

How to Choose IoT-based Asset Management Solution for Your Business?

The Next-Generation Enterprise Asset Management

DominateSmartSite

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Introduction

If you're looking for your first Enterprise Asset Management (EAM) solution or looking to upgrade from an existing one, the evaluation, selection, and implementation process can be a long-term strategic decision for your organization. There are many differentiating factors to consider when choosing an EAM solution. It is crucial to go beyond marketing hoopla and get to the system's core performance and features. Not all solutions are created equally. You need to make sure it is feature-rich, flexible, robust, and designed with the latest state-of-the-art technologies. You put your business's heartbeat into a system; you should be able to rely on its accuracy, reliability, and operational excellence as your business grows.



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Challenges

Asset management (especially in asset-heavy industries) is a highly complex endeavor, so if the below challenges sound familiar, you are not alone. Almost all operations looking into adapting an EAM system are suffering from multiple challenges:



- Do you know what assets you have, how many, and where they are in real-time?
- Do you have visibility of your asset utilization? Do you know which assets are idle?
- Do you know the true Total Cost of Ownership of your assets?
- Do you have full traceability of the chain-of-custody of your assets?
- Are you able to allocate equipment to specific projects?
- Can you easily manage equipment planning and resource allocation?
- Are your asset audits slow and time-consuming? Do you find discrepancies in your audits?
- Are you in compliance with your asset management regulations?
- Is unplanned downtime stopping your operations?
- Is your production machinery in tip-top shape?
- Can you predict when a machine should be shut down to prevent a failure?
- Do you know which assets need to be serviced this month?
- Do you have the right spare parts to service them?
- Do you have real-time visibility of your shop/field maintenance workload?
- Is your field workforce linked to real-time information for faster and better decisions?
- Can you effortlessly allocate the work orders to meet the daily demand changes?
- Do you meet your operation's environment, emissions and safety?





What is an EAM?

An Enterprise Asset Management (EAM) system is a combination of software, hardware, and services that make it possible to track, control, and maintain operational assets and equipment in real-time. The goal is to maintain the value and optimize the utilization of assets throughout their lifecycle, enhance productive uptime, and reduce operational costs. EAM enables the management to make informed decisions and improves the availability and utilization of physical equipment (vehicles, machinery, etc.).

EAM is often associated with a CMMS (computerized maintenance management system); however, there are differences. A CMMS is often included in an EAM system. While CMMS acts as a central hub for the information needed to automate maintenance management processes, EAM is intended to optimize and simplify asset lifecycle management. It supports asset performance from acquisition to disposal.

EAM systems can be effectively utilized in many industries, including manufacturing, construction, facility and property management, oil and gas, fleet, healthcare, sports arenas, energy, mining, and other asset-heavy industries. EAM Implementation can be a time-saving process leading to accuracy, reliability, and operational excellence if chosen based on realistic requirements and critical concerns of the asset management field.



The EAM Evolution

As industries started using much larger numbers of assets, the need for using a robust and reliable Asset Management system became more apparent. Therefore the enterprise-level use of EAM solutions became customary to improve organizational asset efficiency and effectiveness.

By affording a 360° view of the organization's assets and the improved monitoring and control it delivered, EAM became a source of value generation for industries. Those industries that are highly dependent on their assets' reliability and availability started to realize how EAM could be useful in their productivity and profitability. Manual, paper-based systems were becoming a thing of the past, as they could not deliver the competitive advantage expected.

Through the years, EAM is proven to have the ability to enhance asset utilization, extend asset's useful life, and reduce downtime. While the system's underlying principles remain the same, technological advances have added a lot to it.

Mobile devices have made it easy to access business information in real-time. Albased algorithms allow for the analysis of vast amounts of data for in-depth asset insight, allowing for maintenance scheduling, identifying issues before they occur, and minimizing costly downtime. Also, the Internet of things (IoT) has promoted EAM capabilities further. The data coming directly from sensors, GPS devices, and RFID tags enable digital transformation and automation. The combination of mobile devices, IoT, and proactive maintenance capabilities has given the modern EAM solution the ability to provide businesses with extraordinary insight into how their assets are performing. In this eBook, we try to point out some of the essential key features to consider when evaluating the next generation EAM solution for your business.

Multi-Site Management

You may only have one site at the moment, but you may grow and end up with multiple sites and locations. A desirable EAM solution helps you manage your assets within various sites and provides full visibility and traceability of spare parts inventory, personnel assigned to each site, and security access of each staff.

