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june/july 17

CREATING AN EFFECTIVE
ASSET MANAGEMENT
DELIVERY MODEL



CREATING AN EFFECTIVE **ASSET** **MANAGEMENT** DELIVERY MODEL



THIS ARTICLE PROVIDES
INSIGHT AND A PROVEN BLUEPRINT
FOR IMPLEMENTING AN EFFECTIVE
ASSET MANAGEMENT SOLUTION.

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Asset intensive organizations face numerous challenges, one of which is the need to create an accountable methodology and delivery model for risk managed performance that reinforces organizational objectives.

This is made even more challenging when organizations choose to focus on short-term operational performance. Overcoming this hurdle requires big picture thinking combined with an intimate knowledge of the asset management (AM) enablers. Furthermore, to align effort to outcomes, one must have a strong understanding of how an organization defines and measures value.

This article provides insight and a proven blueprint for implementing an effective asset management solution. Ultimately, it provides managers and decision makers with an execution model for structuring a performance driven asset management solution.

The first step toward this clarification is understanding the known knowns of asset management, from which the implementation blueprint will be built.

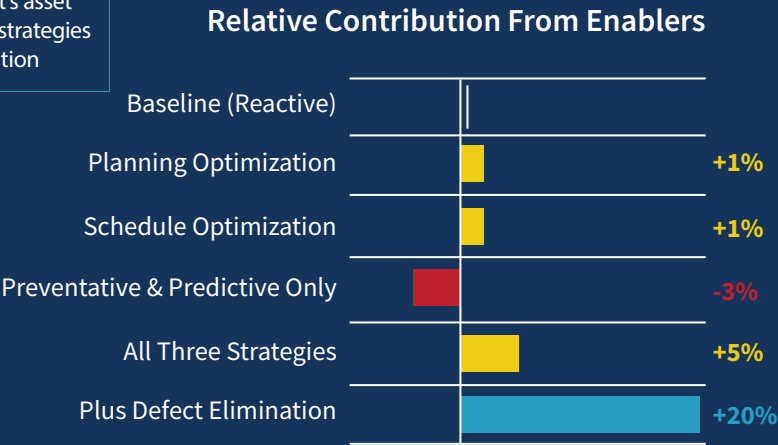
Understanding the Known Knowns

To understand the known knowns or what you know, you first need to understand your historical journey as a professional discipline.

The discourse over the last 20 years has surrounded two themes. First is the profusion of embarrassing claims in the marketplace, normally from vested interests, about what creates asset performance. Second is from those involved at the forefront of implementing solutions, where there is a real challenge to create long-term sustainability in programs that result in ongoing performance.

One must look hard for documented, peer reviewed evidence of what creates asset performance.

Figure 1: Ledet's asset management strategies value contribution



- Adapted from Ledet and Paich (DuPont)

Asset management activities that have the **strongest influence** on organizational value often have the **lowest maturity** within the same organizations

