The term Operational Excellence describes the ideal state of an operating enterprise. It has great cachet at the highest executive levels and is being incorporated into the working culture by organizations committed to being the very best in all business, mission, and operating activities. Whether yours is among the great performing enterprises dedicated to remaining great, a good performer aspiring to become great, or one of the large number who know improvements are essential for continuing success, Operational Excellence and an effective Operational Excellence program are musts. This chapter and the following ones will define Operational Excellence concepts, principles, values, and requirements. Why Operational Excellence is a business and operating imperative, how the program and supporting elements must be mastered, and how Operational Excellence is implemented to achieve greatest results are all described in detail.

DEFINITION OF OPERATIONAL EXCELLENCE

Operational Excellence is an ideal descriptive term; in two words it clearly defines applicability and objective:

Operational refers to an operating enterprise, one that uses some physical means to produce and/or deliver a product and comply with a mission. Thus, Operational Excellence applies to a broad spectrum of industries and operating entities:
process, production, power generation and distribution, continuous and discrete manufacturing, mining, food and beverage, life sciences, pharma, transportation, including pipeline, rail, and marine, and many more. Operational Excellence is especially well suited for industries/missions where process flow is fixed and predictability, minimal variation, and reliability are key to effectiveness. In addition to industrial organizations, the process and programmatic implementation described in this book are equally applicable to service industries: municipalities (e.g., fresh and waste water treatment), the military, and other types of operating enterprises where mission effectiveness rather than profit may be the governing factor. Principles expressed to achieve mission and organizational effectiveness apply equally to hospitality (hotel), hospital, financial, insurance, and similar firms that may manage physical and/or financial assets to maximize return.

*Excellence* is a broad objective that must be achieved and sustained to remain successful.

**Definitions from Leading Global Enterprises**

Chevron, a leading global enterprise defines Operational Excellence this way:

> “Operational Excellence is the systematic management of safety, health, environment, reliability, and efficiency to achieve world class performance.”

Chevron Operational Excellence Management System

DuPont, another global leader states the following:

> “Operational Excellence (OE)” is an integrated management system that drives business productivity by applying proven practices and procedures in three “foundation blocks:”

*Asset Productivity*
*Capital Effectiveness*
*Operations Risk Management*

*DuPont: Delivering Operational Excellence to the Global Market, 2005*

Under the heading of Operational Excellence, ExxonMobil stated their commitment in the 2008 annual report to shareholders:

> “Ensuring the safety and reliability of our operations is fundamental to our business success and a critical challenge that ExxonMobil takes on every day.”

*ExxonMobil 2008 Annual Report*

The commitment to Operational Excellence continued in ExxonMobil’s 2011 Annual Report:

> “… we seek to maximize value and improve efficiency.”

*ExxonMobil 2011 Annual Report*

*Emphasis the author*
Operational Excellence was featured in ExxonMobil’s 2012 Annual Report as one of five competitive advantages. Four full pages were devoted to Operational Excellence describing ExxonMobil’s commitment to Operational Excellence culture, systems, and results in 10 specific areas:

- Management leadership, commitment, and accountability
- Risk assessment and management
- Facilities design and construction
- Information/documentation
- Personnel and training
- Operations and maintenance
- Management of change
- Third-party services
- Incident investigation and analysis
- Community awareness and preparedness.

Under the heading “Delivering Profitable Growth” ExxonMobil’s 2013 Annual Report repeats their commitment to Operational Excellence in the 10 areas listed previously. In four pages (two of text), ExxonMobil expresses pride in their “culture of excellence” and states “…a steadfast commitment to improve the reliability and efficiency of our assets continuously, which leads to improved profitability.” Furthermore: “…our commitment to operational excellence … provides a solid framework to achieve safe and reliable operations.”

With leading global enterprises advocating a continuing commitment to Operational Excellence, there can be no doubt of its great importance to operating and financial success.

