments (JRA’s)
- Proactive reporting (haz ID and near hit)
- Competence (advanced training)
- Risk Management (risk acceptance)
- HSE Objectives and Results Monitoring
- Auditing plan

HSE Culture
- CI on ALL Controls
- Shared purpose and belief
- HSE Company Core Value
- Visible leadership
- Concentration on Leading Indicators
- Human Factors
- Behaviour Based Safety
- “Stop the Job”
- Accountability

Calculative HSE

Proactive HSE

Generative HSE

Injury/Loss Rate

Time

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26
What HSE MS can do… (HSE Performance)

Reactive HSE
Safety is important, we do a lot every time we have an accident.

Calculative HSE
We have systems in place to manage all hazards.

Proactive HSE
Safety leadership and values drive continuous improvement.

Generative HSE
HSE is how we do business around here.

Injury/Loss Rates

Time

What HSE MS can do… (HSE Performance)

HSE Leading Indicators

- Conspicuity Drive Completion (>90%)
- Safety Stand Down conducted (>80% attendance)
- Near hit reports (1 employee MoM TDO)
- PJRA completed (20% MoM TDO)
- Permit to Work submissions (>2 permit FT MoM TDO)
- Auditoan compliance (100%)
- Fit Test Compliance (100%)
- Safety Meeting attendance (>80% MoM TDO)
- Investigations completed <14 days (>95%)
- BOS specific HSE training compliance (>90%)
- Field Tech Proactive Reporting contribution rate (>95% MoM TDO)
- Proactive Reports closed (>85% MoM TDO)

Blue coverage indicates the performance of meeting objectives.

Combined percentage = 75%
Summary of HSE MS

- Have Management commitment
- Decide HSE MS applicable to your organization
- Audit against it
- Create, Implement or enhance your HSE MS
- Live it! Make it the way your manage HSE at your organization
Questions

Connect, share, inquire