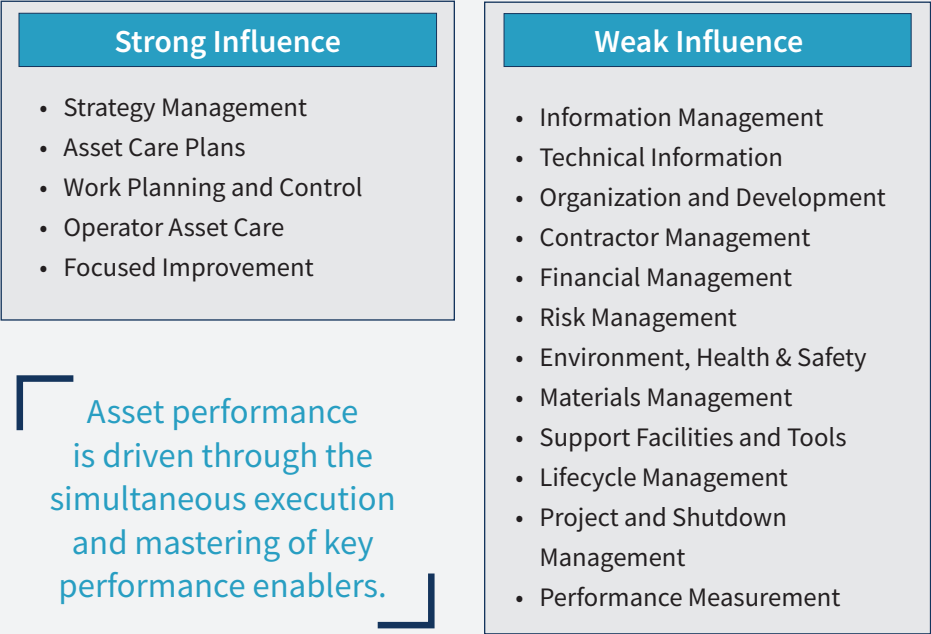


Figure 2: The influence of asset management activities on value creation

mance. The abundant claims that exist are at best anecdotal and not substantiated with hard evidence. Through multiple decades of experience, it has been noted that most improvements are temporary, vulnerable to any of the dynamics that occur in the corporate world.

Over the years, literature and other sources of information, such as conference proceedings and organizations' individual experiences, have been carefully tracked to gain insight and real evidence to help in understanding what creates asset performance.

Foundational to this understanding is the 1994 pioneering work by Winston P. Ledet at DuPont. Ledet undertook a detailed modeling exercise on how and why maintenance initiatives had failed to meet expectations within DuPont. In summary, he concluded that point solutions (i.e., individual solutions applied in isolation) were only partially successful and that, in some cases, asset productivity decreased if applied inappropriately. The key learning gained from this foundational study was that there were key enablers to an asset management system and their integrated effects created an alignment that drove performance. The key enablers Ledet listed are shown in Figure 1. Further, the study assumes some underlying information management system that supports the above, but interestingly, that it is not considered a performance driver.

The second key issue is the role of the computerized maintenance management system (CMMS) or enterprise resource planning (ERP) system in driving performance. With large budgets and vested interests, market players in this area have made exaggerated claims with regard to the ability of these systems to drive asset performance. This is supported by benchmark data; surveyed data from over 50 industrial sites finds no perceivable correlation between continued investment in CMMS/ERP systems and asset performance.

While having a well-structured information system is foundational to the modern industrial

enterprise, its role and usefulness must be put into context as to where it enables value to be derived. Yet, vendors are quick to sell upgrades and increase licensing fees, adding to the overall cost of the management system which, in turn, simply cannibalizes scarce budget and manpower resources. This calls for a clear reevaluation as to where scarce resources should be invested if one wishes to drive asset performance.

In a 2013 major study of benchmark and assessment data by Fogel and Terblanche, 17 key performance areas from over 50 asset intensive organizations were analyzed in detail to understand the relationship between increased maturity (i.e., investment) in the enabler and whether and how much this increased asset performance (see Figure 2). Results show strong correlations between strategy management (i.e., the execution of asset management strategy), the development of asset care plans, the management of work through planning, scheduling and work close out, the involvement of operators in first-line maintenance, and structured strategic focused improvement. There was little to no correlation with the remaining 12 enablers.

Fogel and Terblanche further examined the ongoing investment in information systems, which indicated a weak correlation to improved performance. This means the claims of further investment in information systems must be very carefully reviewed with what the organization is trying to achieve.

Further reinforcement of an integrated approach comes from comprehensive comparative studies performed by the Aberdeen Group and published in 2012. They, too, present no single solution silver bullet, but a multivariate contribution to enterprise asset management, with the key driver being cross functional collaboration within an organization.

The Value Paradigm: What Constitutes Organizational Value?

There has been an increasing and more focused discussion in recent years surrounding what constitutes organizational value. Within the professional community, the thinking has been refined from a purely, yet important, financial dimension to a broader understanding of stakeholders and their value expectations. This is built on the belief that organizations exist to satisfy their stakeholders. The value discussion has been sharpened by the excellent work done within the technical committees that developed the ISO55000 and 31000 international standards. These standards should be used as normative references when evaluating the value from assets and value of assets.

