

# The Case for Building Asset Management

Jonathan Coburn - President, Building Asset Insight

Sub-optimal ways of working – and thinking – are persistent. The QWERTY keyboard, developed in 1878, remains the standard to this day even though it was originally designed to slow the rate of typing to prevent jamming of early typewriters. A sportswriter named Henry Chadwick developed the baseball box score (coincidentally, also in 1878); it governed the way people thought about baseball statistics until the adoption of sabermetrics (the “Moneyball” approach) 120 years later.

What other activities or technologies are ripe for change? In this paper I offer up facility management (FM) – or at least one major aspect of it – as a candidate. Specifically, the area of FM known as “technical services” - the activities and equipment (assets) linked to the core building infrastructure. It is a buildings’ assets which establish and maintain the indoor environments and provide the utilities needed to support activities within the building, whether they be conducting science, making a product, writing a brief or enjoying a show.

It’s also a non-core business activity where a lot of money is spent. So, if an organization wants to save money, a logical place to start is with building assets. And that is exactly what organizations do – just ask any FM professional about pressures to reduce costs. So it is important to ask - is there a systematic way to better manage a building’s assets to reduce costs without affecting the activities it supports?

## The Typical Approach to Managing Building Assets

Building asset spending takes three basic forms: operations and maintenance, energy (utilities) and reinvestment (projects). Typically, the practice of Facility Management takes a functional approach to these three spending streams; there is a maintenance organization, a project management organization, and an energy team. Each function has its’ own budget, performance metrics and internal cultures. Building technologies are aligned to these functions. The CMMS and BMS align to the O&M function; metering, carbon tracking and FFD align to energy; and project management and LCAM tools align to projects.

## Limitations of the Functional Approach

Functional organizations are susceptible to the *silo effect*. This term refers to the tendency to make success of the functional organization a higher priority than the wellbeing of the broader organization. We see this in the FM world every day; the maintenance manager won’t spend any of his budget on operational energy efficiency measures, the project manager buys the least efficient equipment because it is the least expensive. Daily decisions like this destroy value, as do the demands on this kind of conflict places on the next level of management to play referee.

Managing asset risk gets short shrift in functional organizations because, ironically, there is no separate risk management function. Instead risk management is delegated to the O&M and projects functions with input from interested bystanders (e.g. production, EH&S, regulatory compliance). This often results in numerous, inconsistent approaches to risk management (the author has seen as many as six parallel asset risk management methodologies). Also, the lack of a voice for risk in the organization leads to dubious behaviors, like trading “savings” from cutting budgets – a visible outcome - for higher risk – an invisible outcome.

Functional organizations touch assets as required by their internal processes but none of them “owns” the assets. When everyone is in charge, no one is. At best, one could say that assets are implicitly – not explicitly – managed by functional FM organizations. This holds if FM is outsourced or performed in house.

All this conflict is evidence that the fundamental assumption of a functional organization – that the whole is equal to the sum of its parts – is false. Conflict and value destruction occur because maintenance, projects and energy are inherently **interdependent**. Yet most FM organizations choose a strictly functional approach and either ignore the conflict or expend enormous time and energy trying to manage it. Is there an alternative to a strictly functional approach to FM that solves these problems? Yes, there is. The alternative is Building Asset Management.

### Building Asset Management

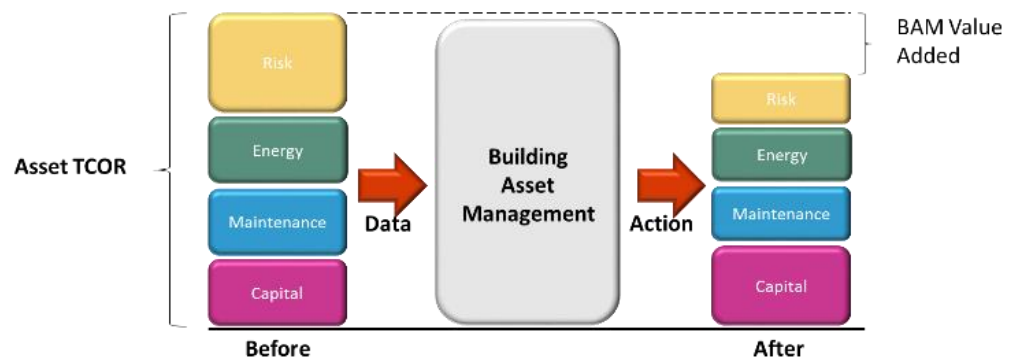
Building Asset Management (BAM) is a combined managerial and technological approach to maximize the value assets contribute to the broader organization by achieving the optimum mix of O&M cost, energy cost, capital cost (depreciation) and risk exposure.



