Change Management Strategies
for Asset Integrity Management (AIM)

A Metegrity White Paper
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Introduction

When it comes to Asset Integrity Management (AIM) software, it can become easy for organizations to "stick with what they know" – even in cases where "what they know" no longer translates to "what works best." AIM technology has been evolving rapidly over recent years, with developments in Risk Based Inspection analytics, Integrity Operating Windows, multi-platform integration, and automated audit report generation, just to name a few. Moreover, the capacity of a single AIM system to handle a variety of equipment types has expanded drastically, meaning that companies who formally have used separate integrity systems to manage different equipment types no longer need to do so.

Since the AIM software industry is constantly improving, it is always smart to stay abreast of new developments. The problem is that companies may become complacent with a particular software product that they have been using, or make the assumption that the process of reviewing AIM software is too time consuming. Potentially, certain decision makers may have preconceived ideas as to what the company needs, which may or may not prove to be accurate. Perhaps they don't see a reason to change, or there is a lack of leadership in place to help them evolve.

The reality is, many asset-intensive organizations today are using an AIM system that they implemented years ago, back when the technology wasn't what it is now. Or, worse, they haven't been able to convince their group that an AIM system is needed at all – so they don't have one. Since they've been operating this way for their integrity management for some time, they assume their needs are being met. But are they?

The truth is, there could be millions of dollars on the table. Extending equipment intervals to achieve additional savings, improving shutdown management, and avoiding equipment failure are all of the obvious areas where the company could be losing money. In addition, significantly reduced man hours, removal of excess data entry requirements, readily accessible information for upper management on all assets at all times, simplified day-to-day operations for Chief Inspectors, etc. are other factors in play. Especially if their current system (or lack thereof) is not up to date with the latest in RBI, IOW, and other cutting-edge risk management techniques. Or, they could be losing profit potential and time savings by utilizing two or three systems to manage what could be handled by one. Perhaps they're wasting time on dual data entry because their system isn't equipped

for integration. Or, their risk of facing regulatory fines is unnecessarily high due to disordered or lost data that takes too long to retrieve, consolidate and deliver.

In some cases, many within the organization are aware that they need a change to their AIM strategies, but they're daunted by the process of adoption. How will we convince the team to change over? How much work will it involve? My users are familiar with what we have now. Do I really want to train them on something new?

The good news is, with the right tools, adoption can be seamless and attainable. Assessing the current setup is a quick

and painless task – and changing over can also be. The process needn't be daunting.

This paper examines the type of questions an organization should consider when assessing their current program, how to convince your team that adoption of a new system is possible, and proven strategies for quick changeover if they determine a change is required. Using input from trusted experts with decades of experience in strategizing and implementing AIM programs, this paper puts forth the tools required for quick, prudent assessment and efficient, effective changeover management.

Assessing your current AIM program: Is it time to change?

You're a member of an asset-intensive organization and you've been using the same (or no) AIM software to manage your equipment. But lately, you've realized that technology has evolved to such an extent that your needs might not be met in the way they once were. Or, you've assumed that all has been sufficient in your current setup, but would like to be prudent in assessing the situation to avoid complacency. Sound familiar?

The following section will itemize the standard technologies that should be available to you, as well as questions that can help you determine the unique functionality required for your industry to best assess the efficacy of your current setup.

1

The Importance
of Vetting Multiple Systems

The first step in selecting an AIM system is often the most overlooked: the process of vetting multiple vendors. Often, companies will gravitate immediately toward a specific system simply because they've used or heard of it before, and prefer to work with what they're familiar with. While familiarity with a program can certainly be advantageous, it is dangerous to use that has the only criterion for product selection. While the system seems easiest to use given its familiarity, and might be a great product, it could be insufficient for the unique needs of your own organization – exposing the company to unnecessary risk and lost ROI.

Another mistake companies will make is assuming that their current provider is keeping up with the latest developments in AIM, and reflecting them in their software – when in fact, they are not.

The reason companies should vet multiple systems is simple: there are many capable ones out there, and one size does not fit all. What might work for Organization A could lack key functionality needed for Organization B, and vice versa.