A Simpler Definition for Operational Excellence

*Safely* create greatest sustainable value

In this definition, *safely* goes without question and includes health and environmentally sound operation (SHE/EHS). Value must be defined for the specific enterprise. For some, it is profitability and shareholder value, for others, such as a municipality or public transport system, it could be cost-effective customer satisfaction.

This simple definition is all important. All subsequent processes, tasks, and activities within Operational Excellence detailed in this book will flow from and be prioritized by contribution to “*Safely creating sustainable value.*”

Operational Excellence requires committed leadership, a positive working culture, and collective and individual ownership for excellence and success. All are necessary
for real achievement in any endeavor to improve, gain, and continuously sustain greatness. From visionary, engaged executives, success-oriented leadership, and management to ownership, commitment, and responsibility at the working level, Operational Excellence embraces everyone in the enterprise.

Ambitious, clearly stated organizational objectives, importance, necessity and benefits, as well as organizational and individual responsibilities, must be clearly enumerated and totally understood by all.

Operational Excellence requires robust, reliable control, management and administrative systems, fully coordinated efforts, and ownership at all levels in the organization. This must be reinforced with complete and accurate practices and procedures, continuing learning and a total commitment to continuous, sustainable improvement.

Operational Excellence broadens horizons, consolidates, builds on, and enhances most existing programs while providing linkages and a laser focus on risk reduction and safely increasing business value/mission compliance. It requires thinking well beyond increasing efficiency to improving effectiveness and achieving results that contribute real value to the enterprise.

OPERATIONAL EXCELLENCE IMPROVES EFFICIENCY

For decades, the primary objective of an operating enterprise has been to improve efficiency. Operating efficiency, the ability to deliver a product or service with minimum waste, operating, and energy costs, has been considered essential since Henry Ford’s first assembly line. Improvements in efficiency, the optimum combination of variables within an operating/manufacturing/service process, have historically translated directly into corresponding improvements in business/mission effectiveness, quality, delivery, and profitability. Total Quality Management, Lean Six Sigma, and the huge resources expended to optimize production control automation, increase efficiency, and provide more detailed business and financial reporting. All are well-known examples that testify to the importance of this area at the highest levels of executive management. Today, functional improvements in manufacturing, back office, supply chain, etc. are no longer sufficient. Real success requires totally coordinated enterprise-wide improvements in effectiveness.

EFFICIENCY AND EFFECTIVENESS

At this point, the all-important distinction between efficiency and effectiveness must be defined, Figure 1.1:

Efficiency: performing a given task well
Effectiveness: performing the correct task efficiently
Efficiency is task oriented; it does not question whether the task was appropriate or even necessary. Effectiveness is results oriented; it addresses both the capacity of the task to achieve desired results and how well it was performed. Operational Excellence is focused on results, safe contribution to value—effectiveness.

By going beyond efficiency to concentrate on effectiveness, Operational Excellence elevates performance from simply performing activities safely and well, to safely performing the right activities exceptionally well at the right time. This is central to creating strategic advantage and the driver for continuous improvement. High performance organizations apply operational excellence to:

- Create a strategic, enterprise-wide imperative that coordinates and fully integrates business, technology, process, and practice for maximum effectiveness, leverage, and economy of scale to gain business/mission success.
- Direct the working culture of the entire enterprise to excellence and continuous improvement.
- Involve and align all relevant functions, processes, activities, and interactions to mutual support and success, including those that are external to the enterprise: interactions with customers, suppliers, and the surrounding population.
- Provide a driving force and catalyst for sustaining gains.

A FAMILIAR PROGRAM

Operational Excellence must include and touch everyone in an enterprise. Operational Excellence typically begins with one or more committed executives conveying...
ambitious and clearly stated organizational objectives together with importance, necessity, and benefits as well as organizational and individual responsibilities. All must be totally understood and accepted throughout the enterprise. Operational Excellence includes robust, reliable control, management and administrative systems, complete, accurate and fully coordinated practices and procedures, constant learning from activities, ongoing training, and a commitment to continuous improvement and sustainable success.

