Effectively Manage Changes to Processes, Chemicals, Equipment, and Personnel Using Process Safety Enterprise®

An ioMosaic White Paper

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Introduction

One of the most critical components of Process Safety Management (PSM) is the Management of Change (MOC) process. Unfortunately, many companies find MOC difficult to manage as it encompasses a broad scope including changes made to raw materials, process technologies, equipment, procedures, or changes impacting the overall organization. These types of changes must be carefully evaluated to ensure they do not jeopardize the safety of employees and the community, as well as adversely impacting the environment or business continuity.

An effective MOC process should include the technical basis for the change, safety and health impacts of the change, description of the change, and identification of temporary changes. Additional requirements include identifying changes to Process Safety Information, Operating Procedures, and assurance that training has been provided before the change is implemented.

Changes to raw materials, buildings and structures, and the organization and personnel should also be reviewed in an MOC process. For instance, changes to raw materials have the potential to impact safety as well as quality. A change in composition, contaminates or materials, if not managed properly, could result in a serious incident. When modifications are made to buildings and structures, facility siting issues may arise.

Relocating or establishing raw material or final product storage may introduce an unintended effect on the surrounding area.

Applying an effective Management of Organizational Change (MOOC) system to address personnel changes ensures that critical safety roles are not left unfilled. Those vital tasks, such as submitting regulatory permit updates, won't be forgotten. Figure 4 shows how the MOOC process in Process Safety Enterprise® (PSE) can effectively address the reassignment of functions and responsibilities brought about by workforce changes. The addition of this MOOC workflow elevates the safety of a facility even further.

Effective MOC systems help companies identify and mitigate risks, avoid accidents and incidents, and stay compliant with regulations. For businesses serious about implementing a comprehensive and evergreen PSM compliance system, ioMosaic offers the Process Safety Enterprise® (PSE) (Figure 1). PSE is a cloud-based platform that enables easy ongoing management of process safety data, helping businesses achieve compliance, manage risk, and remain at a competitive advantage. Unlike any other system available in the market today, PSE is a centralized web-based application that integrates all PSM elements and workflows, making it THE ultimate solution for managing MOC processes effectively.

This white paper discussed the key aspects of an MOC workflow and show how PSE can help companies improve and elevate their change process while also mitigating future incidents.


Figure 1. Process Safety Enterprise® (PSE)
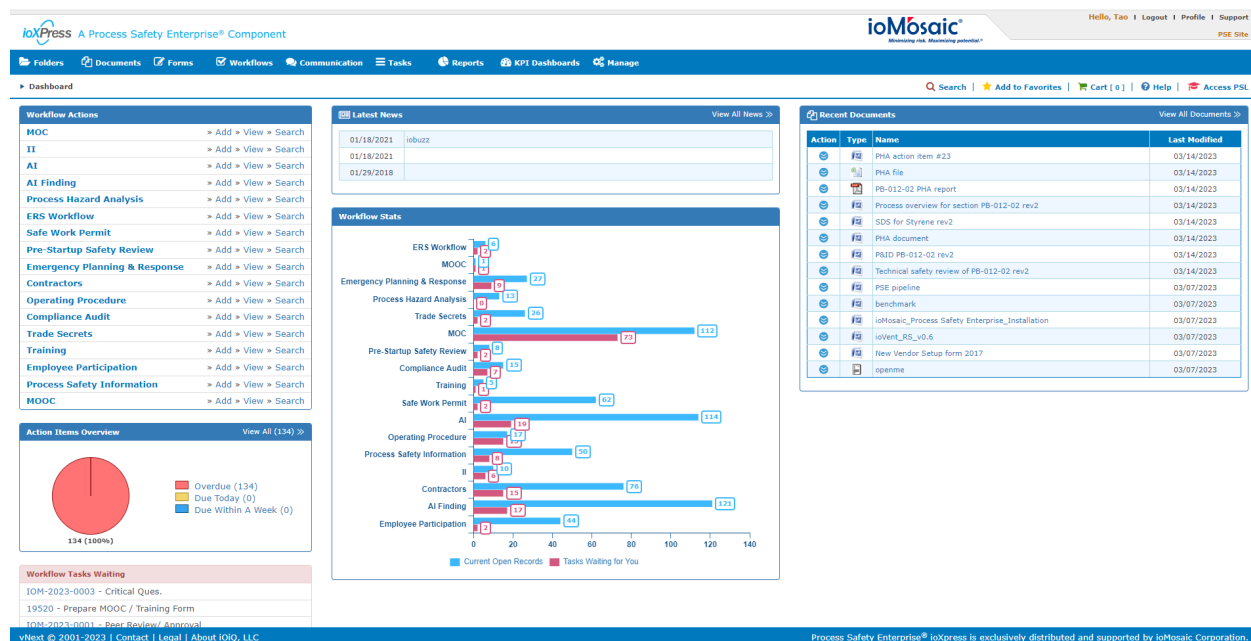
Document Control System

