

Buyer's Guide

For Asset Integrity
Management Solutions



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Metegrity Visions Enterprise

Get Started Today

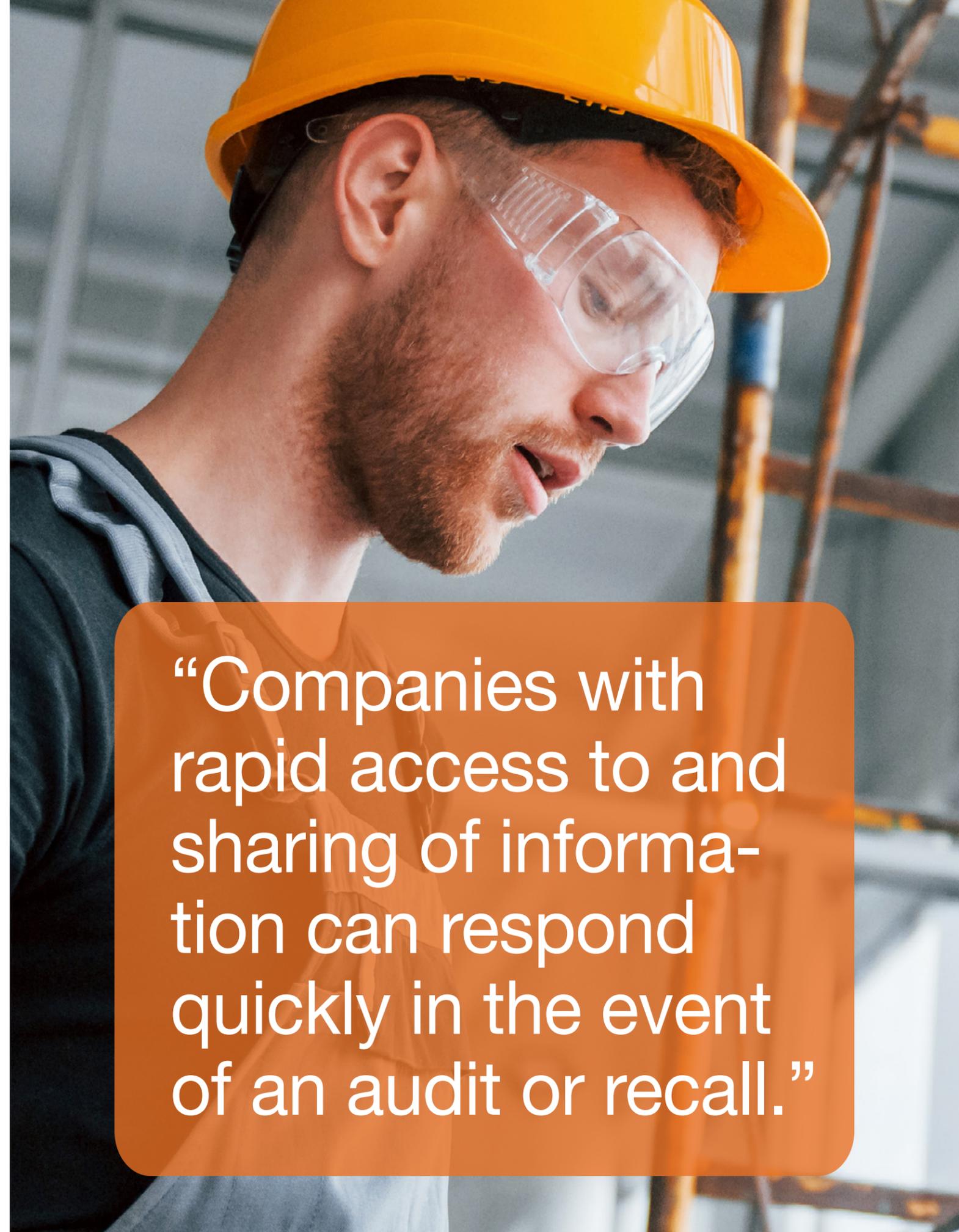




The chemical manufacturing industry represents a \$4.3 trillion market and is one of the largest manufacturing segments in the United States and elsewhere. Over its 150 year history, the chemical manufacturing industry has produced products that enhance our daily lives, and in 2016 employed more than 811,000 workers in 10,000+ firms, making 70,000 products in the US alone.