In a presentation by Fogel and Kemp at the 2016 Institute of Asset Management (IAM) annual conference, an asset management value model (see Figure 4) was developed in a single representation. In this model, value is some variable that changes with time as the organization meets differing trading circumstances and challenges. The

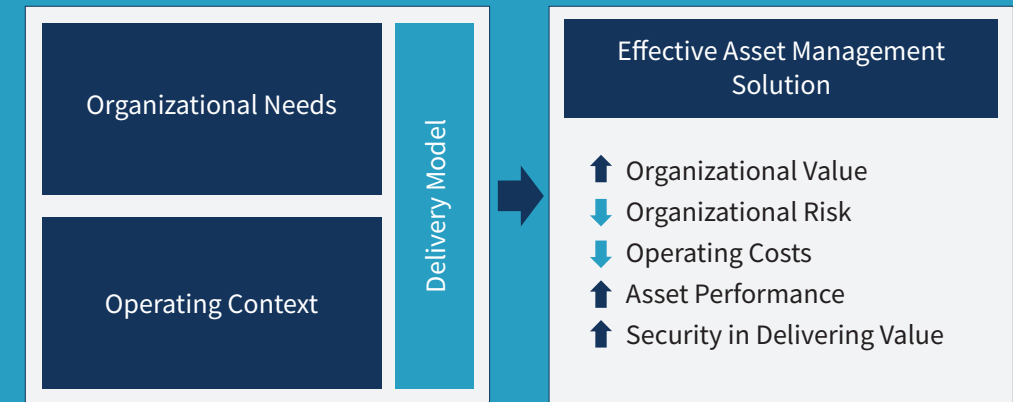


Figure 3: Describing effective asset management

model indicates this dynamic tension, which is under continual review to adjust it strategically to a differing business environment. Fogel and Kemp advocate that leadership teams need to clarify exactly what the value goals are in terms of creating a performance outcome. Implementation teams can then align priorities and activities to these value definitions. The organization then requires a nimble strategy to adjust to changing priorities.

Over the last decade, the thinking with regard to creating an implementation structure for creating an effective asset management delivery model has been refined and sharpened.

The goal is to create a delivery model that is easy to explain, clearly understood and aligns with both international standards and accessible bodies of knowledge. Moreover, the model needs to be adaptive to both different industries and maturities within organizations. Furthermore, it needs to be flexible enough to respond to changing value requirements. Overall, the goal is to make it pragmatic and useful to asset management professionals to communicate a simple solution vision for delivering sustainable value. It should also go beyond the general guidelines in ISO55000 to a pragmatic implementation framework, both from an assessment perspective and to allow a clear implementation road map to be modeled.

The end result is an effective asset management delivery model or the delivery model.

Introducing the Effective Asset Management Delivery Model

The delivery model can be best encapsulated as the key enablers, which work together to ensure effective asset management. Figure 5 shows the diagrammatic representation of this delivery model.

The model incorporates the knowledge created in the historical journey. It is backed up by benchmark data and aligned to both international standards and existing bodies of knowledge. Real-life performance data that substantiates the relevance of such an approach also is presented.

In summary, the model is made up of a top-down (i.e., strategic) and bottom-up (i.e., foundational) approach that is aligned to the delivery of value. The blocks represent a set of interconnected and interrelated value drivers referred to as enablers. In most cases, the enablers or a subset of enablers are in place and it is their interconnectivity and integrated presence that creates the model. This interconnectivity, as illustrated in Figure 6, builds on what was uncovered by Ledet at DuPont.