The document control system of PSE's platform is a key component facilitating easy access to all critical process safety data. It allows users to add documents by simply dragging and dropping (Figure 2) them into the system and quickly organizing them in folders for easy retrieval. With an advanced search function, which indexes all documents with full text, users can find any necessary information quickly. An embedded document viewer feature enhances accessibility allowing users with view-only permission to access documents remotely without having to log onto their computer. This document control component is an effective tool for managing various types of data, including but not limited to engineering data, process safety information (PSI), procedures, records, pictures, videos, animation, and reports. This component further ensures that all stakeholders have easy access to vital information related to the MOC process all stored in a centralized location.

Figure 2. Drag and drop feature to add document(s)
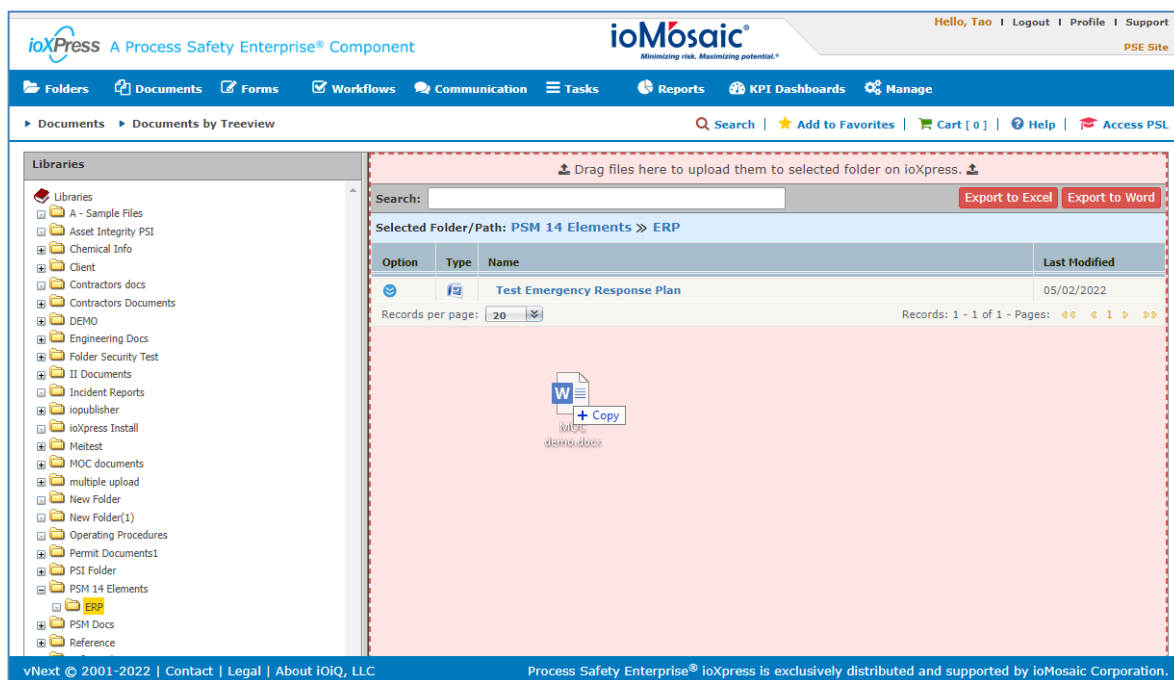
Intelligent Form Builder

In addition to its document control component, PSE also includes an intelligent form builder for efficient data capture and linking to documents in a central digital library. This dynamic form builder enables users to create practical and customizable infrastructure capturing and managing information, such as engineering relief and vent sizing data. For instance, basic process data, sizing calculations, and final device specifications can be easily captured into dynamic forms (Figure 3) and linked to relevant documents.

The dynamic form builder also allows companies to tailor forms to their specific needs, thereby making the MOC process more effective, efficient and company centric. The ability to customize forms ensures that all necessary data is captured accurately and consistently. Moreover, this feature allows for easy export of data to an Excel format if needed, making data analysis, and sharing even more seamless. Implementing a customizable form builder like the one found in PSE streamlines an MOC process by up to 50% just by managing and capturing data right accurately and efficiently the first time.

