Management of Change for EHS: Preventing Incidents Before They Exist

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Agenda

- The Hidden Start of Incidents
- Management of Change (MOC) Basics
- Change Types
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  - Process
  - Plant (Equipment/Facility)
  - Products/Materials
- MOC Triggers
  - Does this need MOC?
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  - Roles & Ownership
- Common Breakdowns (and fixes that actually work!)
- Example Scenarios
- MOC Metrics that Matter
- Summary & Q&A

Hello! I'm Stephanie!

- **St. Louis University**
  - B.S. in Chemistry
- **18+ years of Quality Management Experience**
  - Biotech, Pharma, Medical Device, Food & Beverage, General Manufacturing
- **ASQ Certified Quality Auditor**
- **ISO 13485 Lead Auditor**
- **Lean Six Sigma Green Belt**

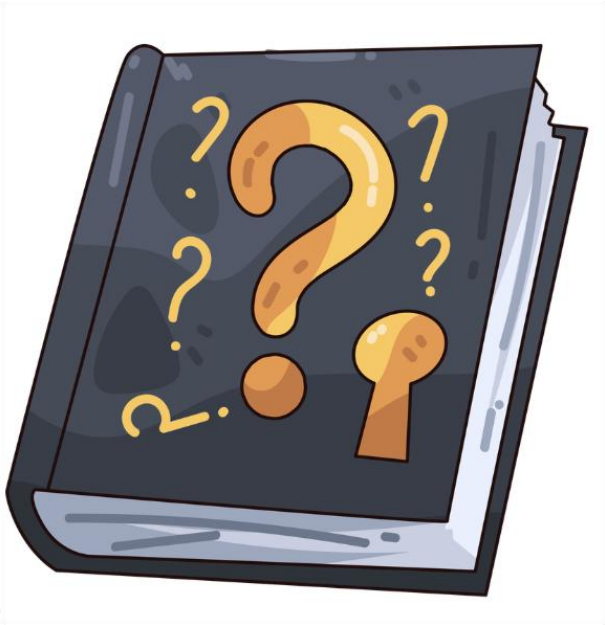
The Hidden Start of Incidents

Workarounds are Established:

- The process has to keep moving (even when the SOP doesn't match reality!)
- The shortcut becomes the standard

Changes Happen Outside the System:

- Maintenance swaps, purchasing substitutions made quickly with no documentation



Risk Shifts (Silently!):

- The process changes but the controls stay the same
- New hazards appear without anyone connecting the dots

The Evidence Trail Goes Missing:

- Approvals and follow-ups are fuzzy; gaps hide in plain sight
- If it isn't documented **and** verified, it didn't happen!

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Poll Time!

Where do most unreviewed changes happen in your organization?

- Equipment swaps/substitutions
- Operations changes (i.e. workarounds)
- Purchasing substitutions
- Contractors/temporary work
- Something else
- Not sure

Management of Change (MOC) Basics

Management Of Change

Change:

Any modification to how work is done, what's used, where it happens, etc.

Management:

A structured pause-and-check approach; reviewing impact, approving the change, confirming the right controls are in place

Defining What “Counts” as a Change

People	Process
Staffing/Role Changes Contractor/Vendor Changes Competency/Training Changes	Procedure/WI Changes Process Parameter Changes Maintenance Activity Changes
Plant (Equipment/Facility)	**Products/Materials**
Equipment/Guarding Changes Layout/Material Flow Changes Utilities/Ventilation Changes	Incoming Material Changes BOM/Formulation Changes Waste & Disposal Changes

MOC Watchlist: People

People
Staffing/Role Changes Contractor/Vendor Changes Competency/Training Changes

Staffing/Coverage changes shift risk

- Fatigue, rushing, fewer qualified eyes on the floor

Role changes create “new-to-task” exposure

- Unfamiliar hazards, missed steps, wrong PPE

Contractor changes add variability

- Site rules, permits, LOTO alignment, supervision gaps

Vendor changes alter work without warning

- Different methods/tools, unclear boundaries

Competency/Training changes need proof

- Qualification, task sign-off, refreshers

MOC Watchlist: Process

Process

Procedure/WI Changes
Process Parameter Changes
Maintenance Activity Changes

Procedure changes have ripple effects

- Job aids, PPE, permits, training often lags

Procedure changes create two versions of truth

- Old habits vs. new steps until the floor catches up

Process parameter changes shift hazards

- Exposure, reaction risk, ergonomic strain

Maintenance activity changes are change events

- LOTO, bypasses, temporary configurations

Post-maintenance restart is a high-risk moment

- Pre-start checks, first run verification

MOC Watchlist: Plant (Equipment/Facility)