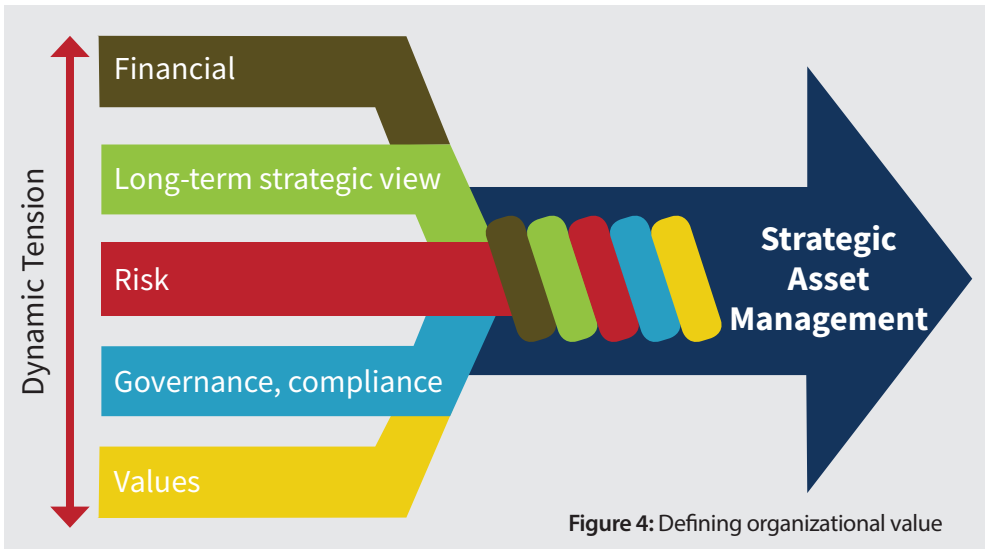


Figure 4: Defining organizational value



Table 1 – Summary of Asset Management Enablers

ENABLER	DEFINITION	EFFECT
Asset Data Configuration	The initial and continued process of ensuring data is of the correct quality and configuration to enable asset management activities	Data, which is credible, provides the basis for evidence-based decision-making Data and data configuration in alignment with overall strategic informational needs
Understanding Risk & Opportunity	The identification, assessment and prioritization of risks followed by the coordinated and economical application of resources to minimize, monitor and control the probability and impact of the risk; It is also the tool to maximize the realization of opportunities	Risk directed application of effort and resources
Establishing a Reliability Basis	A set of activities, processes, skills, use of technology and methodologies to ensure systems meet the reliability expectations to achieve business objectives	Incorporates the development of maintenance reliability tactics, which effectively create the ability to have systems available within acceptable cost and risk parameters when needed; May include such activities as reliability-centered maintenance (RCM), condition monitoring, reliability analytics, etc.
Condition Management	Management of the condition of critical or important systems so they are positioned high up on the P-F curve, minimizing the risk of unannounced failure	The ability to timely deal with failure mechanisms in critical and important systems so they are risk and cost managed
Integrated Planning	Planning processes and activities that integrate across multiple functions within an organization to maximize value	Provides a coordinated ability to create organizational focus across organizational boundaries
Managed Focused Improvement	The process of applying systematic problem-solving methods to improve system performance	Risk and performance based effort directed toward value creation
Managing Financials	Efficient and effective management of money (i.e., funds) to accomplish the objectives of the organization	Includes core activities, such as budgeting, capital planning and financial performance management
Risk Driven Decision-Making	Maximizing opportunity while managing unwanted outcomes	Realizing new value within the organization while reducing value loss from unwanted risk events
Whole Lifecycle Decision-Making	Decisions made that impact total cost of ownership of an asset or system over its life	Balances short, medium and longer term decision-making to ensure sensible and aligned cost of ownership
Value Realization	Monitoring, managing and reporting on the total value realized	Provides the necessary indication of the return on effort
Organizational Readiness	The organization's preparedness and shared resolve to implement a strategic change; A measure of a shared belief and collective capability to implement such a change	Measures the organization's ability to transform toward its strategic goals
Competency Development	Development of skills, behaviors and attitudes that workers need to perform their roles effectively	Ensures the skills and motivation to achieve objectives
Translating the Strategic Plan	The ability to communicate the organization's goals and the actions needed to achieve those goals; Within ISO55000 configuration, this is divided into policy, strategic asset management plan (SAMP) and AM execution plan	The ability to coordinate the set of implementation actions that deliver stakeholders' expectations of value

The various enablers of the delivery model are briefly described in Table 1.