Figure 3. Example of Equipment Form

MOC and MOOC Workflows

PSE is the only process safety platform that integrates all of OSHA's process safety management (PSM) elements using visual workflows in a single enterprise system. Included in this workflow are PSMs 14 elements in workflow, action tracking modules, including but not limited to MOC, II, SOP, PSI, Training. These workflows allow companies to easily access and manage their compliance more efficiently and timely.

PSEs MOC workflow module includes pre-built templates for MOC initiation, review, approval, and closure. These pre-built templates ensure that a company's MOC process is consistent and captures all necessary information. The MOC workflow can be designed to cover a single area MOC (Figure 5) or upgraded to cover multiple areas (Figure 6). The MOC workflow can be customized to meet the specific needs of any company.

Figure 6 illustrates the various steps involved in an MOC process, including identifying the need for a change, evaluating the potential impact, obtaining approval, and implementing and verifying the change.

The MOC workflow within PSE is an essential tool that ensures any changes made to the process, equipment, personnel, or procedures do not adversely affect process safety reliability, or integrity of
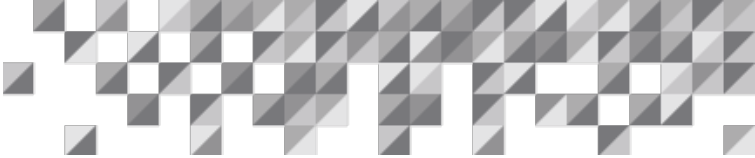
the company as well as the environment and personnel. The pre-built templates, customization options, and action tracking feature provide a consistent and efficient approach for managing successful MOC processes.