Asset Category Setup

Due to the differences in asset properties, the EAM should enable the user to define a customized attribute and attribute values for each asset type. It should easily classify assets based on your needs and preferences and take advantage of hierarchical categorization and inheritance of custom attributes or properties and their associated values. Many of the built-in reports or search capabilities can take advantage of such a categorization of assets. This feature helps to easily target a specific group of assets for search, auditing, reporting, and many other purposes.

Real-time Location System (indoor & outdoor)

We live in a dynamic world, and equipment is becoming more mobile, and therefore real-time visibility of your assets is more critical than ever. A crucial functionality you should expect from an EAM system is to know what assets you have, how many you have, and where they are in real-time. Your EAM solution should take advantage of RTLS technology to provide you with indoor and outdoor asset visibility in real-time. It should be able to show your equipment on indoor floor plans or a world map. Imagine in the hospital environment, the benefit of knowing precisely where specific equipment (X-ray, EKG, etc.) is currently located.

Kit/Group

The EAM should allow the user to create a parent-child relationship between Assets. This feature allows creating kits or groups of assets to track individual assets within the kit or group. The parent should have an unlimited number of child assets associated with it.

Check-In, Check-Out

Chain of custody tracking is essential in asset management, especially when it comes to tool tracking. You need to track down the asset movement, who is the current user of the asset, and how long. Your next-generation EAM solution's check-in and check-out feature will log whether an asset is available for use and who used it last. It will help you check out assets to specific

users, customers, or projects and receive them back. It needs to automatically send reminder emails to the custodian of the Asset/s to remind them of the Asset Due Dates approaching.

Asset Transfer

There are times when assets need to be transferred between different branches of the organization. The EAM system should facilitate this exchange and ensure that the transfer is being done securely and without errors. It should authenticate and ensure that the receiving location receives the same assets that were sent out.

Asset Reservation and Rental Management

There are times when a high-valued asset is short in supply but high in demand. Therefore, your EAM system must offer asset Reservation functionality. This will help in minimizing the impact on the operation and reduces the need to acquire additional assets. Also, it helps in keeping the asset utilized at full capacity with minimum interruption to your operation.

In addition to asset reservation functionality, your EAM solution needs to offer Rental/Lease management capabilities. This will allow you to reduce CAPEX and expand your resources. The feature will manage and help in lowering rental costs, mainly through providing rental due date reminders.

Asset Audit

Asset Audit is the most powerful feature of an Enterprise Asset Management system. The nextgeneration EAM should enable you to do asset audits using mobile devices based on the criterion that works best for you. You may want to select assets by their asset types, location, or asset types within locations, expiry date, warranty end date, rental end date, etc. It should provide you with a list of found, missing, and misplaced assets. It should enable to eliminate physical audit by providing real-time audit information through affixed IoT sensors to assets.

Mobile Presence Verification

The EAM should scan a location and compare its result with the previous scan to reveal any discrepancies. For example, a content of a location or a vehicle were scanned at the beginning of a day or a shift. The next scan will display any missing or added assets since the last scan. This feature is an invaluable tool for verifying stock count at the beginning and end of an operation.

Asset Search

There are times when an asset is misplaced or difficult to find. If using passive RFID, the EAM should be able to search for and pinpoint the precise location of missing Assets. Visual and

audible proximity indicators direct the user to the asset sought. As the user gets closer to the missing asset, the handheld reader beeps more frequently, and an on-screen visual indicator shows the distance to the found asset.

Digital Documents

Digital documents can be manuals, drawings, schematics, procedures, floor plans, videos, images, etc. The next-generation EAM solution is supposed to have all these readily available on the user's mobile device anywhere he goes. The user should also easily take new photos, mark on the image, and upload them as an attachment to work orders. There should be comprehensive traceability to any work order for future reference.

Dashboards

Dashboards are called management candy for a reason. They provide a bird-eye view of your entire operation. They combine real-time data from every aspect of your operation and display relevant, actionable intelligence, and help you track stats and key performance indicators (KPIs). Your next-generation EAM solution should effectively present the data in a quick, easy-to-scan format with the most relevant information understandable at a glance.

Inventory Management

The next-generation EAM's Inventory Management capability should provide you with complete control over material availability to mitigate risks and boost operational performance. It should provide real-time visibility of your materials, spare parts and stock levels. The system should issue an alert when parts, and supplies are running low.

