



Wilson Perumal & Company's
Vantage Point

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► ***Achieving Operational Excellence
in the Face of Complexity***

The 7-Element Management System
that addresses the failings of Lean
Six Sigma



Does your company perform at the top of your industry across financial, safety, compliance and environmental measures? What is holding you back? Have you tried to improve your performance with Lean and 6-Sigma initiatives? Have you found they do not deliver the results you expected?

If so, you are not alone. In a survey of executives by AlixPartners, only 31% of respondents were able to achieve the results promised by their Lean and 6-Sigma practitioners. And 1 in 7 executives were unable to quantify any benefits of their Lean and 6-Sigma initiatives. In a similar survey from Accenture, 58% of executives reported their continuous improvement programs delivered minimal financial impact. Considering the time, effort and resources required by the organizations supporting and implementing these initiatives and the distractions they can create, it is shocking that so few executives felt these initiatives were yielding tangible results.

In order to achieve industry leading results, a firm must have two characteristics. First, it must have a sound strategy that aligns with its operational capabilities. As an example, a company with organizations and facilities structured to support mass production of a limited number of products will not be able to successfully implement a strategy around serving customers with individualized orders of custom products. Second, and the focus of this piece, the firm must be able to execute its strategy more consistently and reliably than its competition - this is Operational Excellence. Operational Excellence is evidenced by results. Given two companies with the same strategy, the Operationally Excellent company will have lower operational risk, lower operating costs and increased revenues relative to its competitors, which creates value for customers and shareholders. It is very difficult to directly measure Operational Excellence, but it is easily seen in the performance metrics measuring safety, environmental, compliance, quality, productivity, yield and cost, or what we call the 7 Value Drivers.

**Sound
Strategy**



**Operational
Excellence**



**Leading
Performance**

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Operational Excellence is more important and harder to achieve

Achieving Operational Excellence is more important now than it has ever been due to economic, governmental and societal changes, but those same changes also make it more difficult to achieve. A global economy has led to more competitors posing a broader range of competitive threats. A strategy to compete in that environment will not be sustainable if a company is unable to consistently and reliably execute that strategy. Additionally, governmental and societal demands for compliance with legal, safety and environmental requirements are increasing. Any incident or pattern of performance that injures employees or damages the environment will be met with stiffer penalties from governments and stronger reactions from consumers. The news of any incident travels quickly and is covered more intently through social media and the 24 hour news cycle. Consider the recent Asiana Airlines plane crash in San Francisco - the first photo of the incident was posted to Twitter just 30 seconds after the crash.

Increasing complexity in all aspects of business is the primary reason achieving Operational Excellence is more challenging. Increasing competition, fragmenting

customer demand, lengthening supply chains, increasing government regulation and expanding markets have all combined to dramatically increase the complexity of operating a business in the past decades. This increased complexity – more products, more processes and larger organizations to manage and understand the interactions between them - has made execution more difficult. Poor execution results in processes that are out of control and ultimately impacts business performance.

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Traditional approaches fail to account for growing complexity

Despite not always recognizing complexity as the root of poor performance in our modern business environment, business leaders and consultants the world over are developing and implementing tools and processes in the hopes of improving execution and overall performance. However, traditional tools like Lean, 6-Sigma, Total Quality Management, Toyota Production System, etc were all developed and came to prominence in an era with less complexity, and therefore, are ill-equipped to address it. In fact, we have found that these tools often result in more complexity and yield minimal or negligible results, as seen in the aforementioned survey results. Specifically, we have identified four reasons traditional Operational Excellence initiatives are ineffective in today's complex environment:

- Traditional approaches create organizational complexity by **failing to define Operational Excellence** in a simple, clear and actionable way that allows the organization to unite around a common objective
- Traditional approaches take a **bottom up approach** at developing the plan for achieving Operational Excellence, rather than a top down approach that cuts through the organizational and process complexity
- Traditional approaches take a **narrow view** by focusing solely on improving processes, rather than the interactions between processes, products and the organization, which is where complexity lives
- Traditional approaches attempt to **“improve” processes and organizations first**, and then establish control - control over key processes is the foundation, not the result

The Vicious Complexity Cycle illustrates how tools like Lean and Six Sigma can drive increased complexity and poorer performance. Initial increased complexity from additional products or processes leads to poor execution which causes a loss of control. That loss of control ultimately leads to declining business performance. The reaction of most managers to declining performance is to throw more resources, in the form of more people and new processes like Lean and Six Sigma, at the perceived problem. Of course, this leads to more complexity and perpetuates the cycle.