The delivery model provides organizations with structure, enabling a methodical approach linked directly to asset performance. Structuring an asset management system this way provides both form and flexibility, ensuring that nothing is missed when creating an asset management solution. The model is not prescriptive on how those enablers are achieved, or at what maturity level the enabler should be positioned.

The model is also aligned to other contextual inputs, such as the International Organization of Standardization's ISO55000, ISO31000, ISO8000

and ISO9000, industry bodies of knowledge (e.g., IAM's asset management anatomy) and accepted regulations (e.g., IFRS's accounting standard). This is illustrated in Figure 7.

An important aspect that goes hand in hand with implementing an asset management solution is being able to measure its value.

Measuring the Asset Management Value Contribution

The professional community has been searching for a meaningful measure of asset management value contribution. While measur-

ing leading metrics, such as the ratio of planned to unplanned work or the traditional reliability metrics, such as mean time between failures (MTBF) and mean time to repair (MTTR), are important in monitoring asset performance, they do not reflect a satisfactory measure of tangible business value.

Over the years, American business magnate and investment guru Warren Buffet has provided a strong argument that return on invested capital (ROIC) provides the most illuminating understanding of whether a management team is adding or eroding value to an organization. The ROIC metric is directly aligned to the asset management value contribution and should be used as a measure of