Plant (Equipment/Facility)

Equipment/Guarding Changes
Layout/Material Flow Changes
Utilities/Ventilation Changes

Equipment changes shift hazards

- Guarding, pinch points, interlocks

LOTO points shift

- New energy sources, new isolation steps

Traffic patterns create new interactions

- Forklifts vs. pedestrians, blind corners, congestion

Material flow adds handling risk

- Lifts, reaches, twists, repetitive motion

Monitoring needs re-check

- Setpoints, sensors, interlocks after modifications

MOC Watchlist: Products/Materials

Products/Materials
Incoming Material Changes BOM/Formulation Changes Waste & Disposal Changes

Material changes aren't always equivalent

- Dustiness, toxicity, particle size

Supplier substitutions change handling risk

- Different packaging, storage needs, PPE

BOM/formulation changes shift exposure

- New ingredients, new by-products

Component changes affect the work

- Sharp edges, ergonomics, ignition potential

Disposal changes create compliance risk

- Classification, accumulation rules, containers, disposal method

MOC Triggers

New hazard introduced

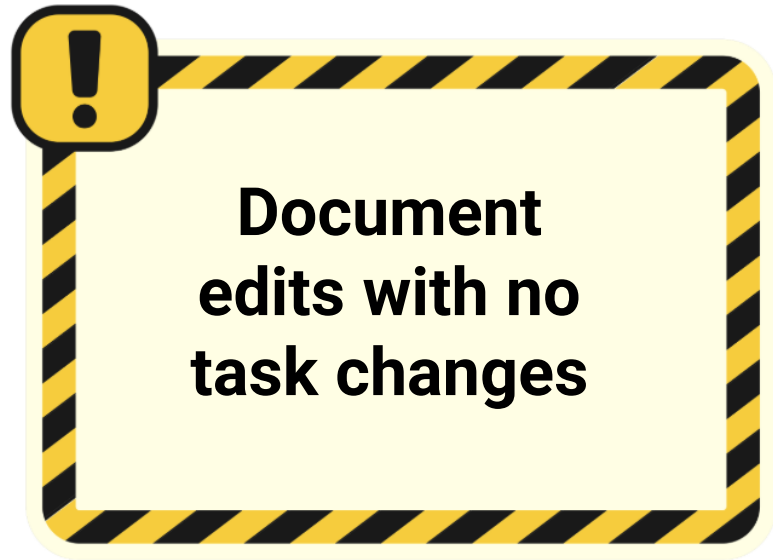
Controls are adjusted

Who does the work changes

Exposure changes

Environmental impact changes

Usually NOT a Trigger



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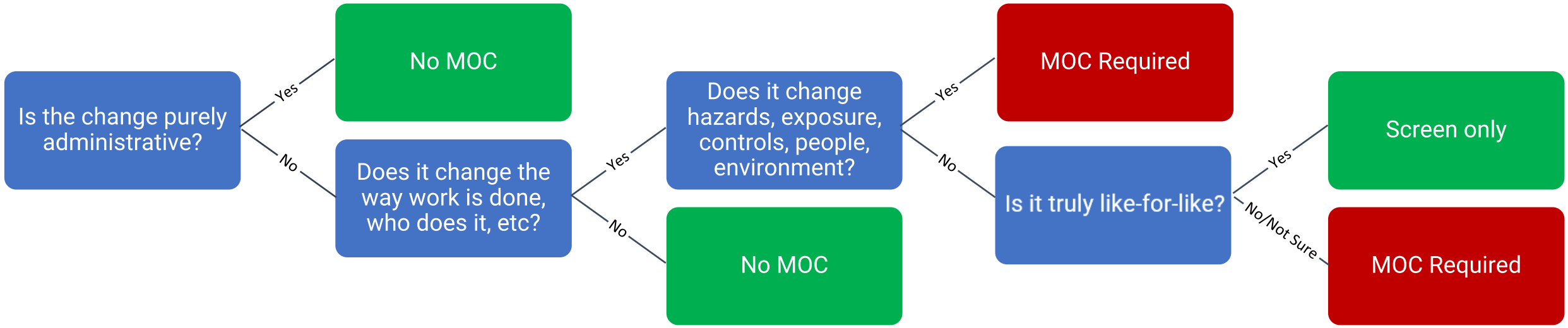
Does This Need MOC?