Even though traditional approaches were able to yield dramatic results in the less complex world of yesterday, the traditional tools and approaches to improving business performance are unable to drive that same level of impact today. That is because they do not focus on addressing the true root cause of poor performance – complexity. Without attacking the root cause, the Vicious Complexity Cycle is perpetuated and the anticipated benefits of Lean, 6 Sigma, Total Quality Management, Toyota Production System, etc will never be realized.

A better definition of Operational Excellence

The first step in achieving Operational Excellence is properly defining it in a clear, concise manner that provides measurable objectives – you cannot manage what is not measured. Our definition of Operational Excellence, despite being somewhat of a departure from the definition used by other organizations, does just that:

Operational Excellence is the **execution of the business strategy more consistently and reliably** than the competition.

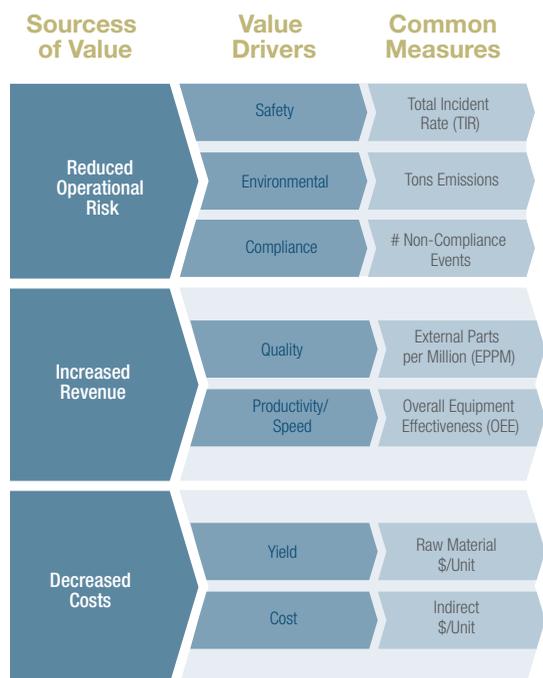
Operational Excellence is evidenced by results. Given two companies with the same strategy, the Operationally Excellent company will have **lower operational risk, lower operating costs and increased revenues** relative to its competitors, which creates value for customers and shareholders.

“Consistently and reliably” means that your company implements and executes its strategy as intended on an ongoing basis. It is not one great quarter or implementing the latest management fad. It is sustained, disciplined delivery that leads to continued excellence.

Besides specifying measurable attributes of Operational Excellence, our definition reveals two other important characteristics. First, excellence is relative and can shift over time. What looks like excellence today, may not be tomorrow. Best-in-class competitors, technology, and management paradigms all evolve. Second, true Operational Excellence manifests itself through integrated performance across risk, revenue and cost. Success in just one or two of these areas is insufficient. The path to Operational

Excellence is not balancing perceived trade-offs between the three, it is a disciplined approach that leads to gains across all three.

The sources of value – risk, revenue and cost – included in our Operational Excellence definition are broken out further into 7 Value Drivers. These categories are more specific and easier to directly measure to establish how well your company is performing against the competition and its progress towards achieving Operational Excellence. The value drivers of risk are: safety, environment and compliance. The value drivers of revenue are: quality and productivity/speed. And the value drivers of cost are: yield and costs.