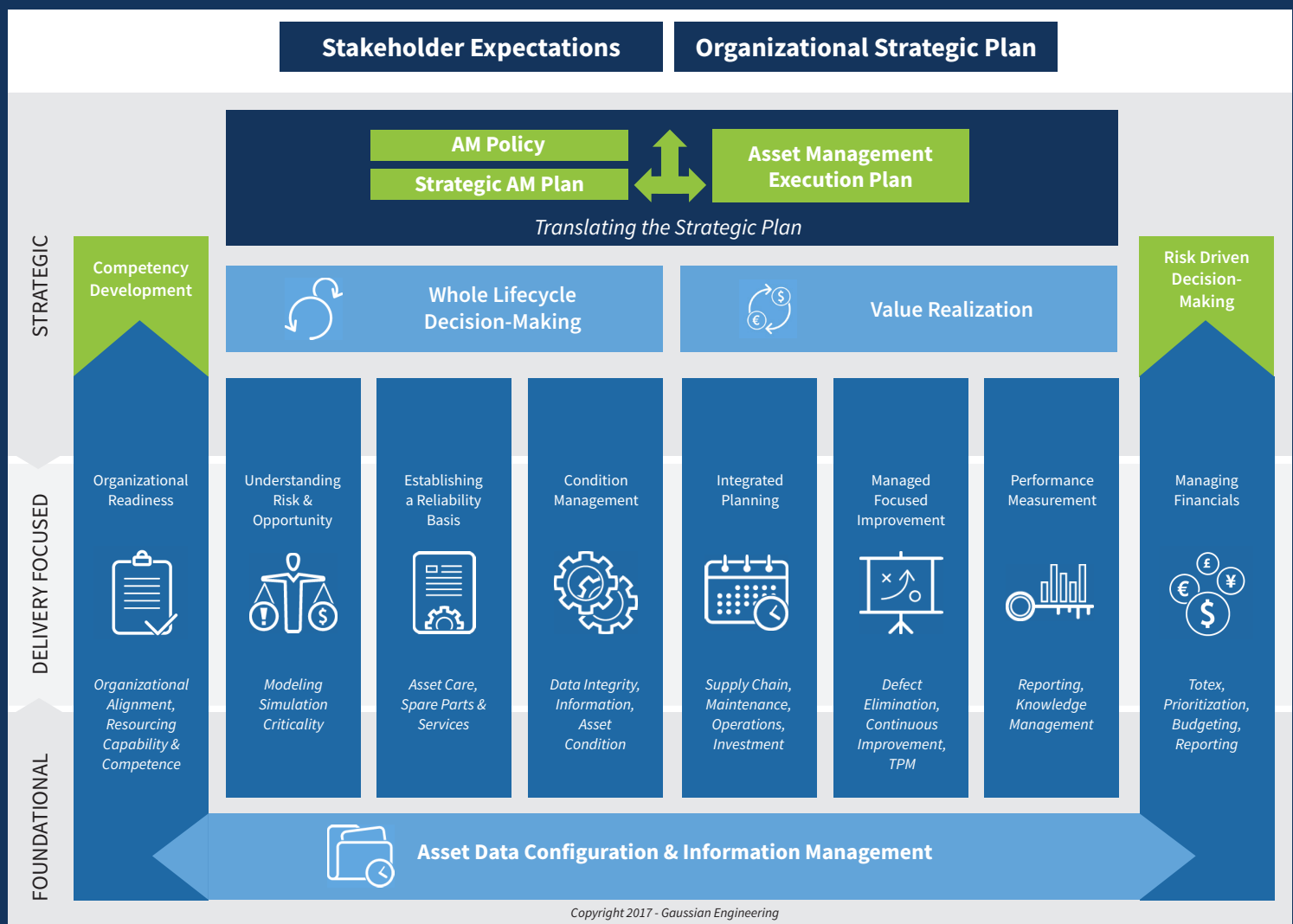


Figure 5: The Effective Asset Management Delivery Model

asset value contribution. Recently, ROIC has been used to benchmark several programs and organizations around the world, providing a significant body of experience in understanding how asset contribution affects ROIC, which will be the subject of a future *Uptime* article.

Furthermore, many management teams and senior executives have their compensation packages linked to ROIC and when talking about ROIC as the golden asset management metric, it serves as a pathway to discussions about a much more strategic approach to asset management.

By measuring and comparing ROIC on a period to period basis, a management team has the clearest measure of whether it is adding or eroding value to the organization. ROIC cascades directly down to the asset management delivery model and how the specific enablers are contributing to the business.

The integration of core asset management activities creates **lasting** organizational **value**

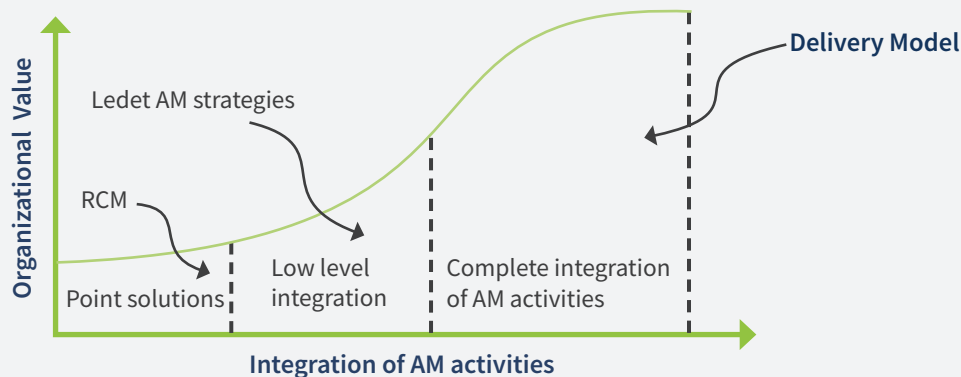


Figure 6: Benefits of integrating asset management activities

Results of Using an Integrated Solution

The results from one organization that has been on a multiple year journey demonstrate year on year sustainable gains in performance. Figures 9 and 10 show improvements within the organization over a four-year journey. This organization had a strong commitment from leadership that drove the implementation of the delivery model. In addition, the sustainability basis was due to the ongoing integrated approach. The benefits are obvious, with a strong decline in the replacement asset value and a steady increase in production. These benefits were echoed by the shift from reactive maintenance tactics to more predictive and preventative tactics.