Screen only *(usually!)*:

- Exact replacement
- Identical spec
- Identical controls
- Doc update with NO operational change

MOC Required *(usually!)*:

- Temporary bypass or workaround
- Supplier/material substitution
- Layout change affecting traffic
- Staffing changes on safety-critical tasks

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Right-Sizing MOC

Light MOC

Light MOC

Use When:

- *Low complexity change*
- *Hazards unchanged or reduced*
- *Controls unchanged*
- *Low risk*

Typical Review

- Supervisor
- EHS
- Quality

Evidence

- What changed (and why!)
- Quick hazard/controls check
- Updated document reference

Standard MOC

Standard MOC

Use When:

- *Change affects how work is done or the work environment*
- *Moderate risk/uncertainty*
- *Controls may need updates*

Typical Review

- Operations
- EHS
- Engineering
- Quality

Evidence

- Hazard/exposure assessment summary
- Control updates (PPE, permits, etc.)
- Training/competency plan
- Readiness gate before go-live

Enhanced MOC

Enhanced MOC

Use When:

- *High hazard work or high consequence*
- *New chemical, material, process*
- *Controls are modified/removed*
- *Regulatory/environmental implications*

Typical Review

- Operations
- EHS
- Engineering
- Maintenance
- Quality

Evidence

- Deeper risk assessment
- Updated LOTO points, guarding verification
- Emergency response impacts reviewed
- Effectiveness check after go-live

End-to-End MOC Workflow

Identify & Scope	Assess	Approve	Implement	Verify & Close
Change type identified	Hazards added or increased	Right reviewers involved	Controls installed / updated	Readiness check
What's changing & why	Controls impacted	Conditions of approval captured	SOPs, WIs, labels, SDS, permits updated	Field verification
MOC level set	Environmental & waste impacts	Go-live criteria defined	Training & communication	Effectiveness check

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Roles & Ownership

Initiator

- Flags the change
- Describes scope, reason, timing

MOC Coordinator

- Screens the change
- Pulls in reviewers
- Keeps workflow going

Reviewer(s)

- Identifies hazards
- Defines required controls
- Notes downstream impacts

Approver(s)

- Accepts risk/conditions
- Confirms resources & timing
- Sets go-live criteria

Implementer

- Updates controls, tools, documentation
- Coordinates training

Verifier

- Readiness check
- Field verification
- Ensures closeout

Common Breakdowns (and Fixes!)

- "It's minor" or "it's routine" becomes the default label
- Changes get handled in email/text instead of the system
- MOC gets pulled in *after* the work has already started
- No one owns the question "Does this require review?"

Fix It!

- Publish a trigger list and decision tree
- Require a "screen result" step for change requests
- Add "MOC required?" as a default question in maintenance/purchasing workflows

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Common Breakdowns (and Fixes!)

- It’s assumed that same part number = same hazard
- Controls don’t get rechecked
- SDS/labels/training lag behind
- Waste/disposal needs change, but no one flags it

Fix It!

- Define like-for-like criteria
- Require a hazard check for substitutions
- Tie substitutions to SDS/label/waste review automatically

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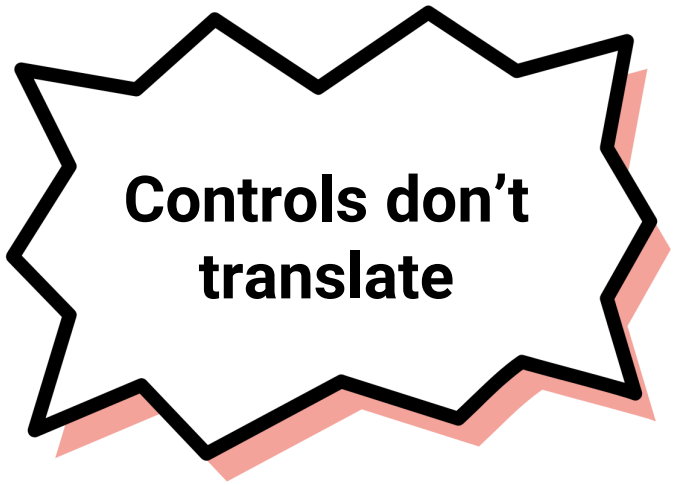
Common Breakdowns (and Fixes!)

