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RELEASING Asset



by Stuart Grant

Value Sustainably

An Analysis of ISO55000x

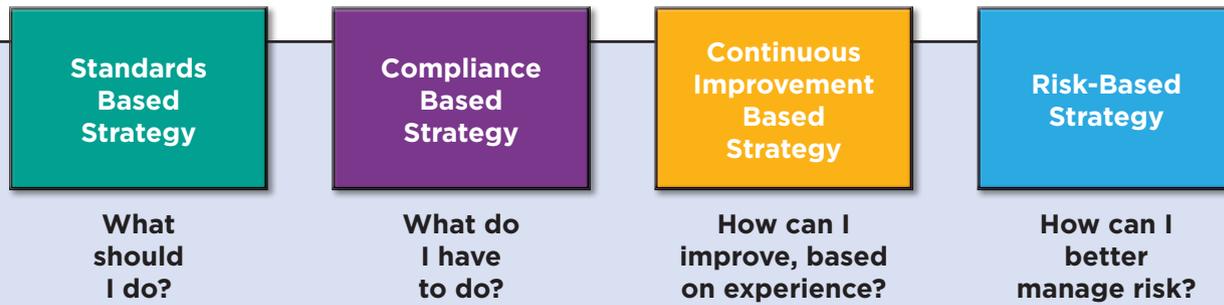


Figure 1: The four key strategies of (safety) asset management (Source: American Institute of Chemical Engineers)

A lot of information, time and energy has been devoted recently to emerging and established practices in asset management. This interest, however, actually has a far longer history. Protocols have been undergoing continuous development and evolution for the past 50 years to keep pace with discoveries, expansion and globalization of industries. Cataclysmic events have often been the driving force for positive change because they expose serious operational and management flaws that are responsible for unmitigated risks and exposing people and the environment to harm. Over time, regulations and standards have matured not only to preempt failure, but also to define improved ways to proactively manage physical assets. Figure 1 captures the four traditional risk-based strategies for asset management.

MOVING FROM REACTIVE TO PROACTIVE ASSET MANAGEMENT

Although safety and risk mitigation is a fundamental part of creating value and boosting profits, it is not the end of the story when it comes to asset management. To realize the true value of an asset across its entire lifecycle, a business must ensure it has a set of key building blocks in place. These consist of forward-looking management structures and processes that adopt a broader perspective than just identifying and addressing threats and vulnerabilities. Their aim should be to achieve the greatest return on productive assets. Put simply, risk management is undeniably important in a time of volatility and uncertainty. But those charged with steering a company through this complex terrain also must be capable of managing the range of valuable assets at their disposal to get the most out of them.

In order to steer organizations toward this goal, a comprehensive set of international standards outlining current best practices in asset management was launched in London, England, in 2014, under the banner of the new ISO55000 series (Figure 2) published by the International Organization for Standardization (ISO). The remainder of this article provides a summary of the key elements and implications of the standards, and then explores how companies can derive hidden value from their assets through effective management practices at both strategic and tactical levels. As will become clear, this should ultimately involve adopting a holistic approach. Later in this article, a DuPont case study will show how a



Figure 2: The ISO55000 series

holistic approach developed and applied across its diverse businesses focuses on the four dimensions of sustainability that collectively align with the core strategic intent underpinning ISO55000x.

WHAT IS ISO55000x?

A decade before the ISO55000 series was introduced, PAS55 emerged as an early framework for asset value and risk management. Initiated by the Institute of Asset Management (IAM) in response to asset failure issues arising from the privatization of the British utilities industry, PAS55 was developed by the British Standards Institution (BSI) and quickly adopted internationally. The standard was subsequently updated extensively, following a process that concluded in 2008. But in 2014, a notable change occurred. PAS55 was superseded by both the ISO55000 series that addresses asset value over a lifecycle and the ISO31000 series that addresses risk frameworks. Although successful business models dealing with asset management require robust systems that tackle value and risk simultaneously, the focus of this article is on the value and profitability factors at the heart of ISO55000x. This is also because the series will harmonize with other established standards, like ISO9000x and ISO14000x, resulting in a common approach and articulation of requirements.