But with great opportunity comes great challenges. To meet the growing demand, especially for sustainable products and practices, chemical manufacturing plants must face those challenges, such as aging equipment, aging senior staff, increased importance on data management, and tightened regulations. Meeting those challenges requires the chemical industry to embrace technology that enables greater efficiencies in operations.

Manufacturers which recognize the value of technology, such as asset integrity management and automated asset documentation, give themselves a competitive advantage. Companies with rapid access to and sharing of information can respond quickly in the event of an audit or recall. In addition, assets must be more reliable than ever before, due to increased regulation. A veritable alphabet soup of agencies and regulations now govern the chemical industry, including regulatory bodies in the United States, such as the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Food and Drug Administration (FDA), Hazard Communication Standard (HCS), and others.



“Companies with rapid access to and sharing of information can respond quickly in the event of an audit or recall.”



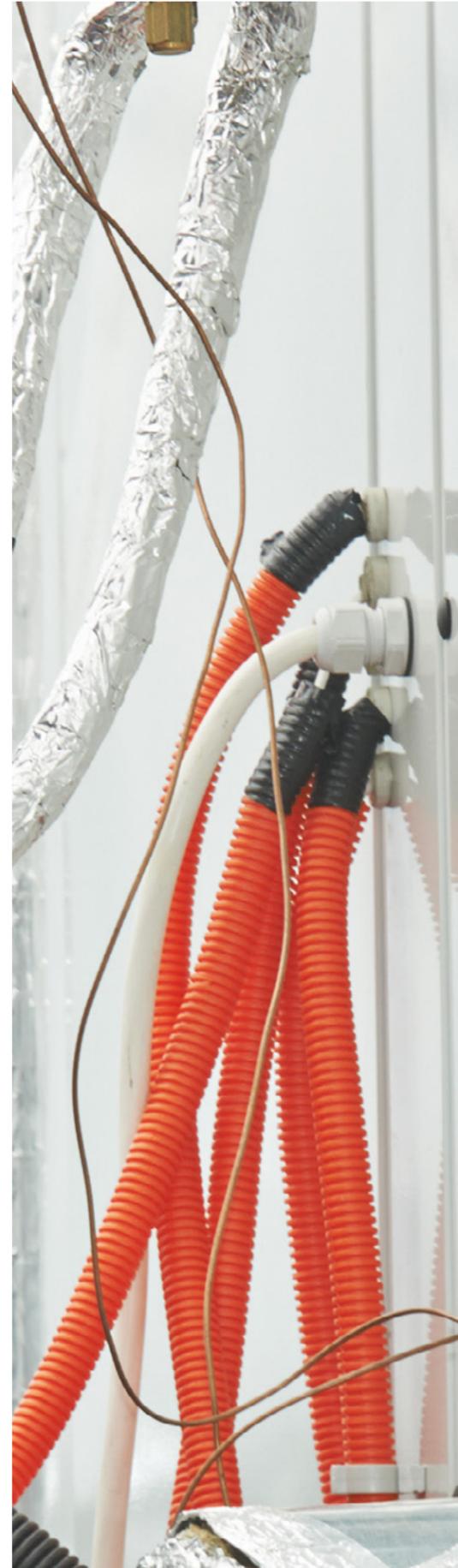
“To address the challenges posed by new developments in the chemical industry, plants can adopt Asset Integrity Management (AIM).”

Asset Integrity Management

To address the challenges posed by new developments in the chemical industry, plants can adopt Asset Integrity Management (AIM). AIM systems include many benefits, such as:

- Improving reliability, availability, and maintainability of complex and expensive equipment which can be difficult to replace, and can have a negative impact on facility operation when not in service.
- Enhancing safety and reducing risk
- Reducing inventory costs
- Increasing compliance with federal, state, and local regulations
- Improving preparedness for regulatory audits
- Reducing inspection costs
- Making the most of valuable senior staff

And many more...