There is a clear parallel, totally understood by everyone in any operating enterprise—safety. Safety is not simply a program. It demands total organizational and individual commitment and intolerance for deviations. Safety requires thoroughly defined practices and procedures complemented with continuing training and reinforcement to establish the essential working culture and assure that everyone clearly understands their role and responsibilities. Since no system is ever perfect, a safety program includes constant reminders, learning from activities and mistakes, follow-up, and continuous improvement.

In a safety-conscious facility, everyone understands his/her role, in both individual and collective responsibility. It isn’t unusual for an administrative assistant to tactfully suggest to an embarrassed senior manager that he/she should hold on to handrails while walking stairs. To further illustrate how the safety culture permeates activities, it also isn’t unusual to hear safety messages in an industrial facility addressing automobile and home safety. The same must be true for Operational Excellence; it is not a project with a beginning and an end; it is the way for the working life and culture that provides the same positive influence to off work activities as well. Operational Excellence is based on continuously increasing effectiveness: activities that safely and effectively create greatest sustainable value.

At the end of a review meeting, the plant manager stated: “We must attain a cultural and organizational commitment to operating and asset performance equal to the commitment to excellence we have achieved in the Safety, Health, and Environmental areas.”

DESCRIPTION

As will be explained in greater detail in the next chapter, Operational Excellence is generally directed to performance efficiency/effectiveness/profitability depending on specific business/mission requirements. Operational Excellence is the master improvement program that provides a single charter to assure that improvement efforts build up on one another, are optimally coordinated, and develop maximum results. This is particularly important when functional improvement processes overlap.

Operational Excellence is based on and demands a working culture of honesty, integrity, commitment, initiative, ownership and responsibility throughout the enterprise. It is directed to optimizing processes and technology, people, and behaviors. Operational Excellence is largely continuous and evolutionary improvement although it may include step change when there are immediate, large opportunities for improvement.
For many operating enterprises, the long-term future, including future regulatory requirements, competitive, and market environments can’t be predicted with any degree of certainty much beyond 3–5 years. Thus, Operational Excellence is constructed around intermediate objectives, waypoints that can be established with certainty along with essential performance objectives. As time moves forward, and future requirements become clearer, objectives and plans are adjusted, refined, and extended along with the performance objectives, tasks, and activities necessary to continue success.

Many enterprises capable of gaining from Operational Excellence are commodity and service businesses where success is gained by quality, response, process, and human effectiveness. In this area, lower cost producers will be assured of continuing prosperity during a downturn.

Growth in top line revenue and market share are sometimes associated with Operational Excellence. While optimizing flow can increase capacity and the opportunity for top line revenue, this is often a strategic executive issue that is outside the control of the operational level for the following reasons:

- Operational span of control does not extend to market demand, pricing, features, salability, sales, and marketing (ability to locate and close customers), although these factors must be considered and accommodated in forecast operating plans.
- Revenue likewise depends on a number of factors outside the control of operations, such as global economic and market conditions, competitive climate, etc.

Product development is not typically included within Operational Excellence, although many of the principles are applicable. Product development relies on creative identification of future market needs, intense market knowledge, ability to anticipate trends in technology, and often the necessity to create demand for an entirely new concept.

**THE JOURNEY**

Operational Excellence isn’t a project with a beginning and an end. It is a continuing journey of improvement that positions an enterprise to progress constantly forward to excellence and prosperity in the areas most critical for gaining and sustaining business/mission success.

Operational Excellence requires time and a major commitment by all in the enterprise. Foremost is a work culture concentrated on safety, value, excellence, integrity, and continuous improvement. Successful implementation of Operational Excellence as a strategic business/mission essential will generate significant advantages and better financial results compared to enterprises that fail to see relevance or necessity.

Every enterprise embarking on Operational Excellence will have a different starting point, different set of conditions, and different objectives, strategies, and
opportunities for improvement. At a high level, it is most important to define business/mission objectives and the scope of the journey itself, which may be at the enterprise, plant/facility, area/unit, or even system/component level. With objectives and scope determined, instilling a continuous improvement culture, empowering people with decision rights, and providing all information necessary are the initial steps in the process. Ensuring alignment of business/mission and program strategies across objectives, actions, and metrics are all important factors to achieve a successful journey.