Figure 4. Management of Organization Change (MOOC) workflow
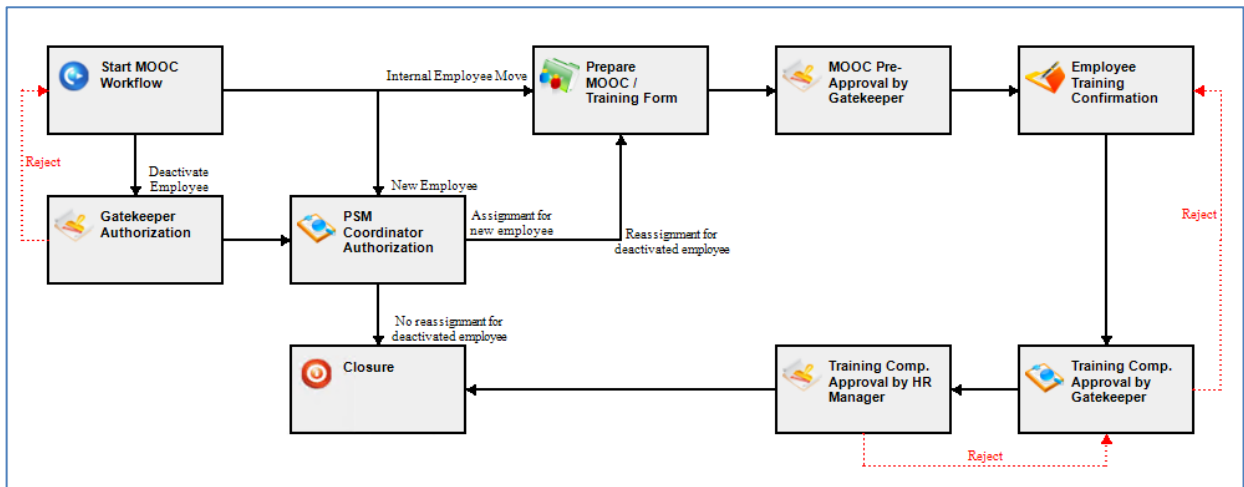
The following examples illustrate the flexibility of the MOC workflow.
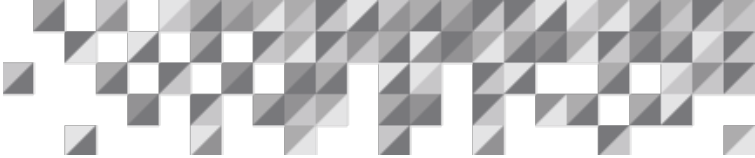