Evaluating AIM Systems: The Big Picture

When evaluating AIM systems for your chemical plant, it can pay to consider several important attributes. When considering bids for your AIM project, assess them against the following list:

Legacy and Commitment:

You want a company with a strong legacy and commitment to customer success. You want a company with a history of success in the chemical manufacturing industry, with strong customer support.

For example, Metegrity continues to develop its asset integrity management system through collaboration with teams of subject matter experts from multiple industries, leveraging the best practices they learned from their facilities. The collaboration process uses the same consensus-building methods used today in leading standards body organizations, such as ANSI. As a result of this legacy and commitment, Metegrity has been the trusted name in asset integrity management since 1992, with 850 facilities over 5 continents managing \$550 billion in assets with Metegrity Visions Enterprise.





Risk-Based Inspection (RBI):

You want to take advantage of the benefits of risk-based inspection (RBI). With RBI, companies can evaluate inspection results using risk-based criteria rather than arbitrarily stating a regular time for inspection. Enhanced procedures may result from an RBI study. Increased inspection intervals can reduce your facility maintenance budget significantly. RBI can drive return on revenue (ROI) in several ways.

First, it can often save hundreds of thousands of dollars by avoiding keeping a huge spares inventory.

Metegrity can avoid wasting money on spares, identifying which assets are most likely to need replacement, so you only need to keep the spares you need.

Second, RBI can save money by ending the wasteful process of over-inspecting.

Metegrity saved one company money by reducing the number of thickness measurement locations on an equipment from 100 to 10, a 10-to-1 improvement.

Third, RBI can avoid expensive downtime by indicating when more thorough inspections are needed.

With Metegrity's data-driven analysis to identify critical aspects of plant assets for inspection, plants can make the most of their investment in assets.



“Increased inspection intervals can reduce your facility maintenance budget significantly.”



“With Metegrity,
plants can
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Fourth, RBI can cut down on one of the most expensive mistakes that plants make—waiting for an emergency to fix broken assets. Emergency repairs cost significantly more than regularly scheduled repairs, due to the limited time for competitive bidding, paying extra for expedited delivery, and possible plant shutdowns for days or even weeks while the parts are obtained and the repair is made.

With Metegrity, plants can improve inspection and maintenance procedures, avoiding or perhaps even eliminating emergency repairs.

Fifth, RBI can drive ROI through more profitable mobile operations. Without mobile capabilities, companies waste profits by forcing field personnel to return to the office to enter inspection data.

Metegrity's VisionsGo mobile app enables full mobility of operations, allowing plants to get the data faster and more reliably by sending the data in real-time, directly to the Visions database.

Sixth, RBI can mitigate and manage risk, and can permit continued safe operation of the damaged equipment until a permanent repair solution can be applied.

Metegrity RBI software can be used to assess degradation mechanisms and mitigate operating conditions relative to process parameter operating windows.





Process Safety Management (PSM):

All chemical manufacturing plants strive to establish safe operations. The proper design and application of PSM systems are critical to effective risk mitigation and management as well as regulatory compliance, and should be a vital part of any AIM system. As such, the Metegrity Visions coupling of AIM with PSM (AIPSM) involves a hybrid management systems approach, which offers several important benefits to chemical manufacturing plants.

First, AIPSM drives down risk across the enterprise by classifying and categorizing process safety incidents to uncover systemic problems that are risk ranked and prioritized by loss production impacts to the organization.

Metegrity Visions Enterprise AIPSM uses a management system framework (people, processes, tools/technology) in its coupling of process safety performance benchmarking (API 754) with asset integrity and risk-based inspection principles to drive systemic risk reduction. This capability is especially important considering that every 1% gain in mechanical availability is now worth about \$8 million of additional margin capture per year in a typical 200,000 bpd refinery, to examine the similar situation of petroleum refining.

Second, AIPSM applies recognized and generally accepted good engineering practice (RAGAGEP) principles in response to situations where operational demands may exceed design levels, i.e., accelerated material degradation relative to established critical process variables.

Metegrity Visions Enterprise AIPSM applies API 580, 581, and 584 RAGAGEP principles when system parameters exceed thresholds to ensure the safest possible operating environment.