- Change is approved before stakeholder review
- Reviews happen after install/startup
- Critical questions get missed
- Handoffs are unclear
- The “approver” isn’t the person closest to the risk

Fix It!

- Set default reviewer rules by change type
- Make reviews time-bound
- Require reviewer signoff before work starts

Common Breakdowns (and Fixes!)



- SOP updated, but the floor keeps running the old way
- PPE/permit/LOTO details don’t get embedded into the job
- Job aids/visuals don’t change
- Workarounds fill the gaps between process and reality

Fix It!

- Add a “floor readiness” checklist
- Require supervisor acknowledgement that floor controls are in place
- Build “field use” verification into closeout

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Common Breakdowns (and Fixes!)

- No readiness check before go-live
- First run/startup issues become the new normal
- PPE/signage/training updates don’t show up on the floor
- No effectiveness check

Fix It!

- Make readiness gate mandatory
- Schedule a post go-live walkthrough
- Tie closeout to evidence

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Common Breakdowns (and Fixes!)

- No effectiveness check after the change goes live
- Triggers never get refined based on reality
- Lessons learned aren’t documented in the workflow
- Trends aren’t reviewed

Fix It!

- Require an effectiveness check
- Track repeat rate and update triggers accordingly
- Review trends on a regular cadence

Poll Time!

What type of MOC breakdowns do you see in your organization?

- Triggers are unclear/not used
- “Like-for-like” assumed
- Right people brought in too late
- Verification gets skipped
- Unclear ownership
- Something else

Case Study #1: A Change That “Should Be Fine”

The Change:

- Increasing line speed and adjusting torque settings to hit throughput targets

Triggers

- Parameter changes
- Exposure & ergonomic load changes
- Potential guarding/interaction changes

What Can Go Wrong?

- Increased pinch point exposure due to faster line speed
- Repetitive motion/force increases
- More jams → more interventions
- More shortcuts

Case Study #1: A Change That “Should Be Fine”

Controls

- Updated SOP for jam clears
- Guarding & interlocks reviewed
- Ergonomic assessment
- Task rotation adjustments
- Supervisor communication
- Floor job aid
- First run verification during peak production

Verification & Closure

- Readiness gate completed before new speed released
- Effectiveness check: jam rate, interventions, observations
- Closeout with documentation

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Case Study #2: Substitution & Facility Impact

The Change:

- Substitute a cleaning agent & adjust cleaning procedure

Triggers

- Incoming material change
- Procedure change
- Potential containment impacts
- Waste/disposal implications

What Can Go Wrong?

- New skin exposure risk
- Incompatible storage/segregation
- SDS/label/training lag
- Waste stream classification changes
- Residual/compatibility issues in the area

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Case Study #2: Substitution & Facility Impact

Controls

- SDS review
- Hazard comparison
- PPE and handling requirements updated
- Storage and secondary containment confirmed
- WI updated & labels refreshed
- Waste classification & disposal method confirmed
- Floor verification of labeling & PPE use

Verification & Closure

- First-run observation of cleaning agent
- 30-day check of exposure complaints, near misses, compliance checks
- Updated WI, training records, and waste documentation

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Case Study #3: Layout & Material Flow Changes

The Change:

- Reconfigure workstations to improve flow & relocate a storage area

Triggers

- Layout/material flow change
- Pedestrian/forklift interaction change
- Access changes
- Storage compatibility changes

What Can Go Wrong?