WHAT ISO55000x IS NOT

Before exploring the implications of the new standards, it is important to clear up a number of continued misunderstandings about the ISO55000 series. In particular, it is crucial for companies to recognize that ISO55000x is **not**:

1. An engineering standard outlining a technical framework for maintenance reliability.

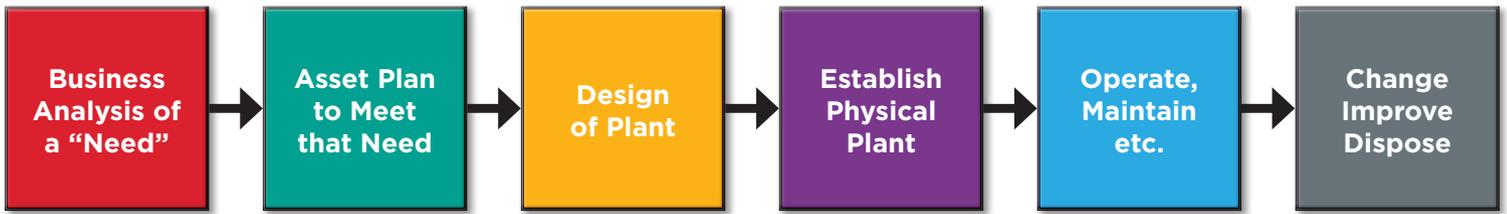


Figure 3: The lifecycle of the physical asset

2. An asset management standard offering a technical framework for new projects.
3. A set of (safety) risk management guidelines.

Rather, the real intention and significance of ISO55000x is to establish a framework standard for managing the *business* side of an asset. In other words, it includes all the necessary business elements that can help managers – and those unfamiliar with technical aspects – derive cash and profit from an asset over its full lifecycle (Figure 3). This is part of the reason why the ISO55000 series operates so harmoniously with DuPont’s four-dimensional business framework as outlined later in the case study.

WHY ISO55000x IS INCREASINGLY IMPORTANT

A number of benefits flow from the implementation of a standard like ISO55000x. The series itself can be understood as a kind of assurance system, providing a clear framework for achieving the outcomes for which an asset was originally intended. If properly applied, this includes sustainable improvements in regulatory compliance, financial performance, organizational efficiency, investment and divestment decisions, as well as risk management (when combined with ISO31000x).

Businesses with poor track records in lifecycle financial performance that are traceable to below par asset management governance may struggle to secure coverage from their insurance provider. Similarly, while ISO55000x certification is not a condition of legal compliance, there are strategic reasons for meeting the standard, especially when a business encounters perennial problems with regulators or struggles to attract investment.

A number of serious asset management issues are driving global demands for better standards. These range from aging plants, evolving software systems and data analytics to the emergence of new technologies (e.g., drones, robotics and artificial intelligence), the growing impact of an aging workforce, out-of-date business practices and, more broadly, a frequent lack of understanding how to extract value from assets. Unlike a number of tactical

or technical models already on the market, which businesses can and have used to implement well-defined best practices in areas related to maintenance reliability, the ISO55000x does not explain *how* to manage an asset in a tactical sense. Instead, it is framed at a strategic level with a view of unlocking the true value of a business and its assets by defining the *what*, and sometimes the *who*, to meet industry management benchmarks.

THE INTENT OF ISO55000x

Instead of a technical methodology to manage *physical* assets, a more accurate description of ISO55000xseries provided by Terrence O’Hanlon, CEO of Reliabilityweb.com, Publisher of *Uptime* and a contributor to the formulation of the series, is “a coordinated set of activities to realize the value of all assets.”¹ This includes intangible and human assets, for instance, the computerized maintenance management system (CMMS) or enterprise asset management (EAM) system, training and leadership vision. Countless organizations can point to teams of capable, qualified, highly motivated and well-intentioned people juggling multiple directives and imperatives. A potential pitfall is for these teams to work in silos, within which many of the important aspects of holistic asset management may seem contradictory. As lines of sight blur and artificial conflicts emerge between risk and productivity, it is difficult to sustain improvement. Coherent standards in asset and risk management seek to bring some strategic clarity to this fog. The intent of ISO55000x, as well as the hierarchy of relationships between its key terms, is illustrated in Figure 4.

DUPONT CASE STUDY – ADOPTING A HOLISTIC VIEW

Introduction: Although ISO55000x does not cover best practices in the area of safety, anticipating and mitigating risk are two key elements in successfully and sustainably managing an asset. Understood in a broader strategic context, the ISO55000 series reinforces the idea that businesses should adopt a holistic view when it comes to asset management.