Third, AIPSM provides early warning notifications when process systems exceed asset integrity design parameters (temperature, pressure, flow, etc.), enabling proactive rather than reactive response. Proactive response can mean the difference between a simple replacement—or a significant loss of primary containment (LOPC) process safety incident.

Metegrity Visions Enterprise takes AIPSM up to a new level by connecting with data historians, such as OSIsoft PI, to enhance early warning notifications.

Fourth, AIPSM provides recommendations to conduct thorough inspections on certain equipment if warranted by the computer models. The thorough inspections are often more effective than the cursory ones used at facilities using time-based inspections, and can identify risks in equipment in time for repair without impact to the plant.

Metegrity Visions Enterprise AIPSM results in more thorough inspections on critical equipment, catching small problems before they deteriorate into significant production losses and/or LOPC process safety events.

Fifth, AIPSM captures important records from assets and manages them in a digital format, making it easier to address regulatory audits.

Metegrity Visions Enterprise AIPSM keeps a database of electronic records for compliance with regulatory audits.





Asset Performance Priority Management (APPM):

Many chemical manufacturing plants face an aging workforce, with senior staff slated to retire in the coming years. In the past, plants had company inspectors that worked there for 25 years, who were experts in many aspects of the plants. As plants face fewer and fewer senior staff members, they must make the most of their valuable services. To solve the problem, plants can turn to Asset Performance Priority Management (APPM). Only Metegrity offers a full APPM solution, which provides important benefits.

First, APPM can assign senior staff to the most critical assets.

The Metegrity Visions Enterprise risk ranking module identifies the 20% of assets that lead to 80% of the failures.

Second, APPM can avoid wasting the time of senior staff on menial tasks.

Metegrity automates data management so that your senior staff no longer needs to be reduced to file clerks to hunt for vital records during regulatory audits.

Third, APPM enables mobile capabilities to avoid your senior staff wasting time during remote operations.

Metegrity mobile VisionsGo capabilities allows senior staff to enter data at the site of the inspection, rather than wasting time by taking notes at the remote site, and then manually entering those notes into the system when they return to the office. VisionsGo also makes the most of your existing junior staff and contract inspectors by emulating the Integrity Report format, so that your entire staff can perform the inspection. Senior staff can thus be left free to analyze inspection results.



“As plants face fewer and fewer senior staff members, they must make the most of their valuable services.”



Evaluating AIM Systems: Cost/ Benefit Analysis

Chemical manufacturing plants must compare the final contenders for their asset integrity management system using a full cost/benefit analysis. Too often, plants examine only one cost of a supplier's AIM system, select the supplier because of that aspect, only to regret their decision later because they failed to include all of the costs. To that end, a cost/benefit analysis section is included here.

Cost:

When evaluating AIM systems, plants must evaluate different costs involved with maintaining the current system, as well as costs involved with switching to a new system.



Costs Involved With Maintaining the Current System:

When conducting your analysis, considering the following costs with maintaining the current system:

- Existing Issues: Is there an issue that needs rectifying with the current AIM system? Find out if the existing service provider can rectify the issue, and what it will cost to fix.
- Fees: What are the annual fees/ licensing costs of the current AIM provider?
- Intangibles: What intangibles are provided at no cost currently that might be an extra cost with another system? Some examples include specific functionality or modules, IT support, training services, annual updates, consultation, and similar items.
- Cost Control: What about the overall cost control that the AIM currently affords the company? How has the system provided valuable benefits to the company, such as reduced downtime, improved inspection scheduling, faster access to data from the field, more timely reporting, and other factors?



“When evaluating AIM systems, plants must evaluate different costs involved with maintaining the current system...”



Costs Involved with Switching to a New System:

When conducting the analysis, also consider the cost to switch to a new system:

- **Conversion Costs:** What kind of expenditure is the company anticipating to convert the system? Typical conversion costs include data migration costs, cost of the new software, and customization, if necessary. Customization costs, in particular, can be significant.
- **Training Costs:** What costs are anticipated to train personnel with the new system? What does the provider charge for training? What will be the downtime and productivity losses incurred until the users are proficient with the new software?
- **Workflow Interruptions:** What costs are anticipated due to workflow interruptions? Converting to a new system and training users can take a significant amount of time, especially for systems that are difficult to use.
- **Support:** What costs are anticipated for support? Does the provider charge extra for support? Is the support provided in a timely manner, or will the company suffer downtime and workflow interruption every time an issue occurs and they need to wait for support?

