

# BRINGING ORDER TO THE CHAOS OF CAPITAL PROJECTS

A Definitive Guide to Industry Best Practices for Optimizing the Management of Engineering Information in Asset-Intensive and Process-Driven Industries

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# EIM CRITICAL BUSINESS IMPERATIVE

## No Longer a Nice to Have, but a Must Have

Engineering Information Management (EIM) solutions enable workgroups, global enterprises, and external partners to find, manage, share, and control design and maintenance information throughout process-driven, asset management-intensive capital project lifecycles.

The digital transformation of capital projects is underway. With increasing amounts of design documents, maintenance data, security concerns, and device proliferation, forward-looking companies turn to Engineering Information Management (EIM) solutions to bring order to the millions of pieces of information required to build and maintain complex engineering projects. Stringent regulatory environments in process-driven industries, such as oil & gas, utilities, chemicals, mining and infrastructure, further increase the need for EIM to meet compliance demands and keep projects on track.

This insight will highlight the best practices to adopt when implementing an EIM solution to **MAXIMIZE PROJECT SUCCESS.**

**Data explosion**  
and **regulatory compliance** have created demand from all geographies propelling the market

**\$322.5**  
MILLION

2016

**\$627.5**  
MILLION

2023



# ACCELERATE PROJECT STARTUP

## Minimize Search Time and Avoid Recreating Lost or Misplaced Information

Delivering on time and under budget is the goal of every project, particularly multi-million to multi-billion dollar plants and infrastructure builds. Accelerating the entire construction lifecycle process can be improved by centralizing the data used to get assets and processes up and running.

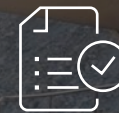
Knowledge workers spend from 15% to 35% of their time searching for information and almost 10% of their time creating “new” information, the vast majority of which already exists, but was not found. The cost of such “intellectual rework” is \$5,000 per worker per year, but more importantly the 25% to 45% time savings that can go into accelerating project startup. It is therefore no surprise that companies in process-driven industries need to make it easier for construction, engineering, architecture/design, operations and maintenance teams to find and reuse data and manage revisions.

Companies in process-driven industries need to make it easier for teams to **FIND AND REUSE DATA AND MANAGE REVISIONS.**

### BEST PRACTICE

1

An ideal EIM solution helps customers across workgroups and global enterprises throughout a project lifecycle to



Manage all project documentation



Facilitate collaboration across sites and with external partners



Automate workflow and approvals



Unify business systems

The system must be easy to implement, use, and maintain, resulting in faster project completion and improved margins.



# SIMPLIFY PROJECT HANDOVER

## Deliver Early to Benefit Owner-Operators

Transitioning asset data from engineering, procurement and construction (EPC) companies, including their suppliers and vendors, to owner-operators involves the transfer of thousands of documents and millions of pieces of information. This handover is essential to the efficient ramp-up and maintenance of a complex oil & gas, utility, alternative energy, chemical and/or mining facility, as well as infrastructure projects.

Handover costs for a \$1 billion facility can be up to \$20 million. Handover can easily account for 1 to 2% of total CAPEX costs and take a year or more to complete. Owner-Operators unexpectedly spend 2 to 4% of project cost to correct and reproduce missing operations and maintenance information manually. The cost implications of project handovers (and unexpected downtime) make it imperative that an EIM solution not only be focused on solving problems like this, but that the provider have expert resources, years of field experience, and a global presence to help clients through the potentially disruptive process of transitioning engineering asset information.

Handover costs for a \$1 billion facility can be **UP TO \$20 MILLION**.

### BEST PRACTICE

2

An ideal EIM provider should take a hands-on, partnership approach with its customers from

Initial Planning



Training



Implementation



Support

The EIM vendor should have a selection of reference customers and a proven track record of helping companies get up and running quickly, limiting impact on customer resources, and providing immediate measurable value.