BAM requires three things:

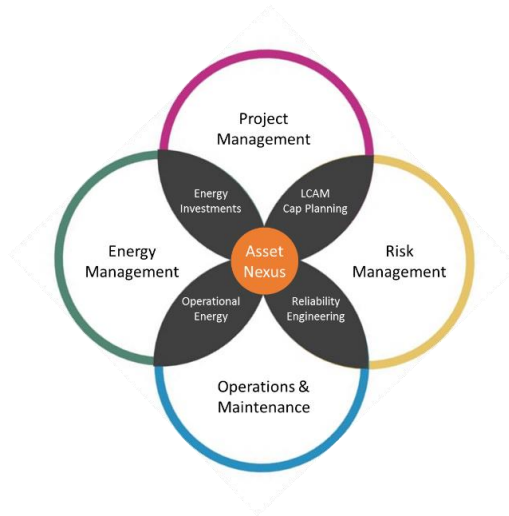
- An organization that thinks and acts cross-functionally and consistently while allowing for functional improvement,
- Technology that takes selective information from the functional tools and applies it to the optimization problem through analytics, and
- Processes and metrics that capture the information and reward the behaviors that lead to success.

BAM is a value-generation activity. BAM takes data from functional tools, analyzes it, and uses the results to make decisions to optimize the value of an asset. The result is a lower asset TCOR (Total Cost of Ownership + Risk) that creates value.



## The Building Asset Interdependency Model (BAI Model)

The BAI Model, developed by Building Asset Insight, provides the organizational context for successful implementation of BAM.



The BAI Model consists of four functional activities (represented by the large circles), four overlap areas that represent programs, and an “asset nexus” in the middle that represents three different, but related things:

- A small centralized asset management organization,
- An information / analytics hub (BAI Engine), and
- An asset decision-making node.

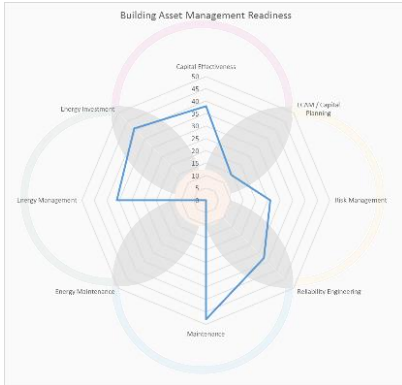
A horizontal line through the middle of the diagram divides the short-term (lower half) and the long-term (upper half). Reliability Engineering is short-term risk management and LCAM is long-term risk management. Similarly, Energy Investments (energy projects) address the long-term and operational energy programs address the short-term.

The central asset management organization is the key to making BAM work. Acting as a functional entity responsible for the risk management circle and its’ overlap activities - Reliability Engineering & LCAM / Capital Planning – it can apply specialized risk management expertise, ensure consistent treatment of asset risk across all activities and centralize asset analytics. It also plays a role on the energy side for both program design and information strategy.

Outside the overlap / program areas, each function has the ability and responsibility to improve itself. So, for example, BAM includes the ability of a maintenance organization to improve efficiency of the maintenance process (e.g. increase wrench time) through continuous improvement programs. BAM provides both the functional and cross-functional excellence needed to maximize the value organizations can extract from their building assets.

Thinking and acting cross-functionally requires an organization to adopt the “Asset Management Paradigm.” This contrasts sharply with the existing “Functional Paradigm” as shown below.

Attribute	Functional Paradigm	Asset Management Paradigm
Scope	A set of discrete activities delivered to functional best practices.	Cross-functional management of assets to achieve optimum outcomes (maximum value contribution to the business).
Technology	Technology supports activities within a functional silo.	Technology helps manage functional activities <b>and</b> captures a comprehensive set of information about assets.
Information	Information is used to manage processes, budgets and performance metrics within a functional silo.	Cross-functional information enables the analytics needed to optimize asset decision-making and to create value in the overlap activities.
Analytics	Analytics consist of reporting functional information or using it to improve a functional process.	Analytics derive insight from cross-functional information that enables better asset decision-making.
Value	Cost savings (e.g. accounting expense reduction) aligned to functional budgets.	The optimum combination of asset cost, reliability and performance, consistent with budget constraints and risk tolerance.