- New traffic conflicts
- Blocked access to safety stations and exits
- Ergonomic strain
- Storage of incompatible materials too close
- Temporary staging becomes permanent clutter

Case Study #3: Layout & Material Flow Changes

Controls

- Updated traffic plan
- Confirm egress routes and emergency access
- Update visual controls
- Review WI/job aids
- Supervisor walkthrough
- First-week observation plan

Verification & Closure

- Readiness gate includes emergency access check
- 1-week check to observe compliance to walkways & staging
- 30-day check on ergonomic feedback
- Near miss trend review

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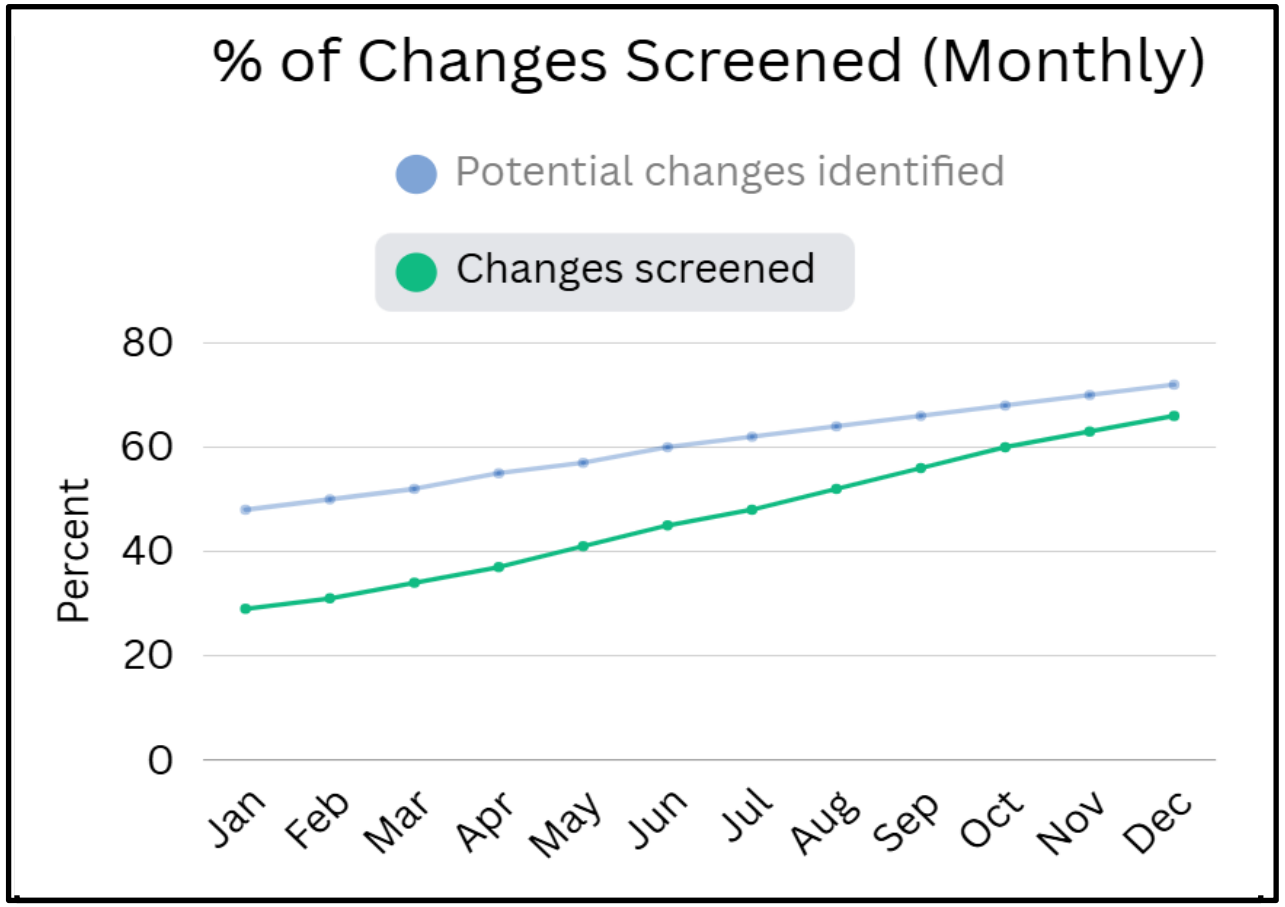
MOC Metrics That Matter



- Leading indicator: are we catching changes early enough to manage them?
- The “identified vs. screened” gap is where risk hides
- Improve by tightening triggers
- Dips/spikes usually map to staffing or shutdowns