Aligned to numerous international standards and best practices, the Delivery Model **executes seamlessly** within various industries



Figure 7: External influences of the delivery model

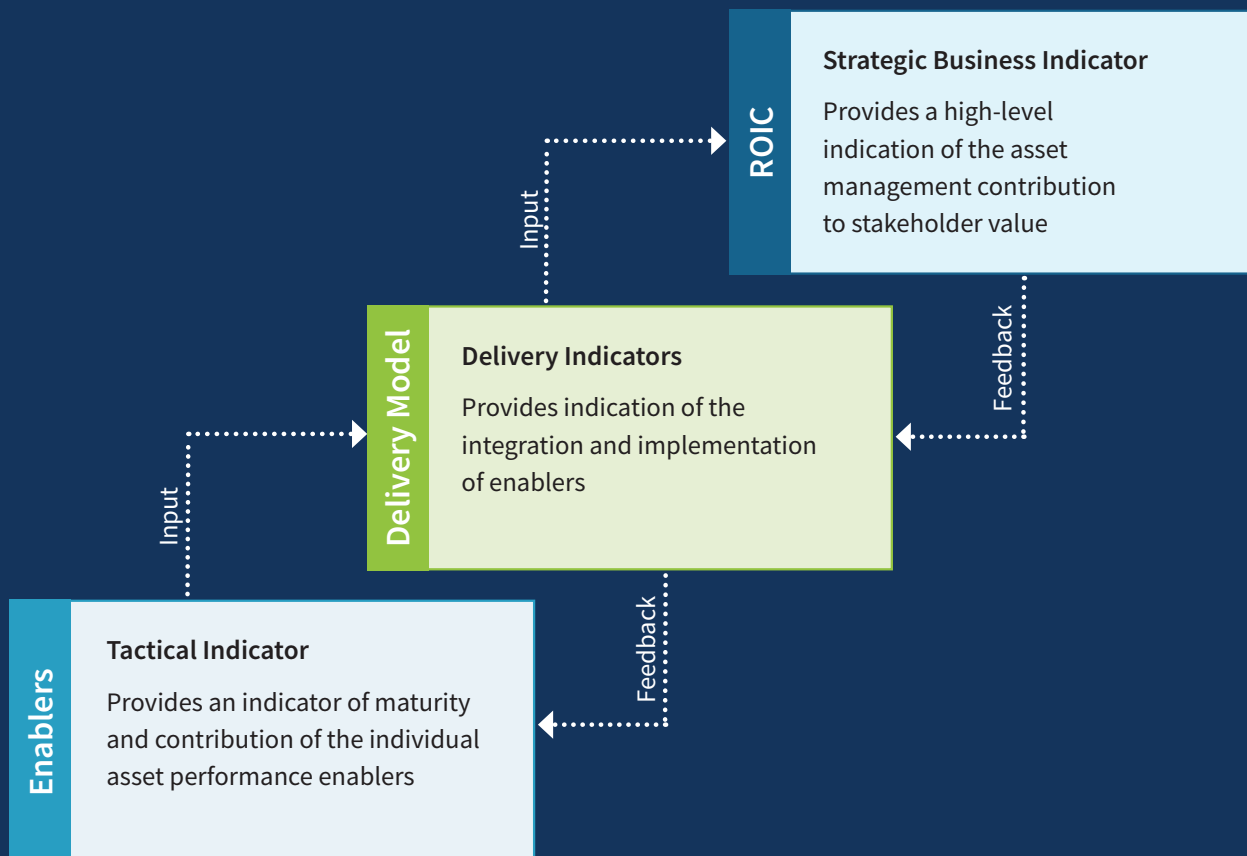
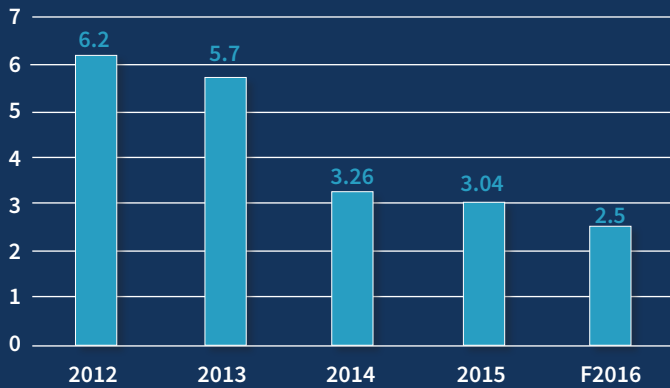