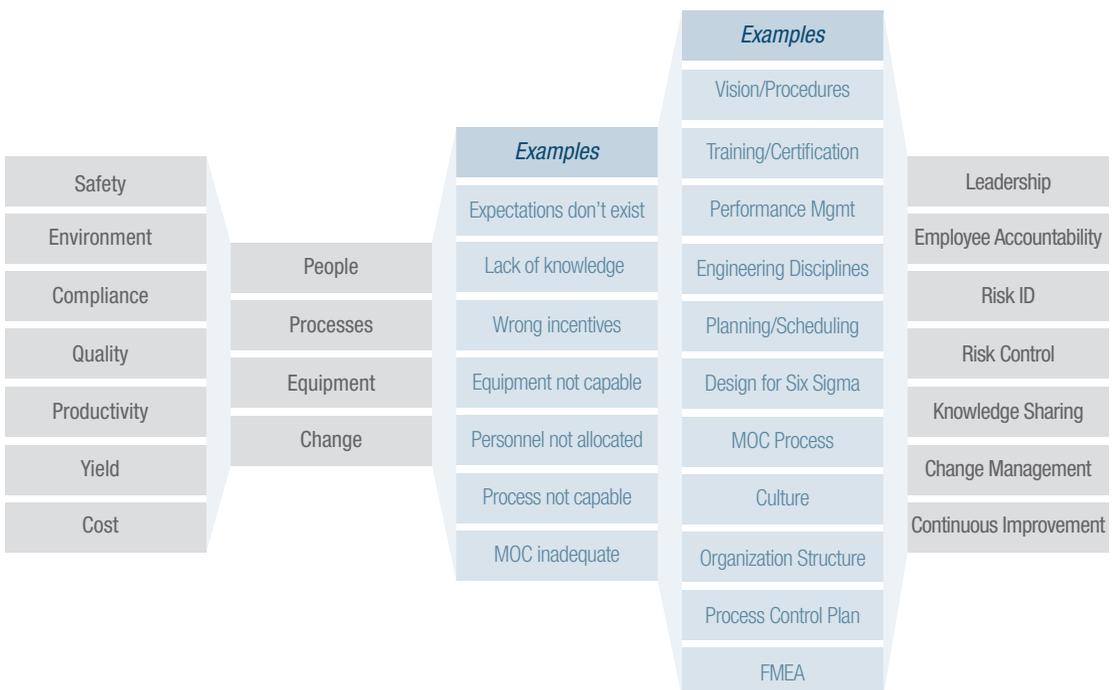
It is important to recall that demonstrating Operational Excellence through the superior performance across the 7 Value Drivers is the result of both a sound business strategy and being operationally excellent. A great strategy poorly executed will not result in Operational

Excellence. Likewise, strong execution of a weak strategy will also not result in Operational Excellence. A company's performance across the 7 Value Drivers is indicative of the soundness of its strategy and its ability to execute. A company that is a top performer across all value drivers is demonstrating both a sound strategy and Operational Excellence. A company that performs well in some, but not all, value drivers shows it may be executing well, but need to improve its strategy. And a company that performs

poorly across all value drivers is demonstrating it is unable to execute. Looking at your firm's performance through this lens is powerful because it allows for a rapid diagnosis of the high level issues facing your company – strategy v. execution – and quickly aligns the organization. Furthermore, by benchmarking performance in the 7 Value Drivers and comparing them to your current performance, the value proposition for achieving Operational Excellence can be quickly determined.

The 7 Element Operational Excellence Management System

The Operational Excellence Management System (OEMS) provides a simple, systematic process to achieve Operational Excellence



Operational Excellence Management Systems in the Oil & Gas Industry

Application of a single Management System to drive excellence in all aspects of operations is not a new concept. Several companies within the Oil & Gas industry have been working with similar systems since the early 1990's. Chevron and ExxonMobil have well developed Operational Excellence Management Systems, and a strong culture of Operational Discipline that supports them. This approach has led to significantly better operational performance relative to their peers. They not only have better operating margins (see right), but they outperform their peers across other operating metrics including safety, environmental emissions, equipment reliability and efficiency. High risk

manufacturing processes, a highly regulated industry and increasingly complex technologies have been catalysts for innovation in operating management systems within the Oil & Gas industry. As complexity continues to increase in other industries, leveraging lessons learned from Operationally Excellent companies like Chevron and ExxonMobil allows other companies to improve their operational performance faster than their competitors.

2012 Operating Margins		
Chevron	ExxonMobil	Avg of next 3 largest producers
19.5%	13.7%	9.1%

This isn't ISO or OHSAS

When many people hear the term "Management System," they think of standards such as ISO 9001. However, the concept of an Operational Excellence Management System is fundamentally different than the family of management systems prescribed by ISO and other standard setting organizations. Those Management Systems are designed to manage a variety of operational outcomes. For instance ISO 9000 manages quality, ISO 14000 manages environmental performance and OHSAS 18000 manages safety performance. In contrast, an Operational Excellence Management System provides a single management system to control

the sources of risk and achieve excellence across all measures of operational performance. This is powerful in that it allows companies to eliminate redundant management systems and the overhead that supports them. For instance, rather than having separate risk identification processes for safety, environmental, quality, etc, the OEMS provides a single risk identification process that is applied to all sources of risk. Not only does this allow for reductions in fixed costs, it strips out complexity and accelerates companies' journeys to Operational Excellence.

Four Sources of Risk

Understanding, managing and mitigating risk are the keys to achieving Operational Excellence, and our 7 Element Operational Excellence Management System (OEMS) sets out to do just that. Starting with the 7 Value Drivers discussed earlier (safety, environment, compliance, quality, productivity, yield and cost), a crucial first step is to realize that there are only four sources of risk for failure to execute against those value drivers: people, processes, equipment and change.