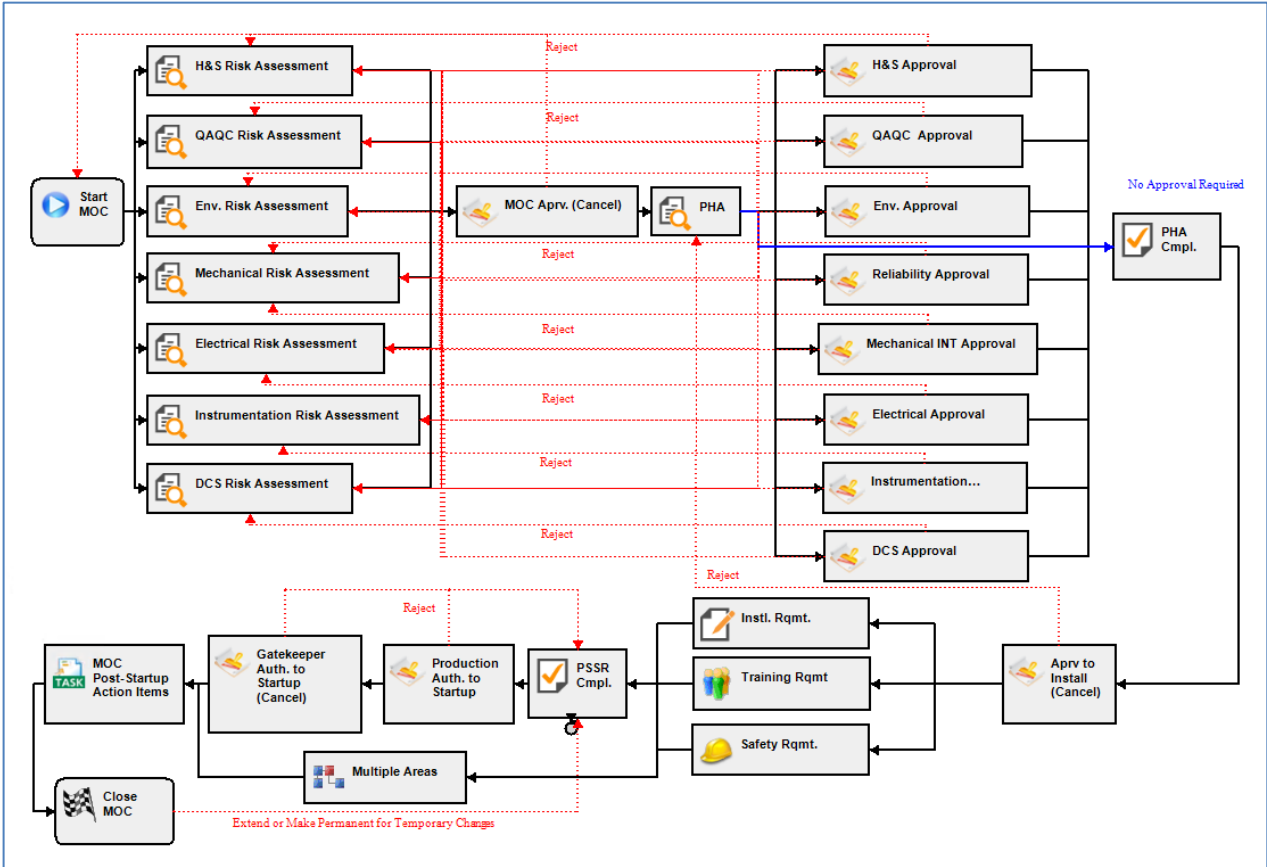Figure 5. Example 1 MOC workflow (single)
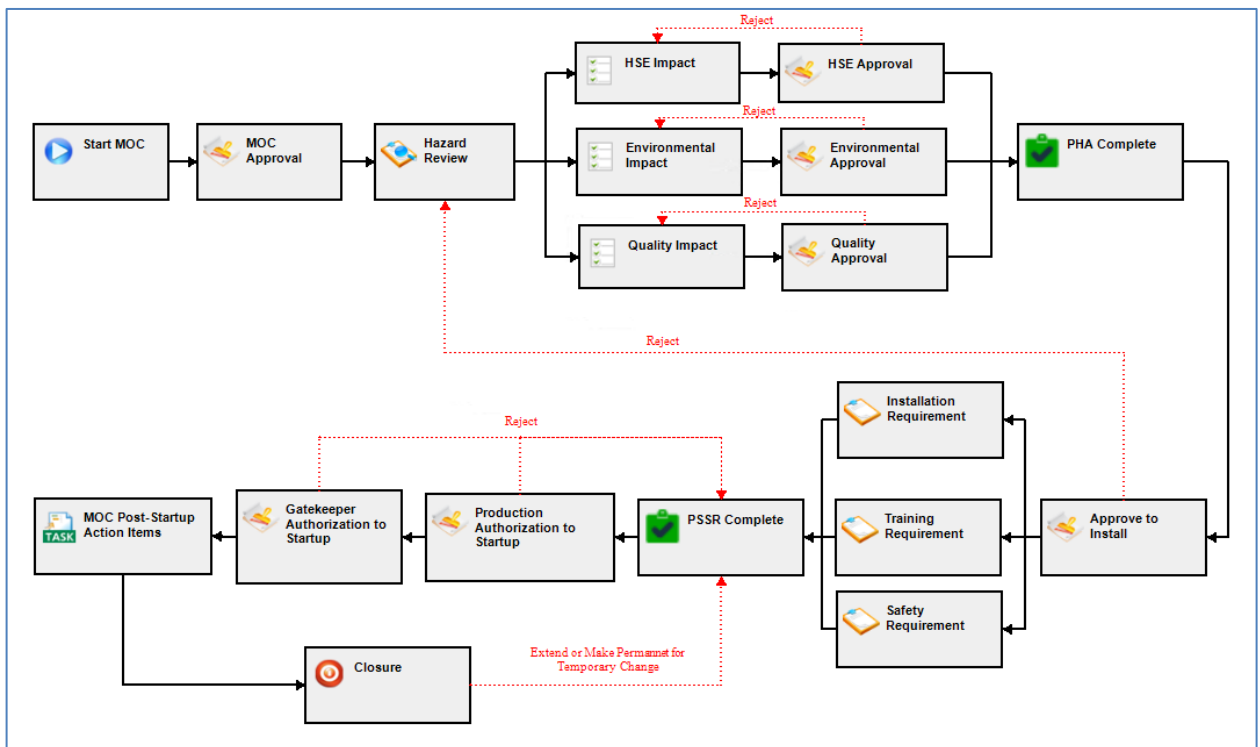
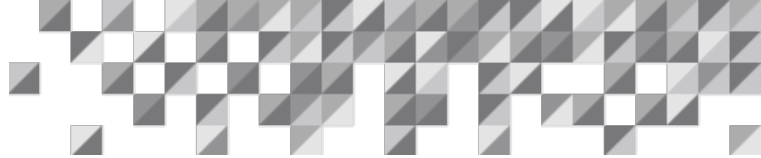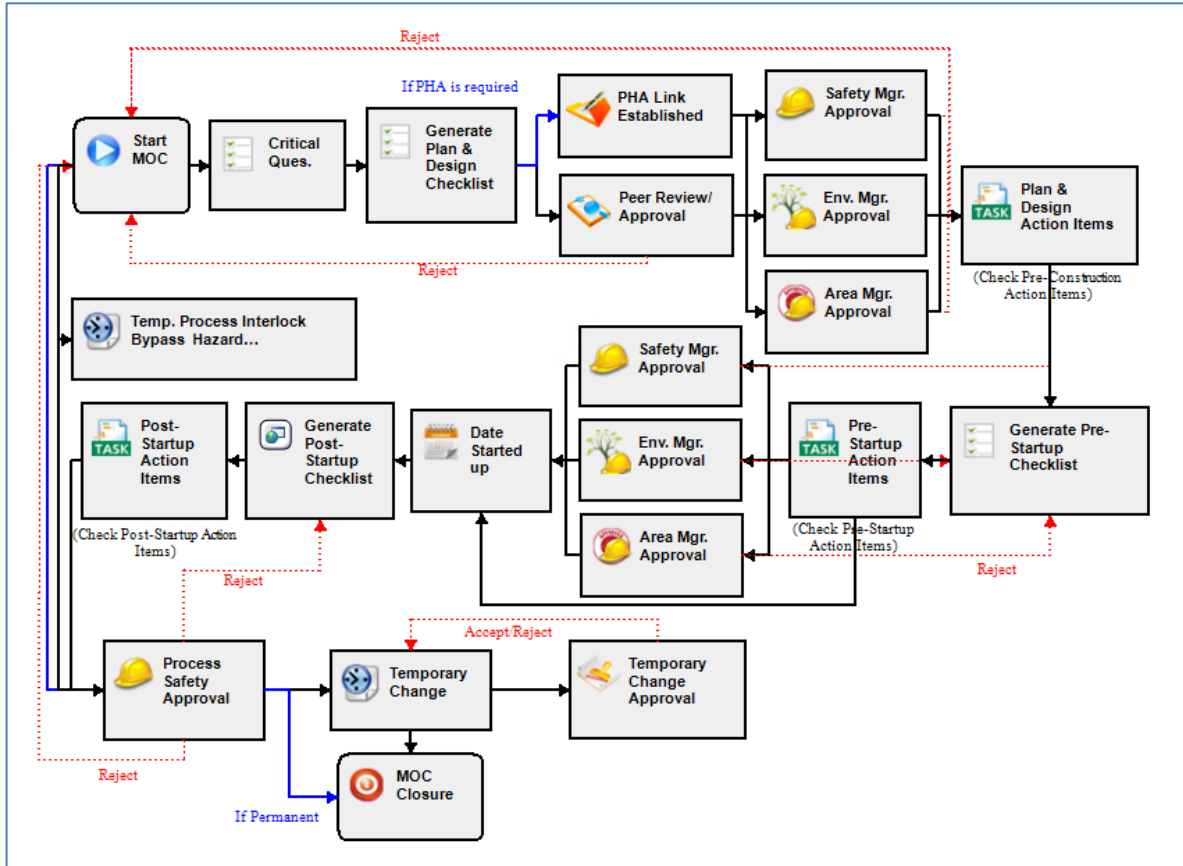## Figure 6. Example 2 MOC workflow (multi)