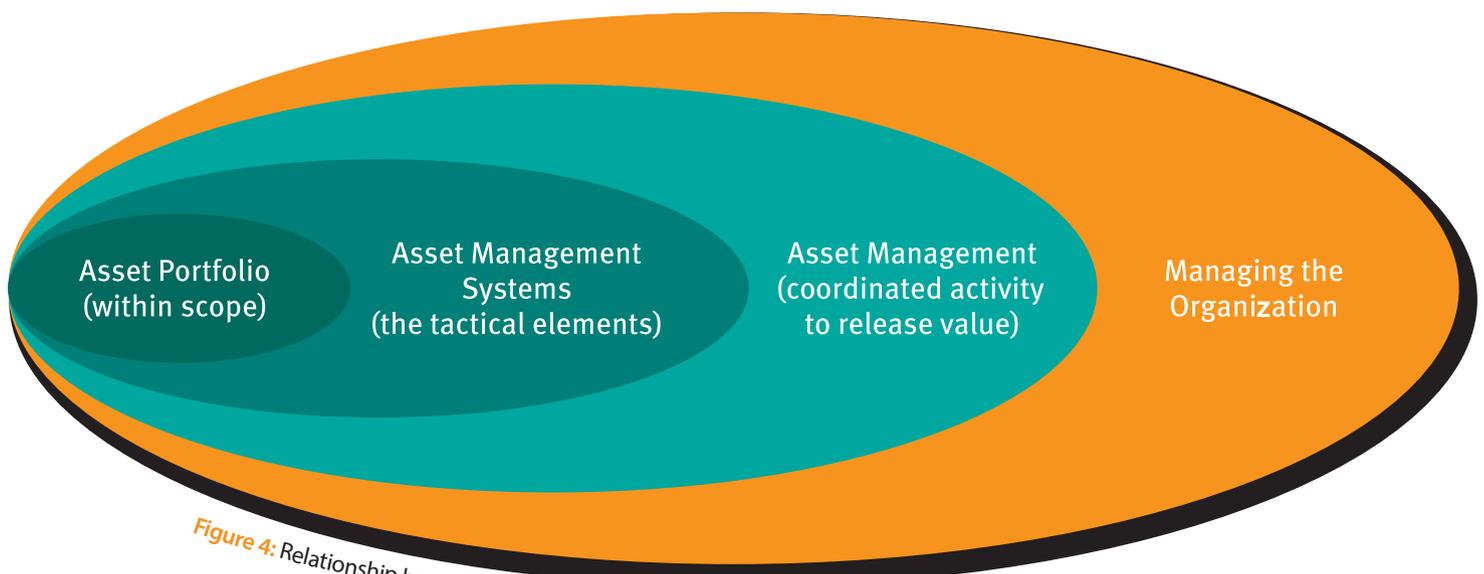


Figure 4: Relationship between the key terms in the ISO55000x standard



Background: As a global science and innovation company with a lengthy track record of continuous improvement in safety and operations, DuPont is able to draw on over 200 years of operational experience across multiple industries. During this time, the company has learned that longer term sustainability requires businesses to achieve an appropriate balance between risk mitigation and profit optimization (Figure 5). This is, of course, easier said than done. It is unrealistic to manage a business and its assets with zero risk. Yet, managing an asset with only the bottom line in mind, for example, by driving uptime at the cost of risk mitigation, is equally unsustainable.



Figure 5: The balance between risk mitigation and profit optimization

Scope: Rather than accept the status quo, DuPont continually reflects on whether it is striking the right balance. In the end, this contributes to an ongoing and positive learning process that ensures potentially unsustainable activities are corrected with appropriate haste. It is also a process that has not only driven improvement in how the company manages its own assets, but also allows the organization to assist its partners to release value sustainably through a similar approach. This approach is based on the four-dimensional business framework alluded to previously and described in a previous *Uptime* article.² The four dimensions this framework uses are:

1. Managing processes;
2. Technical model;
3. Capability model;
4. Mindsets and behaviors that drive sustainability.

Goal: For DuPont, the goal was to increase value by optimizing uptime. The four dimensions directly address the overarching goals of asset management, insofar as they zero in on releasing asset value (and sustainably). Referring back to Figure 4, the importance of managing the organization also became clearer. In particular, the imperative to set and implement a strategic asset management plan so key members of the organization understand how asset values can be increased, as well as what barriers may stand in the way.

Actions: Recognizing that mitigating risk is one of the key factors in sustainably managing an asset, but not part of ISO55000x. This is how DuPont applied the four-dimensional model to raise value by increasing profit.

Put simply, the goal was to optimize uptime through improved availability tactics, which take into account where losses occur or where value is destroyed. Sometimes, this is in the margins – that is, due to inefficient practices between departments or processes. At other times, it results directly from a failure to follow best practices in implementation. DuPont has worked with a range of companies and industries in countries that include Russia, Saudi Arabia and South Africa, carrying out indepth assessments of existing frameworks for asset management. While the focus is on maintenance reliability or capital effectiveness, processes rather than departments were investigated. Similarly, DuPont examined the full asset lifecycle, not just the here and now; business processes, not just technical models; and sampled and tested the robustness or validity of what companies do or say they do.