Roadmap to Operational Excellence

One of the first questions to be asked in constructing the roadmap for Operational Excellence is what is important to the business/mission. This should be spelled out in the business/mission strategy and objectives. It forms the basis for all that will follow while developing the Operational Excellence program. Locally, it is imperative to determine what is important to customers and the surrounding community if not defined in the enterprise business/mission strategy.

As stated, Operational Excellence is directed to seeking safe sustainable value. It includes improving reliability, reducing risk, and variation. What are the key processes that create value for the enterprise; what improvements can be made? How should increased value be measured, and what are the metrics that will be understood by all and promote enthusiasm and ownership for success? How will results and contribution to business/mission success be monitored, validated, and reported?

All these and more will be discussed in the following chapters.

RELIABILITY

Reliability is a term commonly mentioned in the context of Operational Excellence. To many in an operating environment, reliability will be thought of in terms of process and production systems and equipment reliability, even in one’s automobile and home appliances. Within Operational Excellence, reliability has a much broader meaning. Reliability is applied to:

- Performance—safely meeting requirements, predictable, minimum variation from best performance (the latter is especially important for establishing objectives and identifying opportunities as will be explained in detail).
- Organization—roles and responsibilities completely defined and understood, consistent decision process.
- Working culture—commitment to and ownership for excellence, highest quality performance, continuous improvement, empowered employees who accept responsibility and accountability for activities.
- Processes, practices, and procedures—completely defined and accurately documented, totally repeatable, high quality, consistent results; method for maintaining currency, implementing, and documenting improvements.
- Systems and equipment—fully capable of meeting all operational requirements safely and cost effectively.
CHANGES IN THE BUSINESS/MISSION ENVIRONMENT

- Skills—requirements and qualifications totally defined, up-to-date, effective training, and follow-up to assure proficiency.
- Data, information, documentation—accurate, secure, up-to-date, and accessible

All these and more will be discussed in detail as vital elements of Operational Excellence.

RISK

Risk is yet another key element of Operational Excellence. It is fully used in the value equation that directs improvement initiatives. What are the probability and consequences of an event that may not have happened that will initiate and justify actions and investment for early detection, avoidance, reduction, and mitigation? Probability has another application within Operational Excellence: assurance that a given activity or task will achieve expected results. Risk, applied within Operational Excellence, will be explored in detail in Chapter 12.

CHANGES IN THE BUSINESS/MISSION ENVIRONMENT

Safely maximizing business and mission value delivered is the sole objective of Operational Excellence. With globalization, and the worldwide integration of many industries, an entirely new way of looking at the connection between operations and business excellence is required. Up until just a few years ago, the business variables associated with most industrial operations had been highly stable and very predictable over extended periods. Costs of energy and raw materials didn’t change for months at a time. Two decades ago, electric power was highly regulated. It was not unusual for industrial operating companies to develop contracts with electricity suppliers for periods of 6 months or even 1 year. Electricity was a fixed cost over the contract period. With relative price stability, reductions in electricity consumption directly translated into predictably lower energy costs. Alternate sources and methods, for example, waste steam, compared to electrically powered equipment within a process facility could be financially evaluated with certainty. Other key business operating variables such as material and other utility costs and product market price were similarly stable over a reasonable planning period.

In the current operating environment, stability has been replaced by uncertainty. Electric power costs can change by the minute. Raw material prices fluctuate in response to global demand and political conditions. Government regulations add cost and create uncertainty. Practices that may have been totally acceptable in the past may be ruled impermissible, thereby incurring large costs for compliance over a relatively short period.

Globalization creates huge disparities that must be overcome. How does an enterprise produce a competitive, sustainable, and attractive business value within an industry where global labor costs might vary by an order of magnitude for
equivalent quality? Furthermore, production capacity can emerge quickly anywhere in the world with a lower cost structure and the ability to deliver products meeting all commercial specifications. Whether we like it or not, we are now in a real-time business environment. It may be necessary to instantaneously alter operating decisions made in the past under one set of conditions that are suddenly invalidated by changes over which the enterprise has little or no control. The concept of keeping an operating enterprise “evergreen” now requires continuous review, reassessment, and improvement; all addressed by Operational Excellence.