An organization should vet other systems if:

◢ **Their existing system cannot currently provide the required functionality.** Assess against the recommended functionality selection tips provided in this whitepaper to determine if yours is providing what you need.

◢ **Their existing system will not be upgraded to provide the required functionality.**

◢ **The company did not vet multiple vendors in the initial selection process.**

Let's say you've begun the vetting process. In addition to gauging the functionality for your organization (more on that here), these are some things you should look out for in determining the best provider:

▲ Does it address required functionality, such as an integral RBI module, Integrity Operating Windows (IOW), Data Analysis, Reporting?

▲ Is it scalable; that is, is it able to accommodate additional business units, plants, and facilities?

▲ Is it easily expanded? Does it allow users to select specific modules that provide the required functionality, while deselecting unwanted modules to reduce cost?

▲ Is it cost effective? Ask about future expenses such as license, technical support, add-ons.

▲ How is it implemented?

▲ How difficult is it to configure the system to the users needs?

▲ How easy is it to import legacy data in an efficient, cost-effective manner?

▲ How is it supported?

▲ How effective is the initial training, and the capability of the ongoing software support team?

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Indicators that an AIM Software Isn't Meeting Your Needs

In order to determine the efficacy of your current AIM software (or alternate program), it's important not just to look at what a potential product claims to offer as a general service; but rather, what the software can do for you. Each industry is unique, with differing asset types and regulatory requirements. And within those industries, each organization also has an individual fingerprint: the size and scope of the company, type and location of the assets, variety of equipment types, number of sites, whether onshore or offshore, etc.

The following indicators are common signs that the program you are currently using might not be meeting your needs sufficiently:

◢ **It doesn't meet the required outputs.** These include dashboards, scheduling reports, analytical reports, regulatory requirements, and interfaces – including the ability to integrate seamlessly with an existing CMMS, DCS data historians and dataloggers.

◢ **It isn't configurable.** In order to evolve and meet changing client needs, (such as Work Flows, Work Packages, etc.), the system should

have a high degree of configurability. It should mimic the systematic workflow process and best practices.

◢ **It should have the ability to show value rapidly.** Rather than a disjointed, modular, black box setup, it should be flexible and configurable according to the organization's unique integrity objectives.

◢ **It can't embed documents, photographs, and different file types.**

◢ **It does not provide an audit trail** for jurisdictional reviews.

◢ **Locating, collating and generating reports for audit** is time consuming and tedious.

◢ **It does not support RBI.** In addition to the risk benefits and cost savings provided by RBI, it is essential to incorporate RBI models in order to remain compliant with API 580. The software should give you the ability to create standard or custom RBI models within the software.

◢ **RBI assessments exist in a vacuum.** The software should enable RBI

assessments to influence equipment scheduling, including RBI assessments performed at a circuit or equipment level and results applied directly to equipment and associated TMLs to provide risk based schedules.

◢ **Ongoing maintenance costs** are out of line with current software requirements.

◢ **It cannot support multiple equipment types (including fixed, rotating, pipeline, etc.) from a single platform**. This is of particular importance to industries with multiple asset types to manage, including both onshore and offshore, or both pipeline and refinery, etc.

◢ **It doesn't integrate with the company's existing CMMS** client such as JDE, Maximo, SAP, EAM, etc. This lack of integration creates unnecessary dual and manual data entry; time that could be shaved in half with a properly integrated system.

◢ **It can't support the latest in risk management technologies,** such as Integrity Operating Windows and Corrosion Control Documents.

◢ **It is now an older and/or obsolete version** which is no longer supported by the original vendor.

◢ **The setup does not support multi-level security** roles with user-defined permissions.

If any of the above items apply to your current program, it is probably time to consider vetting other vendors.

3

Traits of a Good AIM Software: Functionality worth Adopting

A good AIM software should prolong equipment life, reduce the likelihood of failure or shutdown, mitigate risk, and improve ROI. Simultaneously, it should be user-friendly, easy to operate, modular, and sufficiently meet the unique needs of an organization. But the best AIM software should do these and then go a step further: it should simplify day-to-day life for chief inspectors, users, engineers, and administrative staff.