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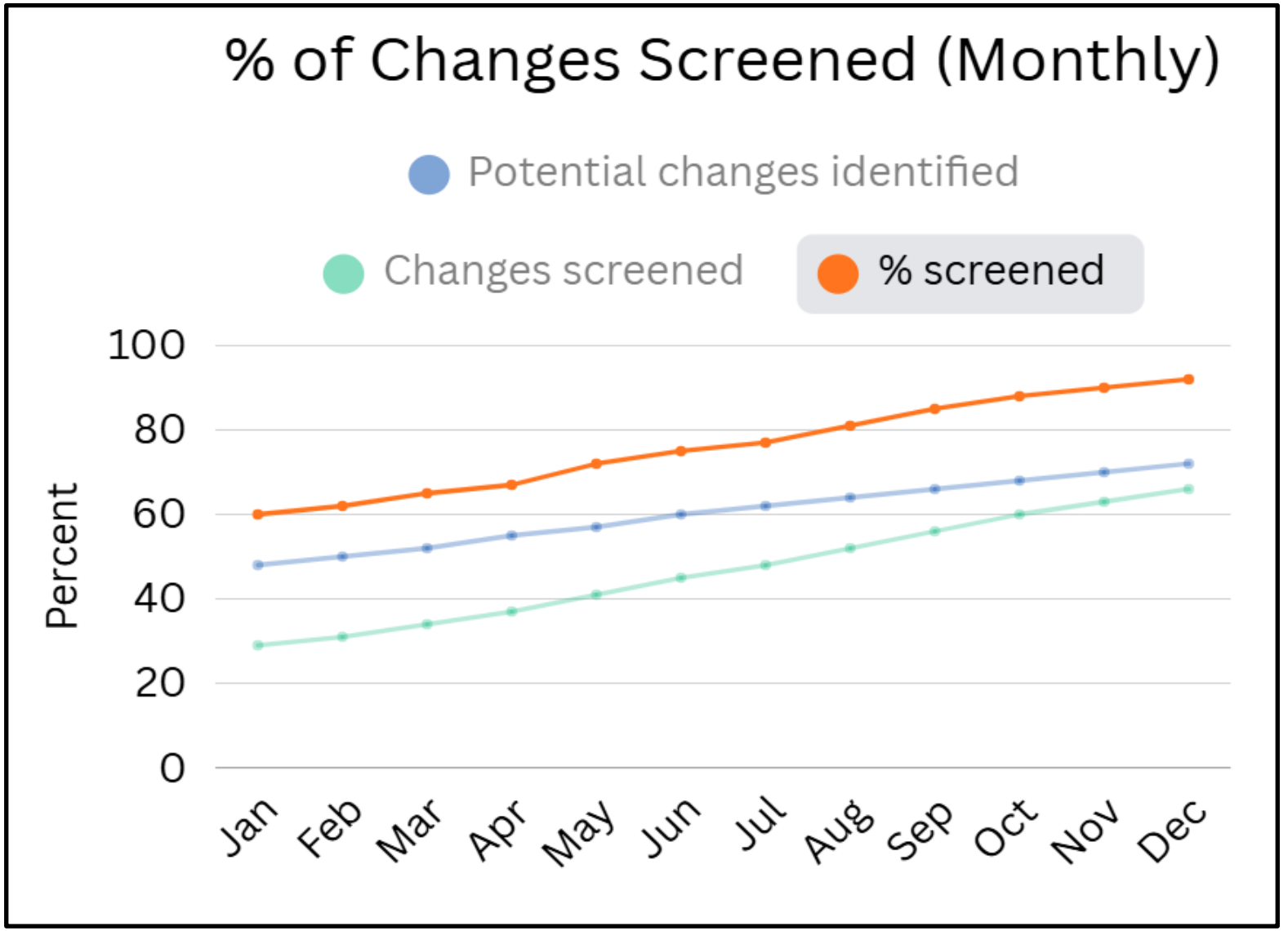
MOC Metrics That Matter