CONVENTIONAL OPERATIONS MANAGEMENT

Most operating enterprises are organized by function: sales, marketing, operations, maintenance, engineering, finance, information technology (IT), human resources (HR), etc. that are managed independently through the senior executive level. Functions are typically islands of competency ruled by jealous kings, populated by antagonistic armies, and separated by shark-filled seas. Typically, there is little structural or organizational encouragement for groups to work across functional lines. In many process and manufacturing enterprises, operations doesn’t like maintenance, neither like finance or IT, and the feelings are reciprocated! At the operating level of a production enterprise, conflicts between operations and maintenance are common and diminish overall effectiveness. An ever-increasing operating tempo and cost of downtime can cause even greater friction.

Complicating matters, production operations are typically viewed as the profit-making portion of a manufacturing enterprise, with performance objectives primarily based on throughput. Within the same enterprise, maintenance is commonly viewed as a service, a cost measured by availability and compliance to budget. The profit center, cost center disconnect may appear small but is actually huge in terms of the working culture where throughput, asset availability, and maintenance cost are often inverse functions. Increasing throughput, running a facility, process, or system harder to produce more output generally increases maintenance costs and may decrease asset availability.

As a further complication, differing requirements between business and operations management have resulted in separate business and plant level management systems. Business management systems are typically backward looking transactional accounting systems. They are managed by finance and IT departments to meet requirements for financial management and reporting. Systems report results of events and decisions made months, often even years in the past.

Operations management focuses on real-time process control, production output, and efficiency. Operations management and support systems are designed and operated from an engineering-based operational perspective. There is very little business, mission, and profitability context. Thus, information of prime importance to one function may not be as important in the view of another. Into this often disconnected structure add additional islands of information designed for a specific purpose within a single function. These disconnects can be a significant weakness, especially as
industrial businesses are transitioning to more real-time dynamics. More about this is in Chapter 6.

Within manufacturing enterprises, the path to greater efficiency has typically occurred in two separate paths:

- Process and control automation has advanced rapidly reaching today’s level of sophistication to maximize efficiency in approximately 25 years.
- Huge investments have been made in business systems, primarily to integrate and automate the financial management and accounting processes. This is the transactional reporting system mentioned earlier.

While many recognize the necessity, an equivalent organizational commitment to improving the performance, efficiency, and reliability of the physical systems, and assets (structures, vessels, heat exchangers, piping, conveyors, machine tools, fixed and rotating equipment, etc.) on which production and production effectiveness are absolutely dependent has proceeded at a much slower pace. Advances in management of physical assets has lagged and been largely disconnected from those in the process control and financial areas.

**MAINTENANCE WITHIN AN OPERATING ENTERPRISE**

Within a typical production/operations mindset, the basic idea of maintenance has remained unchanged since the industrial revolution. The physical plant is expected to perform; maintenance occurs when it doesn’t. Maintenance has been considered a service and a cost to be controlled rather than the integral part of enterprise profitability/mission compliance it should occupy. Availability is treated as an average rather than a potentially sudden, unexpected event that can, and often does, impact production delivery in the worst possible way.

Only the most enlightened enterprises consider maintenance as an essential component of the core business value producing process, a fully empowered, equal partner of production operations. A growing realization of importance has resulted in the release of ISO55000, Asset Management that will gain maintenance an equivalency to ISO9000, 9001 Quality Management. Operational Excellence solidifies the relationship and moves the enterprise working culture to a most effective partnership.

**MANAGING IMPROVEMENT INITIATIVES**

For the most part, improvement initiatives within an operating enterprise have been function specific and managed as independent programs rather than an overall coordinated process. For example, many industrial companies initiated specific programs within a function for energy management, production throughput, quality, work and material management, and personnel efficiency. Safety and environmental improvement programs were the exception that crossed functional lines.
Each functional program was typically headed by a separate executive, such as an Energy Czar, with independent teams working on each initiative. This programmatic approach is based on an underlying assumption that process and system improvements are reasonably independent and that improvements in one area will not have an appreciable impact on any of the other areas.