The following are key traits of a good AIM software that could help achieve just that:

1.   A dashboard that allows the chief inspector (CI) to review all his/ her inspectors outstanding tasks, on-stream inspection statuses, etc., without spending a lot of time in the program. This feature is the most important guide to "seeing the big picture" on an inspector's area of responsibility. It is an excellent way for management to quickly review equipment status and inspector assigned work.

2.   Configurable RBI models. The software should support Qualitative, Quantitative, and Semi-Quantitative models, with the ability to configure any combination of these according to company defined likelihood and consequence of failure.

3.   Integrating risk with schedules. An integrated RBI functionality that resets an equipment inspection schedule as an output of the equipment assessment.

4.   Security that is easy to set-up and maintain. This should consist of a highly configurable security module, which allows the user to create custom levels with appropriate permissions.

5.   Easy navigation. An intuitive layout allows the user to easily access the dashboard, equipment index and modules without excessive mouse clicks or wasted time searching for functions.

6.   Meet required outputs through configuration and data management. The product should be configurable to match the organization of the assets as well as the group that manages them. The data imported reflects the requirements of the inspection organization, which ultimately determines the final outputs in the form of scheduling and historical information.

7.   Deployable both on Premise and in the Cloud. The ability to

access Cloud-based data management translates into improved ROI, reduced capital costs, reduced infrastructure support, and faster deployment.

8. **Configurable** and modular in nature, able to meet the work flows of an organization.

9. **IOW module** that notifies of issues and captures historical results for future inclusion in RBI assessments.

10. **Dedicated Pipeline module** to manage and capture construction data for new pipelines.

11. **Continuous software enhancements** to meet changing industry requirements and client needs.

The aforementioned are some key technologies and functionalities that are at the minimum of what you should be receiving from your AIM program. There are products on the market that encapsulate the entirety of this list within a single software. If any of these functionalities are not currently available to you, it might be worth vetting for an alternative solution.

Adoption of a New AIM System

After conducting due diligence in assessing the efficacy of your current AIM setup, it has been determined that changing to a new, more capable system is the best move for the organization. While it might have a short-lived cost and changeover process, in the long run it will garner your company continuing profit and increased ROI. So, now what?

The problem is that often times, it isn't that simple. Even when those in the trenches are aware that a change is necessary, it can be hard to convince the higher ups to buy into a new program. Or, the reverse: management would like to changeover to a more cost-effective strategy, but they are worried about their users. *What if the users cannot accept changes implemented by the new program? What if they don't like it?*

Questions like this needn't – and shouldn't – impact your choice of AIM providers. The bottom line is whether or not your organization **is realizing the ROI that it should with its current product.** The real questions that need asking were introduced to you in the first section. If the answer to any of those demonstrated insufficiency in your current setup, then **it needs to change.** Bottom line. You understand that; the hurdle now becomes convincing everyone else. This section will examine common challenges faced when trying to adopt a new system and how to overcome them.

1 Review Integrity Group Objectives

In order to convince the team that a changeover is required, and to ensure that the change occurs smoothly once embarked upon, it is important to analyze the needs of the organization and prepare a business case that considers all angles.

The first step in this process is to review the integrity group objectives. Assemble a team together to review and align what the organization's goals are in relation to integrity management. If sufficient resources are not available for this process in-house, consider bringing in expert consultants to analyze the organization's needs and identify potential areas of improvement. Where can the company get more value from its AIM program?

Review the current product and how it aligns with these integrity objectives. Refer to the assessment guidelines outlined in the previous sections of this white paper. Again, consider outsourcing expert consultants to assist with this process in order to garner the most valuable information from it.

Get a volunteer to spearhead the project and take on the role of New Product Specialist. Once the new product is chosen and adopted, it will become paramount that someone in-house can be relied upon

for in-depth product knowledge. This individual would be making him/herself an incredible asset to the organization by becoming a resource they can rely upon for ensuring its efficacy. The New Product Specialist should take on the role of overseeing the project, managing deadlines, becoming acquainted with the new product and trained sufficiently on its functionality, and assuming the ongoing role as a resource for users of the new product moving forward. This individual should demonstrate leadership and a proven understanding of the company's values and needs.