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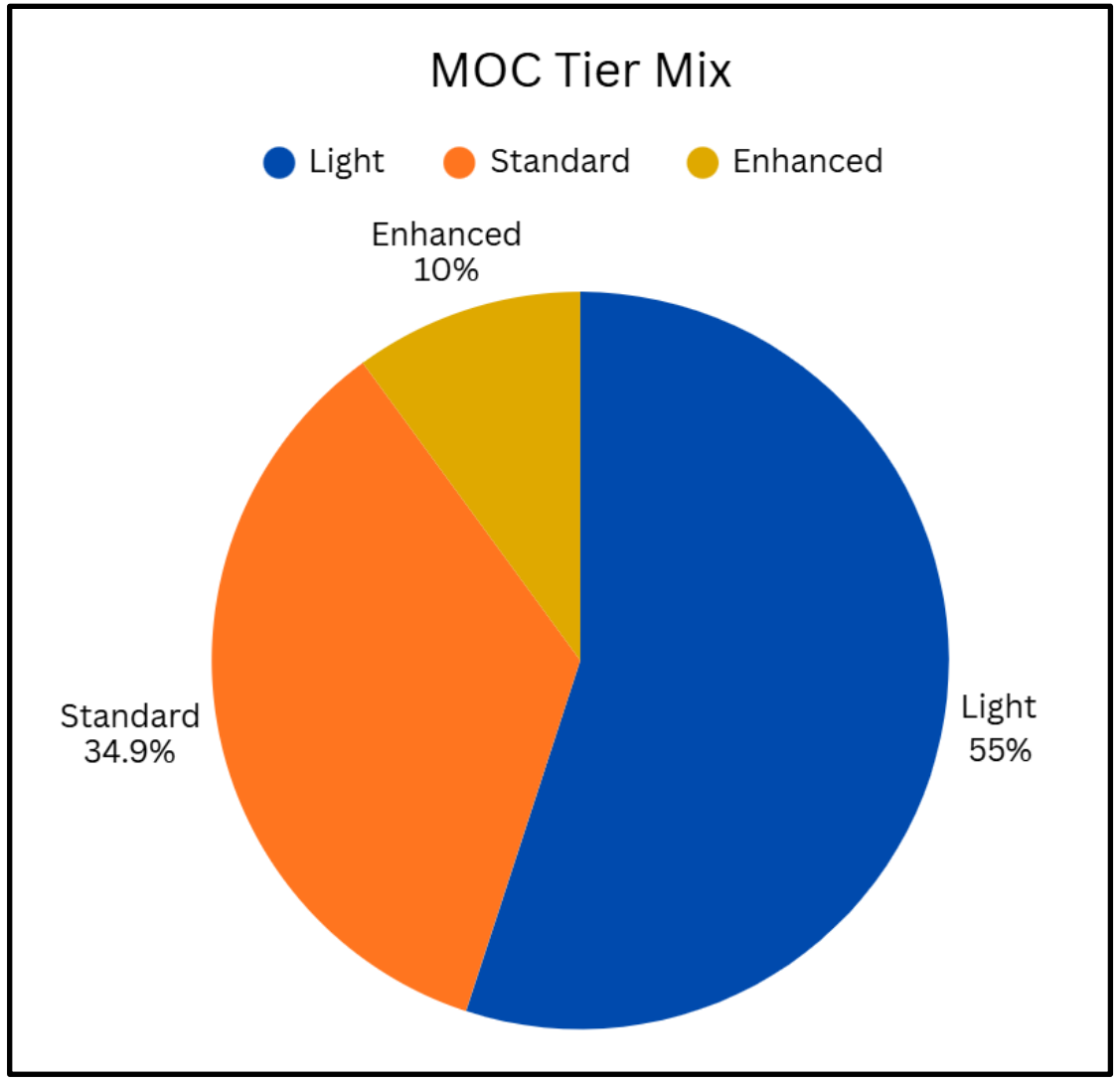
MOC Metrics That Matter



- Healthy programs have a strong Light tier (fast, low-risk changes)
- Standard is the workhorse; Enhanced stays small and intentional
- If Enhanced grows, could signal a rise in complexity
- MOC doesn’t have to be heavy for everything!

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Incidents rarely start at the incident

- Often start with an unreviewed change (and the shortcuts that follow!)

“What counts as a change” is the make or break step!