This assumption is generally incorrect. Consider an energy management program with the primary objective of reducing energy consumption. The best way to meet this objective would be to turn off the operation. This would obviously meet the objective of the energy management team. Unfortunately, all would lose their jobs, as it would create a negative net business value. Furthermore, turning off the operation makes it a bit more difficult for the team charged with maximizing production throughput to achieve their objective. In this case, and in most others, tradeoffs are required to assure that the overall business/mission system is optimized.

Efforts to improve one or more business or operating parameters often result in an abundance of uncoordinated and disconnected initiatives. Within an operating enterprise, there is generally a very close relationship between throughput/output, quality, energy consumption, material consumption, safety and environmental integrity, and cost. As cited previously, well thought out but uncoordinated improvements in one area can affect another area with unintended consequences that may include a decrease in the overall value produced.

Process operations within a batch manufacturing facility initiated a Six Sigma improvement project to reduce Work In Process (WIP). Without consulting maintenance for an assessment of complications that might occur with increased product changeovers, the decision was made to reduce batch quantities to single orders rather than forecast demand. The resulting increase in changeovers from one batch to the next reduced production availability as well as increased maintenance costs for the cleaning and equipment changes required between batches. Overall result was a net negative.

With an abundance of isolated initiatives and often conflicting objectives, it’s little wonder that functional teams haven’t tended to work well together. Working-level employees within a series of uncoordinated and disconnected initiatives lacking an overall vision or strategy generally conclude that the latest initiative is just one more “program of the month” to be ignored until the fellows in the corner offices lose interest as they always have in the past.

A large corporation launched a series of functional initiatives to standardize and improve performance. A participant in one initiative accidently recognized a similar initiative being pursued in another functional area. The corporate CEO was the only common organizational link between the two initiatives! Efforts to coordinate the initiatives at the working level favored by members of both teams were initially discouraged and then forbidden as “out of scope.” A great potential to assure optimum, coordinated, and fully aligned improvements in two functional areas was lost.
Despite all the talk about organizational collaboration over the past decade, it is discouraging to witness examples such as cited previously. In many cases, management decisions, performance measurement systems, and organizational and individual objectives may actually reduce cooperation and produce suboptimal results when viewed from an overall value perspective.

A worker commented that while expecting/prioritizing the necessity for new behaviors and demanding performance in value- and result-oriented ways, the organization remained static and disconnected with performance driven and evaluated by old activity-based metrics. Management always appeared surprised when a new initiative did not produce any change. “Why should anyone be surprised when success is always evaluated with the same old measures of performance?”

It should be clear that taking a traditional function-based programmatic approach to operating efficiency will seldom result in optimal overall effectiveness. Producing greatest value requires balancing all variables to optimize business, mission, and operational objectives. Coordination and cooperation across organizational boundaries nearly always produce greater results than function-specific initiatives.

It may be acceptable and desirable to increase energy consumption if increased production throughput/mission compliance results in greater overall value gain, including increased energy and maintenance costs, without diminishing safety or environmental performance. Exceptional care and a thorough analysis must precede this conclusion. An accurate business/financial model, described in detail in Chapter 5, is essential to assure that a real increase in value is delivered.

There has to be a better way—and there is.

THE SOLUTION

With its continuing focus on “Safely creating greatest sustainable value,” the concept of Operational Excellence is the bright star in the sky. Operational Excellence is an overall master program addressing all issues with a value improvement objective. Rather than replacing successful practices and programs, Operational Excellence knits them into a larger coordinated and fully integrated tapestry constructed to improve value produced within the enterprise business/mission strategy. Think of Operational Excellence as the roof under which all functional improvement programs live, are coordinated, and thrive, as illustrated in Figure 1.2. The Operational Excellence program is built around the necessity and benefits of working cooperatively across functional barriers. It includes complementary, mutually reinforcing, internal processes, as well as a time horizon and response mechanisms that are short enough to assure continuing success within a changing operating environment.