Within the four dimensions, this process explored these areas:

1. **Managing processes** – leadership vision, incentives, rituals, meetings, standardized work processes, key performance indicators (KPIs) and goals. Evidence of “felt leadership,” clarity of goals, strategic asset management plans, rewards and recognition, meeting effectiveness, and standard work and line walks by leadership was sought.
2. **Technical model** – the effectiveness of a company’s CMMS or EAM, data analytics, learning from incidents, contractor management, reliability processes (e.g., RCA/RCM, CBM, RBI, SIL), work identification, work execution, gatekeeping, turnarounds, and planning and scheduling.



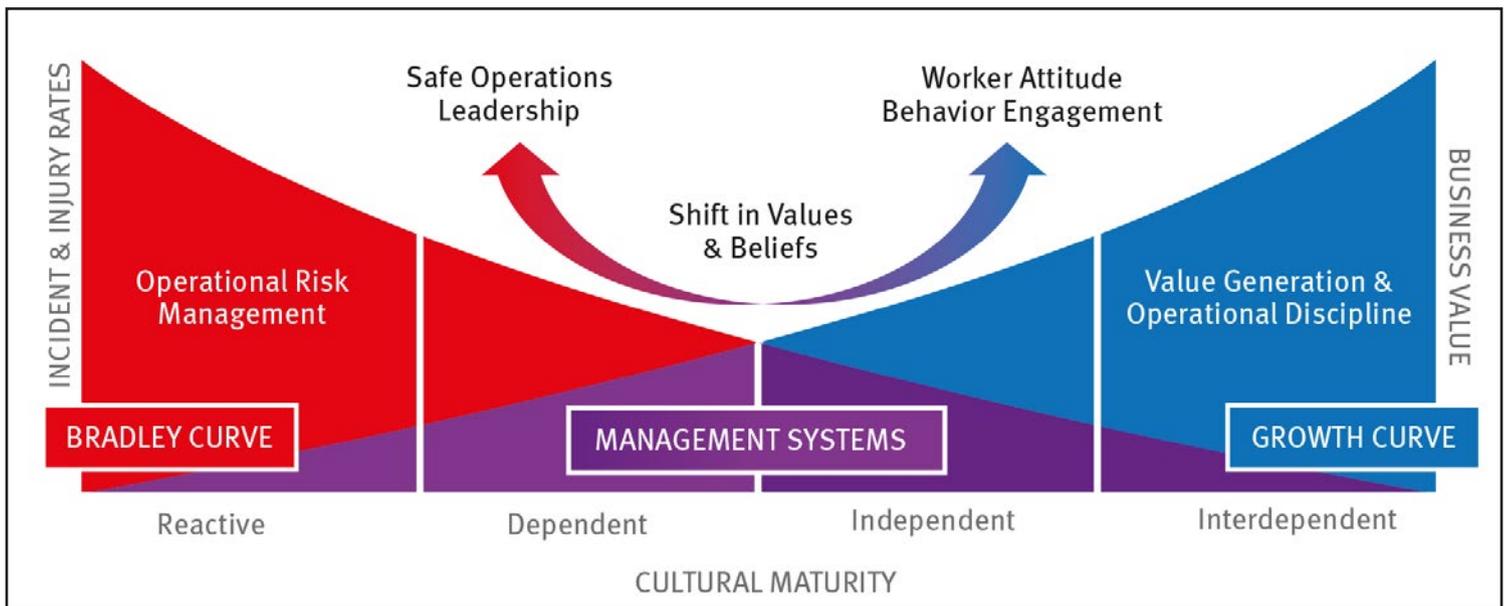


Figure 6: The Bradley Curve cultural quadrants for risk mitigation and business value

3. **Capability model** – training and competence verification, learning, mentoring, hiring, promotion, education, qualifications and a company's broader knowledge management system, if one existed.
4. **Mindsets and behaviors** – silo mentalities, adversarial relationships, the role of operations in maintenance reliability, joint or diverse goals, incentives (again), messages, production versus safety, asset lifecycle, or short-termism.

This final category of mindsets and behaviors is often overlooked in assessment processes. Yet, such qualities and processes speak to the real culture of a workplace.

Results: DuPont has found that undertaking a cultural assessment is mission critical to the longer term application of standards and best practices. In other words, if the right standards are not backed by the right behavior, they will fail. Once existing gaps are understood and verified, work can begin to carefully design and implement solutions that will address and fill them. The solutions are usually quite specific and are delivered by experienced professionals who have often held line management positions at a DuPont facility. It is not an academic exercise to pragmatically implement a solution!