The operations of a company transform inputs (raw materials, components, data, etc) in to finished goods. The company's customers place certain requirements on those finished goods – they need to meet quality requirements, delivery timing and cost levels. In addition to customers, governments and other outside agencies may have safety, legal and environmental requirements of the final products and the operations involved in manufacturing them.

In order to transform inputs in to finished goods, a company's operations act on the inputs via some combination of people, processes and equipment. Failure by any of those may result in finished goods that do not meet the requirements of the customer or government/external groups. The only other way that those requirements may not be met is if there is an external change, either to the inputs to the operation or the requirements themselves. Note that change as a source of failure refers to external changes that make the current operation incapable of meeting requirements. The external changes (e.g., costs are too high, quality is insufficient, new laws put current operations in violation) drive

internal changes to people, processes and equipment to ensure they can meet the new external requirements.

The root cause of any operational failure can be traced back to failure(s) of people, process, equipment or unmanaged change – therefore those are the four sources of operational risk that an Operational Excellence Management System must control to drive Operational Excellence. The implications of this are subtle, yet very powerful. When seeking to understand sources of risk/failure, it is more direct, takes less time and is more useful to start with the few: people, process, equipment & change. Starting with an exhaustive list of how your operation can fail is not only time-consuming, but it can also distract from understanding your core risks.

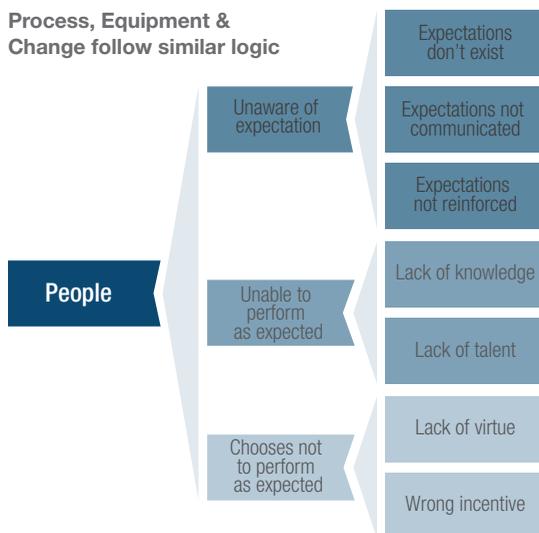
Finite Causes of Failure

Just as there are a limited number of sources of risk, there are a limited number of Causes of Failure from those sources. Those causes tend to be the same across businesses and operations.

Take people for example. When a person or group fails to perform as expected, what caused that to happen? In practice, we see three fundamental causes. First, a person may have been unaware of what he was expected to do. Second, he may have been unable to perform as expected, or third, he may have chosen not to perform as expected. Those are the common causes and for each cause we can continue to drill deeper but will relatively quickly align on a limited number of primary causes. For example, if an employee is unaware of his expectations, it's possible his leaders never

established those expectations, those expectations were never communicated or those expectations were never enforced. A similar exercise can be done with equipment, processes and change. While the descriptions may vary from organization to organization, the same fundamental reasons will continue to emerge. And it does not matter the industry or function being analyzed, the causes of failure will be the same.

People: Common Causes of Failure



Key Controls

Once the Causes of Failure are identified and understood, Key Controls can be developed to either prevent the failures from occurring or lessen the impact if they do occur. Key Controls are processes companies put in place to prevent the occurrence of the common Causes of Failure. For instance, companies utilize maintenance and operating procedures to ensure expectations exist. Audits and assessments are used to enforce expectations. Training and

certification programs ensure employees have sufficient knowledge. Whether it is a communications plan, standard work, culture or any other control, the purpose of each is to prevent a failure that will ultimately impact the company's performance. It is important to remember that one Key Control may help address several Causes of Failure, or one Cause of Failure may require the support of multiple Key Controls.

The 7 Elements

The number of Key Controls can be overwhelming, especially when trying to communicate at a high-level or across an organization. For this reason, it is helpful to group Key Controls in to 7 Elements and an Operational Excellence Management System. First of all, remembering and managing 7 Elements is much easier and more useful than doing so with hundreds of key controls. Secondly, the 7 Elements create a common language that facilitates communication and learning between employees, between leadership and employees, between leaders and from site to site. Finally, the 7 Elements encourage systems thinking and drives proactive risk management while forcing problems to be addressed in relation to one another and not in isolation.