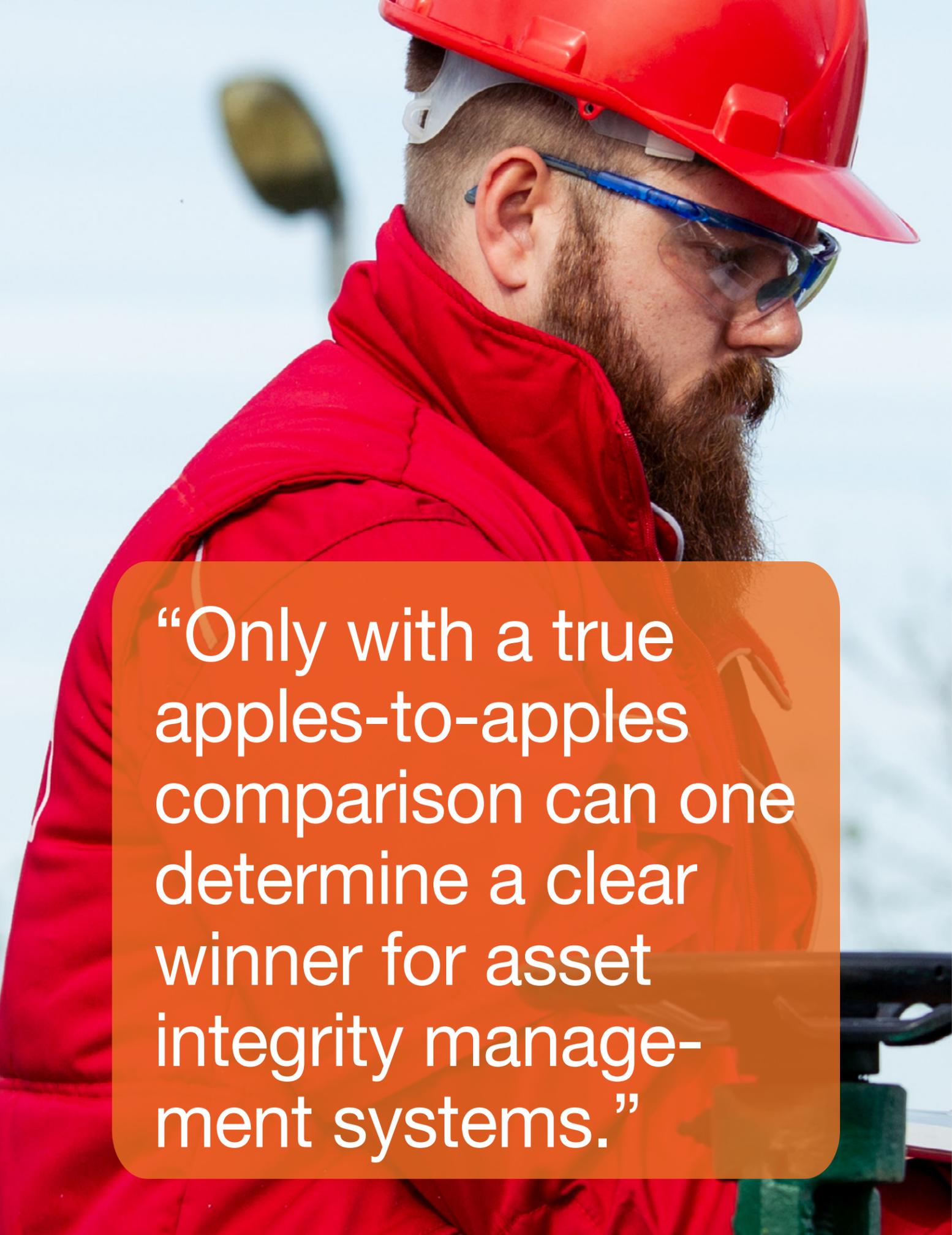
- **Functionality:** What functionality is included with the system? Does the provider charge extra license fees for certain functionality? Does the provider also charge extra implementation fees for the functionality? It is important to do an apples-to-apples comparison here.
- **Ongoing Maintenance:** What costs are anticipated for ongoing maintenance? How often are updates? Will the system be kept up-to-date with the latest technologies? Will the new functionality require additional resources or IT support to run?