DuPont's experiences have led the organization to an important realization: as an asset is managed better to deliver sustainable value, total risk reduces. A reliable plant is a safe plant. This relationship is captured in Figure 6, which expands upon DuPont's established safety methodology, the Bradley Curve.³ While proven in practice, the path is not necessarily linear, as slip back can occur quicker than improvement. Nonetheless, this mental model encapsulates the holistic approach that DuPont has pursued and observed in its own journey. The company plans to continue to progress and keep to the right-hand side of the curve. It is understood that when DuPont has to fix its own value or risk problems or help others with theirs, understanding and recognizing the underlying mindsets that drive behavior are fundamental elements. Together with ISO standards and the frameworks for operations excellence they offer, sustainable, longer term improvement in asset management can be achieved.

CONCLUSION

Ultimately, the publication of the ISO55000 series has clarified the broader goal of asset management as a business process focused on releasing value from an asset over its entire lifecycle. It has also clarified that asset management is not about physical assets alone, nor indeed technical models, but includes software, data and a range of human factors.

At the same time, ISO55000x does not specify how to manage an asset tactically, as the series assumes the application of existing best practices at various levels. It is important, however, to connect the dots by linking management processes to business results. This involves understanding the practical issues at hand and then executing relevant tactics pragmatically.

If the tactical level is ignored or overlooked, asset management becomes a paperwork issue, focusing solely on technical models in maintenance reliability, or capital effectiveness that presents only the illusion of true value creation. For instance, new procedures can be put in place, but they are not followed or may prove unworkable. The end result is value remaining locked in.

As the case study shows, DuPont developed a sustainable solution to its own business model and asset management framework that involves engaging with the four dimensions, as well as understanding the cultural patterns that affect risk or value creation. This approach has helped not only its clients, but the company itself, realize hidden value in the organization and connect tactics with wider strategic intent. No technical or engineering model is able to do this on its own. And perhaps the best part is that DuPont's diverse operational experience means the holistic 4-D business assessment process can be applied to any industry.

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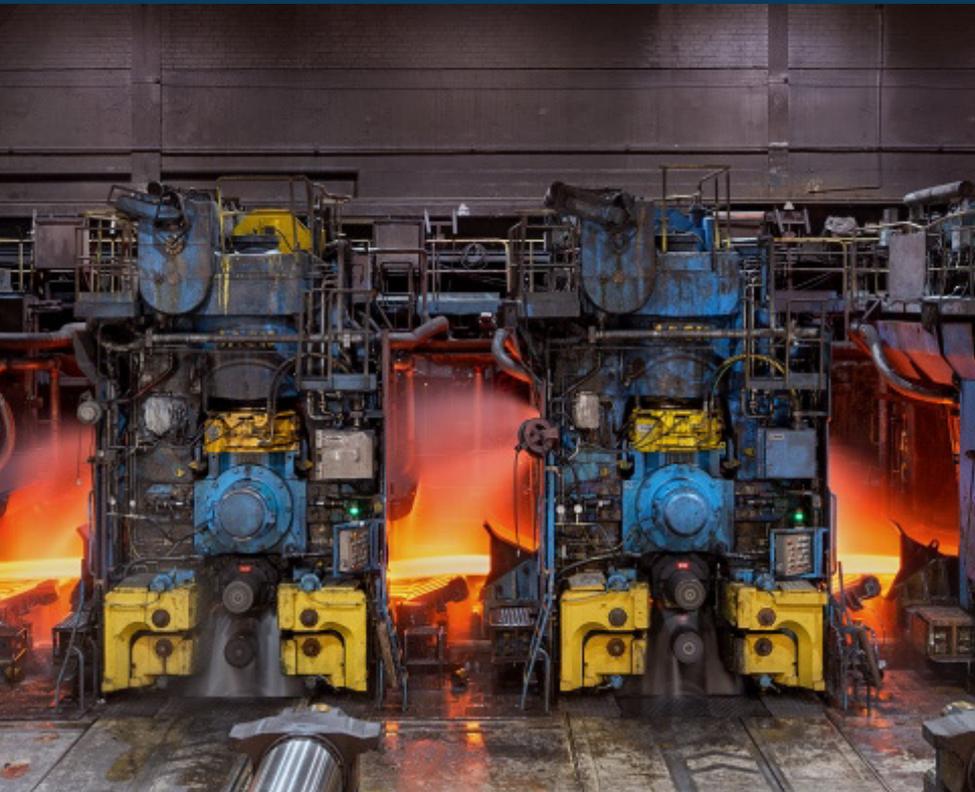
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