Figure 8: Measuring value

Replacement Asset Value



Production

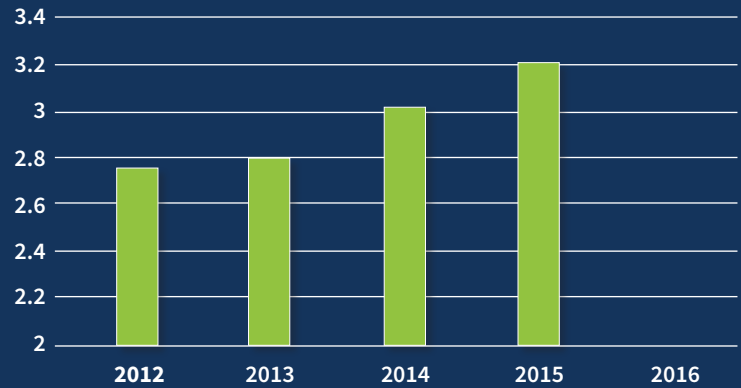


Figure 9: Results of using the delivery model part 1

Risk Managed

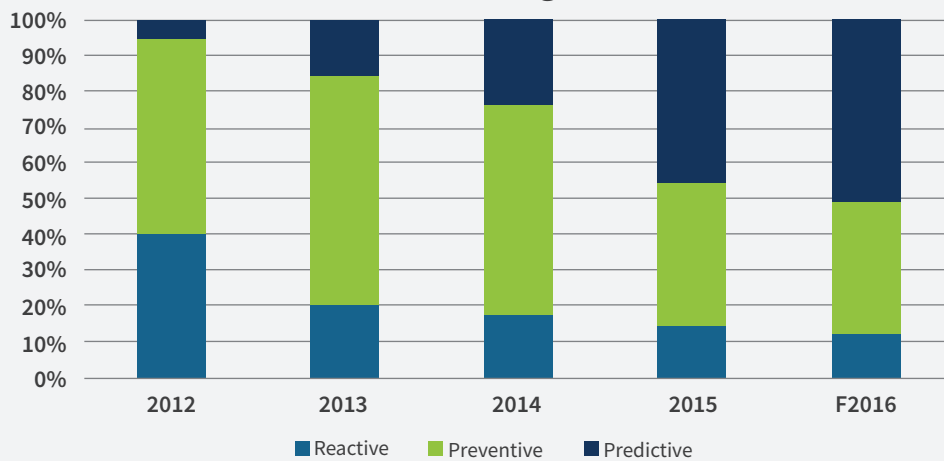


Figure 10: Results of implementing the delivery model part 2

As the organization matures on its asset management journey, it is now focusing more on defining the linkages between effort and capital investment linked to business value to drive further gains.

While the effective asset management delivery model is method agnostic, it offers a structured approach to implementing an asset management solution. This ensures that asset managers around the world can be certain in their efforts.

Conclusion

The effective asset management delivery model is the culmination of years of experience, research and analysis. It has been created for managers and practitioners to help in delivering an effective asset management solution within their organization. It incorporates inputs from the latest international standards and bodies of knowledge to ensure a complete and dependable model. Throughout its creation, there were core considerations, such as the need to be method agnostic, as well as driving value. The concept of value for an organization has been a hot topic in recent years. The delivery model considers the outcomes of these discussions and achieves stakeholder value over and above pure asset performance.

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