Benefit:

Having established the cost of the candidate AIM systems, weigh the cost against the potential benefits. In addition to the major benefits of RBI, PSM, and APPM discussed earlier, every company will have its own unique benefits it wants to maximize. Typical benefits to consider include the following:

- **User Friendliness:** How quickly can personnel make entries into the system? Is the user interface intuitive?
- **RBI Integration:** Is RBI pre-integrated into the system, or do users need to contend with multiple systems? Can the user's models be built into the software or must a "canned" model be used?
- **Regulatory Compliance:** Is regulatory compliance with all regulatory bodies included with the system, including the ability to generate custom reports at the click of a button? Does the functionality work with API 571, 580, 581, 584, 970, ISO, etc.?





“Only with a true apples-to-apples comparison can one determine a clear winner for asset integrity management systems.”

- Enterprise Software Integration: Is there seamless connectivity with the company's existing CMMS/ ERP system, such as SAP, Maximo, Infor EAM, JDE, etc.?
- Dataloggers: Does the AIM system work with the plant's dataloggers?
- APIs: Are there available APIs to push data to the multiple platforms?
- Steps: How many steps are required to perform typical tasks, or access key data?
- Configuration, not Customization: Can the system be easily configured to support company workflows and practices, as well as cultural nuances? Or is expensive customization required?
- Support: Does the system include customer-centric support?
- Training: Does the system include ongoing training manuals, videos, and other resources?
- Consultation Services: What consultation services are available to accommodate future needs or changes?
- Asset Integrity Functionality: What type of asset integrity functionality is included, such as inspection scheduling, repair rates, corrosion control capabilities, etc.?

Again, the lesson is clear: Only with a true apples-to-apples comparison can one determine a clear winner for asset integrity management systems.



Purchase Process

A man in a blue suit and yellow hard hat is shown in profile, looking down. The background is a blurred construction site with concrete and rebar.

When purchasing an asset integrity system, make sure that each of the purchasing steps is well thought out for a satisfying and successful purchase experience. Your selected supplier should be able to provide you with expert assistance during the process.

Needs Assessment

The needs assessment step represents a great opportunity to make a list of your fixed and rotating assets and gather any documents that currently exist. The list will help you to determine what capabilities your plant will need in an asset integrity management system.

Metegrity has been working with facilities for over a quarter of a century and has seen just about every type of asset imaginable, and can help you with assessing your AIM needs.

Initial Evaluation

During the initial evaluation step, you work with the supplier to determine your system needs, depending on the number and type of assets, the size of the facility, the number of plants, and special circumstances, if any.

Metegrity has worked with many different sizes and types of facilities, and can work with yours as well.





Demo

In the demo phase, the supplier will demonstrate the system for the expected needs your plant will face, as well as show you special features and attributes of the system that could help you in the future, to accommodate plant growth and plant changes.

Metegrity can demonstrate how the Visions Enterprise AIM system can boost your ROI and bring about other benefits, thanks to its RBI, PSM, and APPM functions.

Approval

In the approval phase, you will work with your IT personnel and other teams to go through your internal approval process.

Metegrity has helped dozens of companies get the Visions Enterprise system through their internal approval process, and they can help you as well. Once internal departments find out the many benefits of Visions Enterprise, approval becomes straightforward.

Implementation Assessment

The next phase is implementation assessment, which represents an opportunity for the company to evaluate its operations and make changes if necessary.

Metegrity assigns a project manager to manage the implantation process, including conducting a gap analysis study. The project manager is responsible to see the project through, from start to Go-Live and beyond. The process gets the new system up quickly, so that you can realize the benefits as soon as possible. The project manager applies significant subject knowledge to address any possible issues. Metegrity has collected best practices based on decades of experience in implementation, and can provide guidance on improving the management and inspection of your plant's assets.