# AVOID A SHUTDOWN OR OUTAGE

## Maintain Plants and Processes Using the Latest Relevant Information Available

Maintenance is the foundation of any engineering asset or process-driven industry. Building a new oil refinery, for example, takes months, then operates and requires maintenance for decades. Owner-Operators and EPCs cannot afford downtime, which may cost refineries \$40 to \$90 million annually. 92% of that downtime is unplanned due to inadequate maintenance. EIM is the nerve center, the information repository needed to build and maintain plants. It is essential to the maintenance process to have the correct protocols set up to generate alerts for assets coming to the limits of wear. Process-driven companies need to be proactive about scheduling for downtimes rather than be reactive to unscheduled maintenance issues. EIM solutions connect people to the information needed to minimize downtime while maintaining complex industrial processes rather than troubleshooting them after a shutdown.

Process-driven companies need to be **PROACTIVE ABOUT SCHEDULING FOR DOWNTIMES** rather than be reactive to unscheduled maintenance issues.

### BEST PRACTICE

**3**

An ideal EIM solution provider must handle the  
**thousands to millions**  
of documents and data points for capital projects



For example, EIM is critical for managing the amount of data and documentation needed to maintain a chemical plant or oil refinery for equipment responsible for millions of dollars of output.



# MAINTAIN YOUR INTELLECTUAL PROPERTY YOUR WAY

## Secure Your Data without Being Held Hostage by a Proprietary Solution

IT professionals estimate 49% of an organization's worth is derived from the information they own. EIM systems protect your intellectual property and strategic business plans from theft or unauthorized access, however the way information is vaulted by an EIM system is more important than you might think. Documents and information should not be held hostage by a proprietary EIM solution. Customers should own their documents and the related data, and it should remain in a format that is intelligible and accessible outside the system if required. Some EIM solutions document vaulting method scramble your folder structure and filenames, while others import all of the files into a proprietary database.

A better approach is a “wrap around” vaulting methodology that provides necessary security and control without encrypting or scrambling the folder structure or filenames, and without importing the documents into a proprietary database. This ensures that an organization's proprietary, mission critical information is available should they ever need to access information outside of their current EIM solution or should they ever choose to move their information to a different EIM repository.

Documents and information should **NOT BE HELD HOSTAGE** by a proprietary EIM solution.

### BEST PRACTICE

4

An ideal EIM solution provides secure, controlled access to documents from any location either via

A Centralized Vault



Distributed Vaults



Replicated Vaults



Vaults should maintain your native folder structure and file names without scrambling documents or blobbing them into a proprietary database, while also providing users everywhere with fast, local access to the latest revision.

# FACILITATE AUDITS AND COMPLIANCE

## Reduce the Risk of a Compliance-related Issue and Streamline the Compliance Process

In process-driven industries, companies face the need to coordinate multiple departments and multiple sites across multiple regions. Through the auditing, compliance, and reporting process, they're dealing with thousands to millions of documents, along with dozens of workflows, which is challenging for any size company. This is complicated further in industries with higher security and compliance demands imposed by stringent regulatory environments, such as the energy and infrastructure industries.

53% of energy companies have a dedicated compliance budget of \$1 million to \$5 million per year, and 25% have an annual budget of more than \$5 million. Centralized document access and control and improved visibility to data helps reassure auditors that company processes are in order. Whether demonstrating adherence to local, state, national, or industry regulations, compliance promotes safety and helps avoid costly fines. Using an EIM solution minimizes compliance costs and reduces the risk of regulatory issues.

Using an EIM solution  
**MINIMIZES COMPLIANCE  
COSTS AND REDUCES THE  
RISK** of regulatory issues.

### BEST PRACTICE

**5**

An ideal EIM solution replaces

Inefficient document  
management programs  
or manual methods

**with**

Intelligent systems  
designed to automate  
document access,  
control and compliance

With a centralized, automated system in place, your risk of a compliance issue is reduced and the process of complying with industry regulations is streamlined.



# PROTECT INTELLECTUAL PROPERTY

## Reduce the Risk of IP Theft in Your Organization

The global nature of today's supply chain and the ebb and flow of trade tensions between countries make intellectual property a valuable target for companies trying to gain advantages illegally. The ease with which information can be transmitted makes access control and audit trails crucial to the protection of an organization's intellectual property. While corporate espionage is often thought of being conducted by remote hackers and cyber criminals, much of it is done by employees switching jobs and taking business plans, sensitive data, and/or trade secrets with them.

The US government estimates the cost of all trade secret theft in the United States at \$540 billion annually with \$300 billion of the total being done by cyber attacks, leaving upwards of \$200 billion done by current or transitioning employees. An EIM solution reduces the risk of IP theft through secure vaulting, granular control over document access, a complete audit trail for every action taken to any document, and powerful reporting to identify unusual document access patterns.