When implementing the 7 Elements there is a natural order that should be followed. This order is a powerful attribute of the 7 Element OEMS that should not be overlooked – following that order of implementation avoids unnecessary work trying to improve Elements when those improvements would not be impactful and dramatically reduces the time and resources needed for upfront analysis.



7 Element OEMS addresses the failings of traditional approaches

Circling back to how traditional approaches fail in achieving Operational Excellence we can see how the 7 Element OEMS specifically addresses those failings and is a much more robust foundation for achieving Operational Excellence.

Traditional approaches typically have inadequate definitions of their objectives; we have defined Operational Excellence such that it is measurable, actionable and driven by comparative performance against the competition.

The 7 Elements cut across functional silos and drive cooperation across an organization. Issues are not viewed in isolation. Root causes driving symptoms in multiple areas can be addressed at the source. In that way

the 7 Element OEMS shatters the narrow view which seeks to improve individual processes in isolation.

Understanding the relationship between strategy, execution and performance across the 7 Value Drivers allows for a quick, high-level determination of what is driving poor performance – strategy or execution.

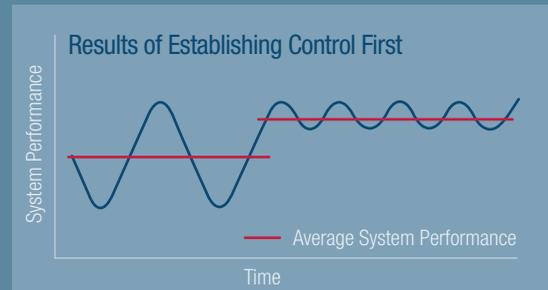
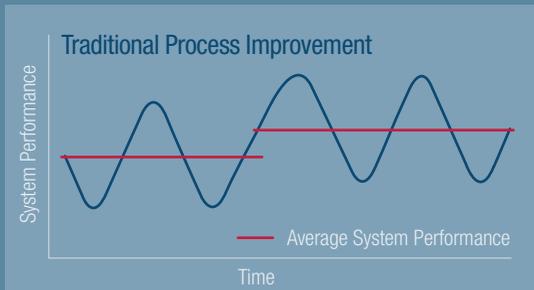
Through the ordered implementation of the 7 Elements, the top down approach is further reinforced by focusing only on those areas where meaningful impact can be made. This dramatically reduces the resources required to achieve implementation, and also increases the rate at which meaningful improvement in performance is realized.

Finally, the 7 Element OEMS is focused on managing risk and gaining control. With an effective OEMS in place and processes under control, the work of implementing improvement measures can be undertaken.

Conclusion

As organizations continue to cope with increasing complexity, they have to find new ways to manage their operations and drive Operational Excellence. The approaches of the last 50 years no longer yield the results that customers, shareholders and society expect. The trend towards a single Operational Excellence Management System, as seen in high risk industries such as Oil & Gas, will continue over the coming years.

Applying the Operational Excellence Management System at the manufacturing plant level



The 7 Element OEMS provides a platform for the rapid turnaround of poor performing plants. For example, a leading manufacturer of building products had a plant that was performing well below expectations and industry averages. Productivity declined by 15% over the past year, and the plant recently experienced a number of serious safety incidents. Customer complaints and scrap rates were well above acceptable levels. First, the Operational Excellence equation was utilized to diagnose the problem. Poor performance across only a few operational measures typically indicates a strategy problem. In this case, because performance was poor across a majority of operational performance measures, it was determined that poor execution was the problem. The 7 Element OEMS was used to develop the plan for attacking the execution problem. Applying the natural order implied by the OEMS, analysis began with Element 1: Leadership. The plant completed a lot of work over the past year related

to this Element, and it was found to be relatively healthy. The assessment continued with Element 2: Employee Accountability which was also found to be in good shape. However, when Element 3: Risk Identification was assessed, significant opportunities for improvement were identified. Risk identification processes were quickly designed, and cross functional teams applied the risk identification processes across all manufacturing processes and equipment. Element 4: Risk Control was then applied to implement specific controls (e.g., operating procedures, visual management, engineering controls, etc) to manage the identified risks. Element 5: Knowledge Sharing was then applied to communicate the new controls to employees. Within 6 months, productivity improved by more than 25%, scrap rates by 15% and the plant had gone more than 100 days without a recordable incident. This rapid transformation would not have been possible without the top down approach enabled by the 7 Element OEMS.

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Wilson Perumal & Company is a premier management consulting firm and the leading advisor on how to manage and capitalize upon the complexity of today's world. To learn more, visit www.wilsonperumal.com.

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