Final Implementation

During the final implementation phase, the supplier implements the software and tailors it to the unique operating characteristics of your plant. Insist on a system based on configuration for tailoring, not customization. Customization can lead to significant extra costs, both during the initial implementation and during ongoing maintenance.

Metegrity Visions Enterprise uses only configuration for final implementation. Again, Metegrity seasoned engineers are available to handle any problems that might come up during this final phase.





Training

Make sure that your supplier provides training services so that your plant personnel can get the most out of the system. Training should be role-based and include every likely role in the plant.

Metegrity provides complete training services for different roles in the plant, from plant manager to engineer to technician. Training programs can be specialized to accommodate special needs as well, such as for mobile operations.

Launch

Even at launch, make sure your supplier is there with you for support. Avoid suppliers who simply give you a download link for the software and then move on to the next customer. Instead, insist on ongoing support, especially during the first critical weeks of the system, when personnel are still getting familiarized with the system.

Metegrity provides full support services to remedy any issues that might arise, as well as to provide best practices in ongoing plant operations, so you can get the most out of your expensive chemical manufacturing assets.



“Metegrity provides complete training services for different roles in the plant, from plant manager to engineer to technician.”



Evaluation Checklist:

There is a lot to consider when purchasing a new asset integrity management system, so we have made the process easier by developing an easy-to-follow checklist. Simply compare Metegrity to the others, and you will see that the winner is clear.

<i>Metegrity</i>	<i>Others</i>	Evaluation Criteria
✓		Legacy and commitment: More than a quarter of a century of commitment to AIM, with functionality based on best practices.
✓		Configurable RBI Models: User's models can be built into the system, avoiding the need for using a "canned" model.
✓		Best in class RBI: for lower spares costs, lower over-inspecting costs, lower downtime costs, and lower emergency repair costs.
✓		Field Mobility: Ability to perform inspections remotely, to avoid re-entering data once back at the office.
✓		Automated Data Management: Ability to capture and access critical asset data; data at your fingertips.
✓		Integration with Data Historians: Ability to connect with Data Historians, such as OSIsoft PI.
✓		Integration to Other Systems: Ability to connect to CMMS systems, such as EAM, SAP, Maximo, InforEAM, AutoCAD, data logger instruments, and others.
✓		Process Safety Built-In: Implements best practices of API 754.
✓		Safe Operations: Implements recommendations of API 580, 581, 584.
✓		APPM: Take advantage of the 80/20 rule to make the most of your senior staff.

✓		Types of Assets: Ability to manage different kinds of assets: fixed assets; rotating assets; pressure safety valves; etc.
✓		Growth and Change: Ability to accommodate growth and change, such as possible move to more sustainable materials and processes.
✓		Calculated Conditions: Ability to accommodate wide range of metadata of the asset.
✓		Compliance Reporting: Ability to access data and client-created custom reports needed during compliance audits.
✓		Needs Assessment: Ability to assess your AIM needs in detail and give you a plan of action to move forward.
✓		Implementation Assessment: Incorporate best practices within your chemical management plant while implementing AIM.
✓		Training: Ability to train various roles within your plant on how to make the most of AIM.
✓		Support: Expert support to tackle any issues that might arise in the future.
✓		NO extra fees for ongoing license: Just pay the initial license fee, with no worry about future commitments.
✓		NO extra fees for standard support: Standard support included with the system.
✓		NO extra fees for customization: Configuration, not customization, can tailor the system to your plant without the headache and extra fees of customization





Get Started Today

Contact Metegrity to find how Visions Enterprise can transform the asset integrity management in your chemical plant.

- [Contact](#) a Solution Expert
- Set up a [Demonstration](#)
- Receive eBook: The ROI of Risk Based Inspection
- Receive eBook: What Chemical Industry Decision Makers Want from AIM
- Receive eBook: Managing Assets at Your Chemical Plant



Manage asset health using our asset integrity management software for single to multi-site plants and facilities.

Visions Enterprise is a comprehensive, risk-based asset integrity software solution that supports all equipment types in a single platform. The solution is configurable, with seamless integration to CMMS systems, such as EAM, SAP, Maximo, InforEAM, AutoCAD, data logger instruments, data historians, and others.

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