Alerts and Notifications

An ideal EAM solution watches your assets without you watching them. It uses alerts to take real-time actions (pop-up message, SMS, and email) when alert conditions are met—for example, alerts such as Arrival, Asset Status Change, Restricted Movement, Anti-theft, etc. The EAM should send notifications when due dates (expiration date, warranty expiry date, rental/lease date, etc.) are approaching. The report module should have various features that can be selected to gather and share information about an Asset.

Security Features

An ideal EAM solution provides security features that can be used to set up access permissions to different roles and specific users. Sometimes you need to restrict the users' access to certain parts of the application. The system should enable you to define which users have permission to access which menus of the application. It is also essential to define their permitted level of access to that menu (if they can only view or are allowed to edit, delete, etc.).



Label Designer

An EAM should have an easy and intuitive built-in label designer to design unlimited labels for different labeling applications. You may need to include asset parameters such as Text, Image, Barcode, Asset ID, Group ID, Tag ID, Category, and Descriptions to be included on your label.

Technology Agnostic

The next-generation EAM solution works best if it is IoT-based and operates with Barcode, passive RFID, BLE, LoRa, Sensors, and GPS devices at the same time. Each technology delivers unique value to your operation, and your EAM must be ready to help you meet your current and future challenges with ease. It is essential to ensure that the solution will not become obsolete in the future and adapt to work with any particular type of technology without suffering from compatibility issues.

Plug & Play Industrial IoT Hardware

The next-generation EAM solution must be integrated with pre-configured IoT hardware designed for harsh industrial environments, a type of IoT hardware that is ready to use and ready to scale. This will make the installation quick and easy (imagine less than 2 minutes per device). The IoT devices should utilize long-lasting batteries to alleviate the need for an AC power connection. Also, it is necessary for the solution to be designed to eliminate obstacles to achieve digital transformation and provide immediate ROI.

IT Infrastructure Requirement

The next-generation EAM solution is supposed to collect and transmit an immense amount of asset data without burdening your network bandwidth. It must be able to operate in harsh environments and consider all possibilities that can affect its performance. It is a fact that Wi-Fi is not the most reliable communication protocol and that there are areas where stable Wi-Fi connectivity is not available. Therefore, your next-generation EAM solution should be able to work completely independent of your network infrastructure (Wi-Fi or Internet). It should not have a point of failure, meaning that no data should ever be lost as a result of a disruption in the network connectivity. The EAM solution must be able to update the configuration of its sensor network over the air. This feature allows you to change the settings of the IoT devices remotely and while they are functioning. For example, you decide to change the motion-sensing parameters of your assets. You can centrally change the parameters, and all the designated asset tags on the network will receive the new update. Just imagine the time saved when there are hundreds or thousands of sensors and tags working at different sites!



Self-Diagnosis System

You don't want to install a system that you have to watch. The EAM solution is supposed to alleviate your daily burden and not add another layer of complexity. We all know hardware can become defective. Even worse, it can function sporadically. Your IoT system must be robust and up and running without any glitches. The EAM solution should have self-diagnosis tools that monitor the health of your IoT system 24/7. It should notify you if a sensor is running low on battery or has lost communication with the IoT network. The support staff should view the entire IoT network in a live dashboard, diagnose the problem, and fix the issue quickly, accurately, and efficiently. These preventive measures minimize support costs while maintaining minimal interruption to your operation.

Environment Monitoring

Equipment and its environment are inseparable elements that play an essential role in the operation, safety, and quality of the production. The ideal EAM solution monitors the environment in real-time and alerts the personnel if a pre-defined anomaly is detected. The EAM solution should monitor temperature, humidity, dangerous gases, or even a leak.

CMMS Module

The CMMS Module is a crucial part of your next-generation EAM solution. It is intended to streamline maintenance processes that will, in turn, lead to increased equipment uptime, reliability, and availability. Condition-based preventive maintenance and predictive maintenance are among the module's most important functionalities.

Condition-based Preventive Maintenance

Timely preventive maintenance will maximize your equipment uptime, reliability, and availability. The question is, how do you precisely know when to perform a PM? The answer is through condition-based maintenance. Sensors attached to equipment gather real-time operational data feeding the CMMS module. The CMMS module should be able to use the data and automatically generate work orders and notify the maintenance personnel of the impeding PM. Another essential feature is the ability to track the equipment's working time. Many systems only track by odometer or by the due date. The next-generation EAM's CMMS module should also track usage hours and the number of times the asset has been used (ideal for equipment requiring calibration after usage).