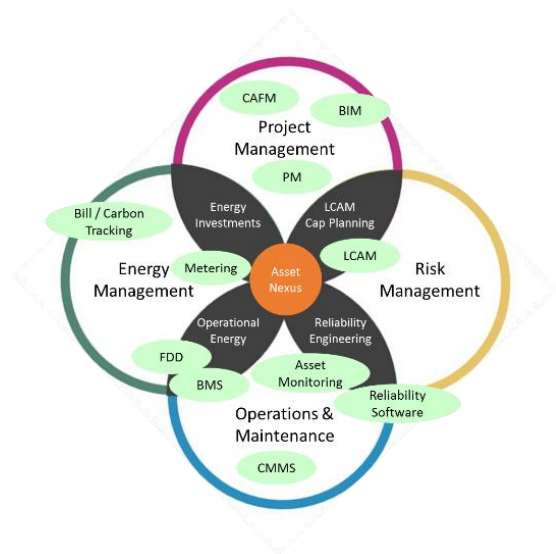
The extent to which an organization adheres to the Asset Management Paradigm can be assessed. This is the role of BAI’s **Readiness Assessment Tool**. It looks at organizational structure, performance metrics, incentives, policies, practices, technologies and paradigms and maps them to the BAI model using a spider chart. The tool identifies what an organization needs to change and do to become a successful asset management organization.

An organizational assessment is the starting point for any organization wishing to implement building asset management.

### BAM, Technology and Analytics

Building technologies tend to align with FM functional silos. Each captures a narrow set of information needed to manage functional processes, often at the budget level. A rough technology map is shown here, superimposed on the BAI Model diagram.

Whereas functional organizations focus on aggregated information in order to manage budgets (how much did we spend on maintenance last month?), asset management requires **targeted information at the asset level about cost, performance and risk** from a subset of the various functional technology tools (how has the total cost of operation of Chiller 4 varied over the last 5 years?). The good news is that not all information from all tools is needed for BAM. The bad news is that, given their functional focus, existing tools are unlikely to contain all the right information. An **information strategy** is needed: what will the asset management program do, what information is needed to do it, and where will the information come from? Information needs are mapped to existing functional tools, which are reconfigured if necessary to provide the required information.



Then what? There needs to be a way to store the information, summarize it, analyze it, and present it in the value-centric context of BAM.

Building Asset Insight’s **BAI Engine** is one such tool. It is designed to use the “right” information from the functional tools to inform decisions about assets that lead to higher asset value contribution. It provides the ability to better understand assets (e.g. find cross-functional relationships between functional variables, calculate and trend asset TCO), to make better decisions (optimal replacement analytics), to better manage asset risk using powerful and unique qualitative risk management tools as well as basic risk quantification.

## The BAM Imperative

This paper has looked at the value of Building Asset Management at the implementation level. Now let's take a broader look.

Constructing, operating, maintaining, and refurbishing buildings consume more human and natural resources than any other human activity. The building sector contributes up to 30% of global annual greenhouse gas emissions and consumes up to 40% of all energy. The global construction market is expected to exceed \$12 trillion in 2020, two-thirds of total current US GDP and about 13% of projected Global World Product (GWP). Each dollar of building construction cost will be matched by between two and eight dollars of other costs over a building's life cycle. Given the massive growth in new construction in economies in transition, and the inefficiencies of existing building stock worldwide, if nothing is done to improve how we manage buildings, greenhouse gas emissions from buildings will more than double in the next 20 years.

Whether one wants to improve the financial performance of their own organization or help save the planet, the need for a value-centric approach to FM is apparent. We have seen how most FM organizations destroy value in the way they organize, the incentives and metrics they put in place, their financial approaches, and the design of their building management programs and processes. When one looks deeper into value destruction one finds that the enemy is ourselves; our building management paradigms constrain our ability to extract maximum value from our building assets.

A comprehensive framework is needed to help define the problem. The framework must consider how people working within the right environment (organizational structure, incentives, metrics, program design, business improvement initiatives) equipped with the right information (about building and asset cost, performance, risk) can perform activities (managing maintenance, capital investment, energy, and risk) to make optimum asset-based decisions – decisions that maximize value. The framework must deliver value in today's building management world and be able to accommodate standards, business improvement initiatives, existing and future technologies. Finally, the framework must show us how thinking differently can unlock new value opportunities from managing building assets.

Building Asset Insight has developed the BAI Model to meet this need. With the model as the backdrop, our Readiness Assessment Tool identifies gaps and barriers to success for individual organizations considering implementing BAM. It shows how to address the organizational challenges associated with BAM. The BAI Engine provides the analytics and decision-making tools to support the framework. It addresses the technological aspects of BAM. Taken together, the BAI Model, the Readiness Assessment Tool and the BAI Engine provide a coherent, mutually-reinforcing solution to the problem of extracting the most value from building assets.

We hope you will take the Building Asset Management journey with us.