- Clear triggers + simple intake = fewer misses

Not every change deserves the same weight

- Tier it – light moves fast, enhanced gets more rigor

MOC only works when controls show up in the real world

- Procedures, permits, training, safeguards, readiness checks

Ownership prevents the handoff cliff

- Classification, accumulation rules, containers, disposal m

The program gets smarter when you close the loop

- Effectiveness checks + learnings feed back into triggers and checklists

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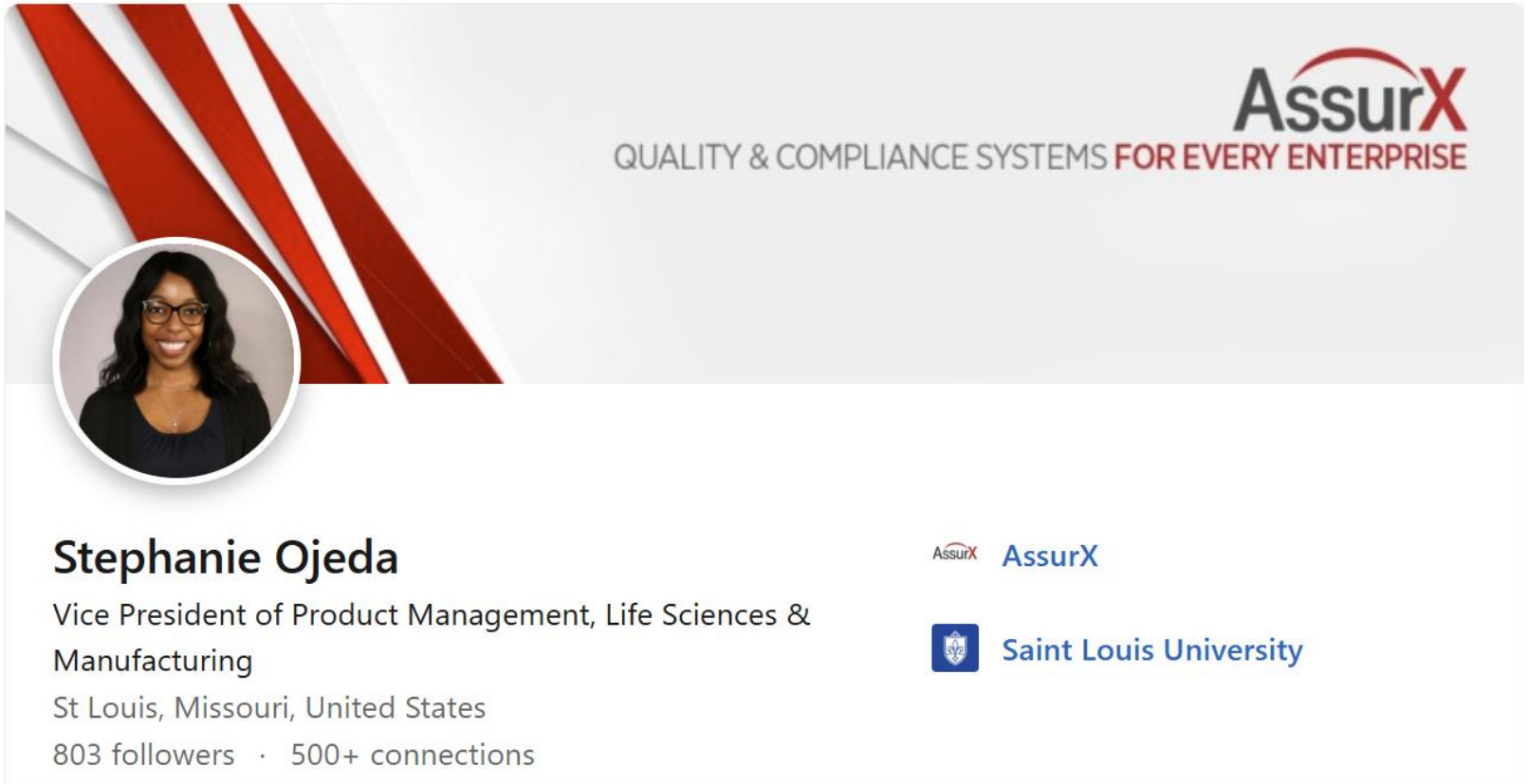
Let’s Connect!



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