Figure 7 Example 3 MOC workflow – overall MOC process

Action Tracking System

PSE features a comprehensive action item management system (Figure 7) that tracks all tasks related to each process safety management workflow, such as MOC and incident investigations. This feature ensures that all action items are managed within the platform reducing or eliminating the risk of overlooked or forgotten tasks. Additionally, the automatic reminders ensure that all tasks are completed in time.

Further integration with Process Safety Office®, PHAGlobal® software provides companies with seamless tools for conducting PHA studies. With just a click of a button, the action items generated from PHAGlobal® are easily exported to PSE, streamlining the PHA process and eliminating the need dual data entry.

PSE's robust action item management system and seamless integration with PHAGlobal® makes for an efficient and comprehensive platform that manages the lifecycle of an MOC process.
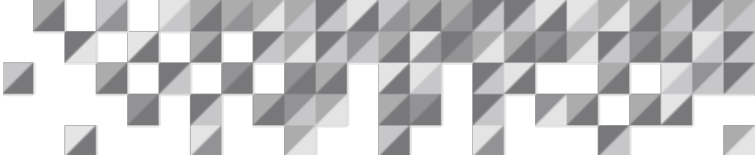
Companies can easily track and manage all tasks related to process safety management within a single platform, reducing the risk of incidents and non-compliance.

Figure 8. Action item

Reporting and Dashboard/KPI

PSE's reporting and dashboard (Figure 8) capabilities are an invaluable 'must have' asset for any data-driven enterprise solution looking to increase performance and productivity. With well-designed dashboards featuring various widgets such as bar charts, pie charts, line charts, and tables, PSE provides a comprehensive overview of plant operations from a single source of truth. These dashboards allow business owners to make faster decisions based on real-time data.