Predictive Maintenance

The CMMS module should also predict when a machine should be shut down to prevent a failure. It is best to utilize smart sensors to collect real-time equipment condition, usage, environment, and performance for predictive analysis. Predictive maintenance algorithm helps

determine the condition of in-service equipment to predict when maintenance should be performed. The CMMS module is supposed to send alerts to the right personnel at the right time so that corrective action can be taken before the equipment breaks down.

System Cost

The right EAM solution is not the one that makes you go bankrupt. After all, it should reduce your operational costs and complexities and not add to them. To achieve lower prices, the EAM vendor must be the IoT hardware and software manufacturer instead of a solution integrator. They are supposed to offer an end-to-end solution through multiple subscription models, including no upfront cost, to help you get up and running with zero CAPEX and risks.





The Features and Capabilities of an EAM Solution You Will Need

Besides protecting your assets, facility, and machines against many known and unknown threats, an ideal EAM solution should offer features that allow you to build a portfolio of data within your organization that you can leverage to drive success and make sure you get the highest ROA (Return on Asset) from your asset management strategy.





Below is a checklist that you can use when evaluating an EAM solution for your business:

Asset Management

- ✓ Cradle to grave enterprise level asset management.
- ✓ Multi-site asset management.
- ✓ Asset check-out & check-in.
- ✓ Asset transfer-out & transfer-in.
- ✓ Asset audit with missing and misplaced reporting.
- ✓ Search capability to find missing assets.
- ✓ Real-time visibility on site plan or world map.
- ✓ Tools and Kit tracking.
- ✓ Asset reservation and rental management.
- ✓ Real-time location system (RTLS).
- ✓ Real-time alerts and notifications.
- ✓ Dashboards
- ✓ Environment monitoring.
- ✓ Digital documentation.
- ✓ BI database for customized BI dashboards.

CMMS Module (optional)

- ✓ Condition-based maintenance.
- ✓ Predictive maintenance.
- ✓ Auto generated work orders.
- ✓ Work request portal.
- ✓ Quick technician dispatch.
- ✓ 100% mobile-based.
- ✓ Maintenance Metrics KPIs.
- ✓ Unlimited user-defined maintenance plans.
- ✓ Unlimited inspection template creation.
- ✓ Multi-site spare parts management.
- ✓ Remote machine monitoring.
- ✓ Dashboards.
- ✓ Multi-site maintenance management.
- ✓ Advanced reporting tools.
- ✓ Real-time alerts and notifications.
- ✓ Integration with IBM Maximo, Power BI and REST APIs



IoT Hardware

- ✓ Technology Agnostic. Be able to work with Barcode, passive RFID, BLE, LoRa, Sensors and GPS.
- ✓ Plug & play pre-configured IoT hardware.
- ✓ Quick installation.
- ✓ Retrofit any equipment with wireless IoT device regardless of their age.
- ✓ No need for site's network.
- ✓ Long lasting battery-based sensors eliminating the need for AC power.
- ✓ Self-diagnosis IoT network management.
- ✓ Zero investment and risks.

Start leveraging the power of Dominate EAM

If you are looking for a ready next-generation EAM solution to tackle your most difficult challenges, the Dominate Smart Asset Management (EAM) solution is the one. Out of the box, it will immediately help you achieve magical results without ever becoming obsolete.

The Dominate EAM is tailored for various industries and can support your manufacturing, property, construction, energy, utilities, mining, and heavy industries with rapid and low-cost implementation.

The system provides true insight into your asset management activities and helps you manage your entire enterprise from everywhere, at any time. You can trust it to keep your assets up and running, enhance their availability and reliability, and guarantee their safety. Leverage the Dominate EAM's powerful capabilities and features to ensure your business success now and well into the future.





About Dominate SmartSite

Dominate Smart Site is the leading global provider of industrial IoT enterprise solutions for the manufacturing, facility/property, construction, energy/utilities, mining, and heavy industries. We bring real-time visibility to all aspects of your site by wirelessly connecting your assets, machines, workforce, materials, productivity, and environment to the digital world. Customers trust us to connect their shop floor and field operations to enhance productivity, improve profitability, and effectively elaborate across the broad ecosystem.