The US government estimates the cost of all trade secret theft in the United States at **\$540 BILLION ANNUALLY.**

### BEST PRACTICE

6

An ideal EIM solution helps  
**protect against IP theft**



Using an EIM solution to do on-going monitoring helps spot suspicious activity for you to take action before valuable IP falls into the wrong hands.



# CREATE A SINGLE SOURCE OF TRUTH

## Access All the Latest Engineering Data to Design and Maintain Assets

In today's hyper competitive and connected world its easy to get overwhelmed by the deluge of information, especially for process driven industries coping with strict regulatory environments. Most companies today are still plagued with legacy processes that are rarely connected. An all too common scenario is that data and documents get spread across silos in distant servers and local personal computers over the course of decades. Users create rampant duplicates, use inconsistent file naming and version control methods, and collaborate inefficiently. Access rights to sensitive information may not have the necessary control, and there is no audit trail of who did what, when.

Enabling a "single source of truth" for all relevant documentation and operational information is foundational to any organization achieving operation excellence and realizing its potential. Decision makers need the confidence that the information that they are looking at to make their decisions is not just the latest version but is also accurate. Information and plans that took years to create for plants and projects costing millions to billions of dollars deserve to be maintained in an easy to use, organized system that connects people, information, process and business systems.

Most companies today are still plagued with **LEGACY PROCESSES THAT ARE RARELY CONNECTED.**

### BEST PRACTICE

7

An ideal EIM solution brings a state of **clarity and efficiency** with everyone working together from a single source of truth of data and documents



EIM solutions help companies transition from uncertainty to an orderly, well-defined system of getting the right information to the right person at the right time about the right engineering asset to make the right decision.



# CONCLUSION

## What to Look for in an EIM Solution and Vendor

The question today is not if you need an EIM solution, but what should you look for in a solution and vendor when developing your own EIM strategy. As seen in this insight, EIM cannot be a one-size-fits-all type of a solution as the industries this market serves are very complex. It's critical to identify a solution that is:

**Easy to implement, use and maintain** Many solution take months or years to implement, and a team of people to maintain. The situation worsens when gaining user adoption is a challenge. If you can avoid this type of solution, it will serve you well.

**Flexible** A solution that can be adapted to your unique requirements, and is not rigid in how it is configured.

**Scalable** Depending on your needs, a solution should be able to scale with ease from a departmental or workgroup solution where you may start, to an enterprise solution.

**Comprehensive** The more you learn about the value and importance of this type of solution, the more you will want to leverage it for. Be sure to find a solution that is mature, has been developed over many years, and is being used by many thousands of users.

**Non-proprietary** Avoid solutions that encrypt or scramble your files or folders, or drop them into a proprietary database.

**Affordable** Similarly capable solutions can vary widely in price. Do your homework and be sure you're looking at complete price estimates, including all associated services, and know whether product licensing is band on concurrent or named users, and whether it spans across time zones.

**Proven** Find a vendor with happy customers who are willing to share their experience with the product and company.



# NEXT STEPS

## Learn How EIM can Help Your Organization

Some vendors have stepped up to the plate and provided the market with solutions to help customers meet the challenges EIM solves and realize the opportunities that digital transformation brings to the table.

Synergis Software was recently recognized by Frost & Sullivan for doing exactly that because of its exceptionally strong customer focus in the EIM market that sets it apart. They were honored with the Frost & Sullivan's prestigious award for Customer Service Leadership in the Global Engineering Information Market.

Synergis Software has successfully implemented its flagship EIM solution, Adept, for well over 1,000 customers spanning many industries including utilities, energy, chemicals, mining, oil & gas, pipelines, EPC's and those managing large facilities. Customers include Dow Chemical, Con Edison, Eversource Energy, Buckeye Pipeline, General Mills, Matrix Service Company, Bayer and the Philadelphia International Airport.

For more information about how EIM can improve the efficiency of your enterprise, please visit

 <https://www.synergissoftware.com/frost-and-sullivan>

or contact Synergis Software to discuss your requirements, get a personalized demonstration, or schedule an ROI justification session with an expert.





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