Moreover, PSE's reporting and dashboard capabilities provide real-time visibility into MOC-related activities, allowing organizations to quickly identify trends and areas of concern. This capability enables timely corrective action to be taken, reducing the risk of incidents and non-compliance. PSE's robust reporting and dashboard/KPIs is an essential must have tool for any enterprise seriously looking to optimize their operations and mitigate potential risks.
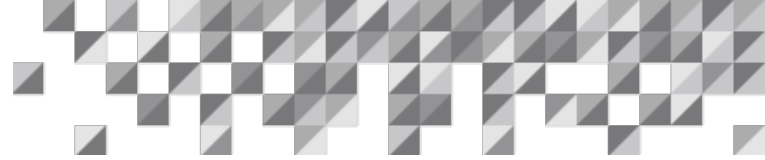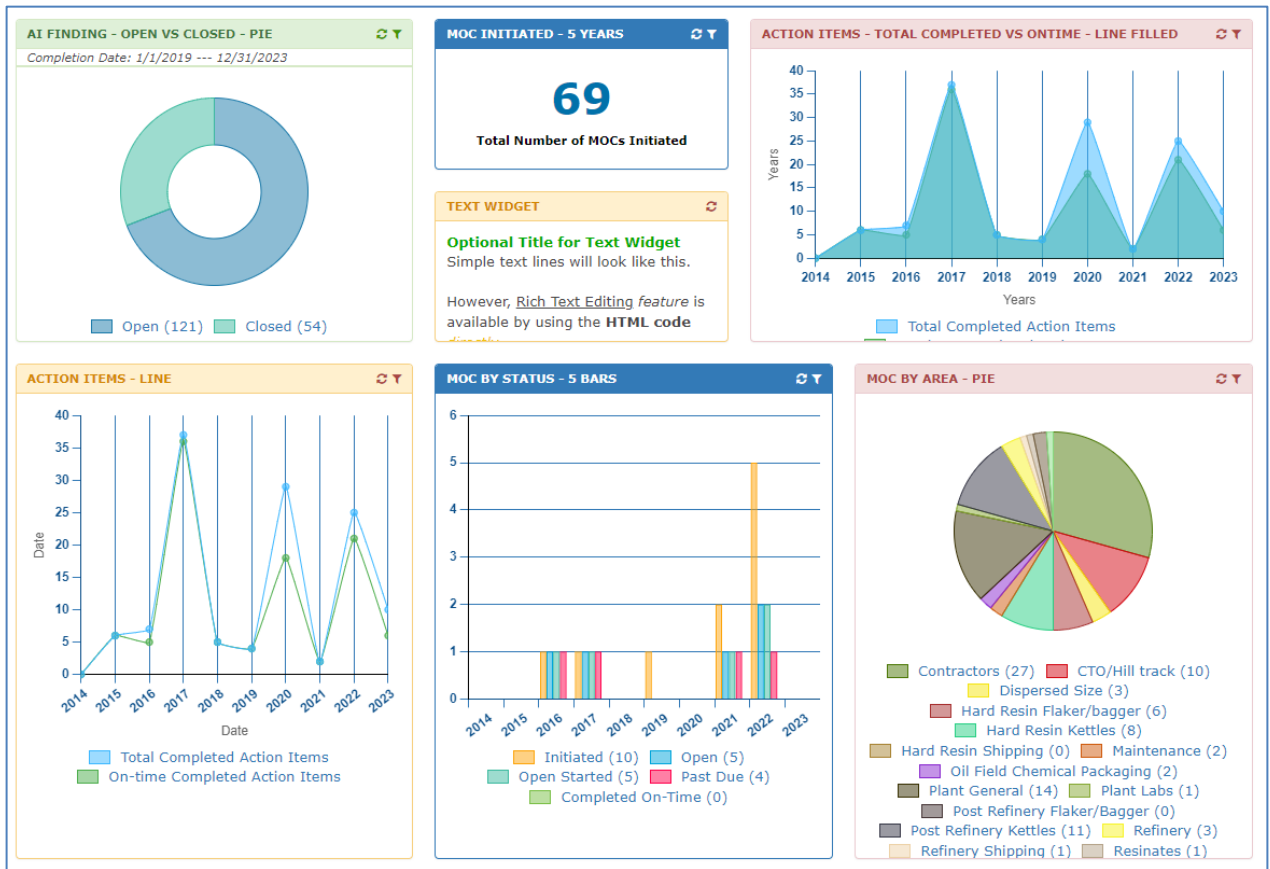
Figure 9. Dashboard/KPI

Case Study – Chemical Manufacturer Management of Change Documentation

The Challenge

An international chemical manufacturing company was struggling to manually manage its Process Safety Information (PSI) and sought to transition to an electronic system where Process Safety Management (PSM) data from multiple facilities could be stored and accessed into one comprehensive system for qualified employees across the organization.

Paper-based Management of Change (MOC) processes that rely on individuals to keep track of changes are prone to human error and competing priorities. After years of storing and maintaining paper trails of Management of Change (MOC) orders, the client faced the reality that nearly twenty percent of this paperwork was somehow lost or misplaced. An electronic platform was needed to simplify process safety oversight, improve safety for its employees, and reduce the potential for risk.
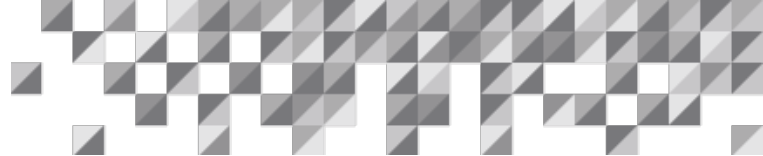
Our Approach

Process Safety Enterprise® Management of Change Workflow met all of the client's specific needs. This evergreen, server-based platform provided a centralized database accessible and visible to all employees and contained step-by-step guided workflows. ioMosaic first integrated the client's multiple facility sites and various data into one uniform system by:

- Developing a unique ID system to differentiate facilities, modules, and year numbers
- Setting up single sign-on access to simplify access for users to all facility sites
- Identifying and developing consistent data definitions and metrics
- Standardizing search queries to ensure data quality
- Devising site-specific and corporate reporting capabilities

Once this framework was finalized, ioMosaic proceeded with developing and implementing the module. To create workflows that were specific to the client, ioMosaic worked with them to create a plan and design lists based on the tasks that involved a change. These originated from the client's paper system and were compiled into three categories: design, pre-startup, and post-startup stages. ioMosaic also worked to customize specific non-workflow tasks that were important to their processes. The workflow set-up made documents and data easy to organize and maintain over time.