With the New Product Specialist and team now assembled – whether in-house or including outside consultants – take the results of the integrity objective review and collectively vet multiple vendors, according to the guidelines specified in Section 1. Once a potential new product has been selected, it's time to convince upper management and IT that it's worth it for the company to buy-in.

Write a business case reflecting all of the findings of the assessment and vetting. Outline the areas for improvement, which product can fill these gaps and how, which members of the team will spearhead the task and *the ways in which this will save the company money – not cost it.*

2

Convincing the Team

One of the largest hurdles that can detain any company from changing over to a new AIM program (or adopting one in the first place) is convincing other members on the team that adoption of a new system is the best move.

Getting Management to Buy-In

In some cases, users are aware of the necessity of a new system to accommodate the unique needs of the organization. However, convincing their management to invest financially into such an endeavour has proven difficult.

From a management perspective the following needs to be considered:

▲ What are the current jurisdictional requirements? Are new requirements being considered?

▲ Is the current AIM system auditable? If so, does it meet all existing and future requirements?

▲ What hazardous chemicals are being processed which could affect site/off-site safety and environmental requirements? Are new processes/materials being considered?

▲ Is RBI being employed, and if so, how are equipment scheduling changes executed (is this process efficient)?

▲ Are senior inspection personnel being retired, and are their asset records on local drives or private files? Will succession planning with new personnel and existing asset data meet current/future AIM requirements?

To start the conversation with decision makers in your organization, begin by considering the above factors and prepare your discussion points around them. These are key points that will have a meaningful impact on their day to day operations and financial bottom line – which helps to bring the conversation into terms they understand more readily. From there, be prepared to inform them of the areas where the new software can save money while maintaining the asset integrity they currently have. These include:

▲ Reduced time to enter data

▲ Reduced time to navigate the software

▲ Removal of the need to duplicate data across multiple programs

◢ Reduced time to add new equipment and associated information

◢ Time required to find data in multiple places

◢ Money required to maintain the current software vs. a new one (license renewal frequency, software maintenance costs, IT support, creating custom reports)

◢ Money saved by introducing RBI

◢ Exponential ROI factors, itemized here.

Don't be daunted by the task at hand with this step in the process. Rather, recognize it for the opportunity that it is – **an opportunity to establish yourself as an indispensable resource for the organization.** Demonstrate a tenacity for helping the company achieve its goals and maximize its potential. Familiarize yourself with the company's integrity objectives and demonstrate willingness to spearhead the pursuit of them. Volunteer as the champion for the process and become a specialist for the New Product; this will assuage concerns they may have about the daunting nature of the process itself, and cement you as a resource for the company moving forward with the new system.

3

The Benefits

It's understandable how many organizations can end up in a situation where they are operating with an AIM system that doesn't wholly encompass their needs. Perhaps they didn't vet multiple vendors, as discussed in the first section of this document, and just went for the product that was recognizable to them. Or, maybe their users had previous experience with a certain product and therefore they went with what was familiar. It's also possible that they did vet multiple vendors but weren't comprehensive enough in their scrutiny to align the product fully to their operations.

Whatever the case, if your company is stuck with an unsuitable AIM provider, the best move is to change and change quickly. The benefits of being outfitted with a proper AIM program far outweigh any short-term investment into the initial implementation.

Cost Savings

The first and most obvious of these benefits is the exponential savings in cost over time. These include:

◢ Prolonged equipment life. Implementing a system that accommodates all of your asset types across all facilities enhances integrity management. With proper risk monitoring, inspection scheduling, and live monitoring of asset operating conditions, the asset lifecycle is prolonged while inspection frequencies are reduced.

◢ Fewer inspection points. With proper RBI in place, inspection points can be reduced by 50-95%.

◢ Reduced shutdowns. Instances of unplanned shutdowns – which can cost multiple millions of dollars per week that they occur – can be reduced by more than half.

◢ Return on investment. The benefit of implementing the right system can be up to 20 times the cost of implementation and management over a five-year period.

Owner-Operators

In addition to the aforementioned cost saving benefits, owners find peace of mind in the form of consistent, predictable maintenance costs, and the knowledge that their program maintains comprehensive audit trails, keeping them prepared for audits at a moment's notice and continually protected against liability. Finally, a software with ease of navigation enables them to occasionally browse

data without needing to be retaught the functionality.

Chief Inspectors

With a proper dashboard, the CI can better manage inspectors and audit equipment inspection status, as well as outstanding assigned work. All of this information is always immediately available at his fingertips – simplifying his day-to-day life and increasing efficiency. The right system gives the CI the ability to know at a glance what is coming due, what is overdue, and workloads during normal and turnaround time. Finally, it allows him to create monthly, quarterly, and annual reports showing what's coming up as well as what has been completed.

Data Entry Clerks

Effective AIM programs should include automated Excel import wizards, which allows data from excel spreadsheet data to be imported efficiently. The scope of data includes creating new

equipment and CMLs, static data, CML measurements, PSV service results, etc. If anything, given the efficiency of data flow, fewer data entry clerks would be required due to the reduction of work.

Users (Inspectors, Inspection Engineers, Maintenance Personnel, Planners, Etc.)

An effective program will include intuitive navigation for personnel looking for equipment data in read-only functionality. Additional benefits that improve the day-to-day life of this group include RBI scheduling, Inspection Plans tied to equipment, increased intervals leading to reduced turnaround scope and costs, asset data in one place, and readily available historical information for data analysis.

Enhanced Data Analysis

This is an essential factor provided by a proper AIM software. It includes built-in dashboards, Key Performance Indicators, the ability to seamlessly export to Excel, as well as custom reporting capabilities.

4

Preparation

Another key element to remind any team that needs convincing is that the implementation process does not have to be a daunting or tedious one. The best way to ensure that any changeover process runs smoothly is to prepare everything prior to commencing. If all required data, training, and understanding is in line before the project even starts, it only helps to cement an expedient changeover implementation. The following steps can help with preparation:

◢ Data cleanup. Conduct an in-depth legacy data review to determine what data is legitimate and deserves to be uploaded into the new AIM software.

◢ Define the required hierarchy. In an existing plant, the asset hierarchy (how assets are organized within a business unit) is typically already established, and is unlikely to be changed in most cases. In some cases, there is some flexibility, depending on their levels of hierarchy. In new facilities, however, the hierarchy will need to be determined and is normally determined by plant cost centres, a CMMS, or the asset numbering system.

◢ Gain an understanding of the new software. This will help to ensure that existing fields from the old software are matched correctly to the new one.

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For a more comprehensive look at effective implementation tips, reference Metegrity's Whitepaper on AIM Implementation Strategies.

The vendor you've selected should provide adequate training services to familiarize users with their product. Take advantage of this training, and do so early. The more familiar users become with the new product before its implementation, the more effectively they will operate it once it is in place.

◢ Perform an implementation study. Implementation Studies are crucial to gathering the actionable intelligence required about an organization to facilitate a timely and effective implementation plan. Rely on trusted experts who have a wealth of experience with successful, rapid implementation of AIM strategies and programs. In your vetting process, ensure that the vendor you select offers such consultation. Experienced consultants can assess the company's scope of assets, current data management, desired outputs, etc. and help establish an implementation tailored to their unique needs.

◢ Create a project plan. This will ensure an expedient, smooth changeover process. The plan should define objectives and main activities with a detailed schedule. It should assign responsibilities and include a monitoring/corrective action scheme.

Conclusion

Technology in the AIM sector has been evolving rapidly, but many companies are still using the same original AIM product that they started with years or even decades ago. This might be fine in some cases, but others could be straddled with dated technology that no longer meets their needs – and could be missing out on substantial profits and shutdown prevention with a more suitable program.

It's important for owner operators of asset-heavy corporations to stay abreast of new technologies and take stock of their current setup. With the right tools, adoption can be seamless and attainable. At the minimum, each organization should set out to analyze the effectiveness of their current integrity program – and, if gaps are found, use the strategies provided within this white paper to make a change that makes sense for the organization, the assets, the culture, and the company's overall profitability.