Now users are able to describe a change and scope based on the type of change and equipment. The interface then generated critical questions for determining if a PHA was needed that pre-populated. This workflow step provided employees with guidance, taking much of the guesswork out of revalidations and adding a layer of safeguarding. The client's decision to add Process Safety Office® PHAGlobal® significantly simplified their management of the PHA lifecycle, effectively initiating and managing continuous PHA revalidation to ensure compliance.

The standard built-in features of PSE such as automatic assignment of approvals, action items tracking, document linking, and email notifications all contributed to making sure the documentation of changes were properly captured and visible to employees, and further streamlined the MOC process for the client.

The Benefits

Previously the client had a history of losing hard copies. PSE and the Management of Change Workflow module brought increased organizational efficiency to multiple facilities across the organization. The client's data was easily organized, processes were optimized, and oversights minimized. Action items were now electronically tracked from start to finish. Status reports and
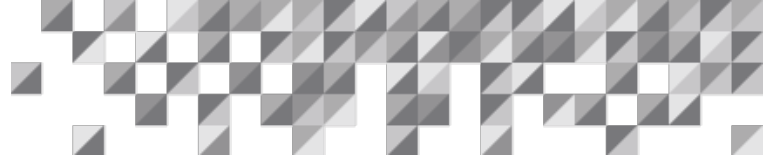
corrective actions were no longer lost or in question as the system now kept track of their data in real-time. The user-friendly dashboard facilitated quick access of reports and open MOCs, which enabled proper and timely reviews of every MOC. All information was accessible to qualified employees across all facility locations. PSE not only greatly improved efficiency, but also created transparency at all organizational levels. In fact, the client reported that the Safety and Health Coordinator spent 40% less time on paper management and logging MOCs as a result of the PSE platform's functionality.

The client was so satisfied with the results, they have come back for an expansion of their system. ioMosaic will add customized workflows and modules that will create and track action items for other processes such as internal and external audits, customer complaints, and job safety analysis. ioMosaic successfully created an economical, long-term sustainable platform for MOC initiation, approval, and PHA revalidation that raised visibility and efficiency.

Conclusion

Managing changes to a process can be a challenging task; fortunately, Process Safety Enterprise® (PSE) provides an integrated solution that makes the MOC process more efficient and effective. With its centralized platform managing the MOC process, a dynamic form builder, action tracking feature, and integrated workflows to standardize the process, companies reduce the risk of incidents and non-compliance.

PSE offers additional benefits, including enhanced collaboration, improved data management, and increased compliance with process safety regulations. With the reporting and dashboard capabilities, organizations can easily identify trends and potential areas of concern, gaining real-time visibility into all process safety-related activities. The automatic notification system sends reminders and alerts to stakeholders, ensuring you are on top of status and timely on deadlines.

PSE's customizable MOC workflow module includes pre-built templates for MOC initiation, review, approval, and closure, ensuring that all necessary information is captured in one centrally located platform. The module can be designed to cover a single area MOC or multiple areas, as per the company's specific needs.

PSE stands apart in the market by providing the only all-inclusive process safety compliance platform that makes compliance easy.
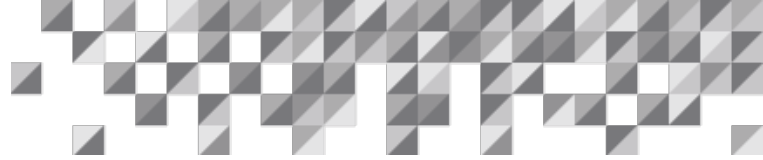
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PSE link to user testimonials

PSE link to software demo requests

PSE link to PSE overview

PSE link to case studies

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   PSM Compliance Made Easy with Process Safety Enterprise®

   Effectively Manage Mechanical Integrity in PSE

   Process Safety Enterprise® Asset Integrity Management Service (AIMS) and KPI Dashboard