Difficult to see revolutions when they are happening—occurs only with hindsight!

Dr. Peter G. Martin Vice President; Invensys
Leadership

Will people at the working levels understand and embrace Operational Excellence and recognize its potential to gain the latent effectiveness so many know is available and on which their job security and compensation may depend? A large part of the answer revolves around leadership and communication. Senior executives and operating leaders must be totally committed and convey a vivid picture of why Operational Excellence is essential. Through personal example and reinforcing communications, leaders must make it clear that Operational Excellence is a continuing business/mission imperative, not a passing “fancy of the month.” They must establish clear objectives, lead, and drive the process with visible, active, continuing personal engagement, and provide incentives for success. Leaders must emphasize the necessity to gain results that increase business/mission value along with the supporting activities necessary to sustain success.

High energy, passionate, driven leaders setting a personal example and continually demanding excellence and improvement will energize those whom they lead and influence the work force to achieve results they might not imagine possible.

Operational Excellence provides the process, system, organization, and methodology to address and assure success in all these areas.

Working Level Improvement Action Teams

Operational Excellence depends on results produced by multifunction, working-level action teams directed to develop and implement improvements that safely increase value and reduce risk. One step above, and best led by a production manager, leadership teams identify and value prioritize potential improvements. Leadership teams appoint action teams with the experience and skills necessary to develop, implement,
and monitor results of value improvement initiatives. This process will be described in more detail in Chapter 7.

During a brief meeting to summarize requirements and benefits of Operational Excellence, one of the participants concluded that the idea of production leading Operational Excellence improvement action teams implied that Production would take over Maintenance, an action with which he totally disagreed. He was reassured that Production leading Operational Excellence action teams did not in any way mean that Production was taking over Maintenance. Maintenance remained an independently managed function with responsibilities for contributing to the improvement action team process and implementing improvement actions as appropriate. Joint participation in action teams established and reinforced the essential notion of an operations/maintenance partnership that is essential to gain maximum success.

Combining operations, maintenance, engineering, finance, IT, HR, and others into a team with a common purpose to increase value produced quickly breaks down functional barriers. Team members rapidly identify and accommodate varying perspectives and learn to devise mutually beneficial value improvement initiatives. Of all the elements of Operational Excellence, working cooperatively across functional boundaries to identify and develop improvements is by far the most important.

“Employee led leadership teams do unbelievably good strategic and tactical planning—if you give them the opportunity. Most important, they gain total buy-in for the plan, its implementation and results.”

Retired Fortune 250 company CEO

Operational Excellence Improvement Initiatives

As an enterprise-wide initiative with everyone involved and participating, Operational Excellence has many advantages over function-specific improvement initiatives. Although there are exceptions, history indicates that the latter generally never reach sustaining. Function-specific improvement initiatives are typically implemented to solve a problem or problems; low quality production, too many failures, too much work in process, availability less than required, excessive costs, poor quality work, etc. The initiative succeeds, problems are solved, victory is declared, emphasis is directed elsewhere, and the reason for the initiative fades into the forgotten past.

Next comes a profit challenge, from pricing pressures, reduced sales, change in the competitive environment, more capacity coming on line in the market, etc. First reaction is to cut costs. Looking for potential savings, function-specific programs are scrutinized: “why does this program exist? Haven’t had any failures in memory, everything runs well, quality is great, cancel the program, and either lay off the participants or shift them to work in another ‘more productive’ position.” Eventually, initial conditions return and no one recalls why. The cycle repeats anew.

A long time salesman commented to a plant person appointed to head an improvement program that this was the third time he had sold identical program components
to the facility over about 10 years. Knowing that the efforts were initially successful, he asked: “What happened to the first two efforts?” The individual stated there were no records or institutional memory indicating the program had been implemented in the past.

Operational Excellence involves everyone in the organization. It broadens horizons and builds on, consolidates, and enhances most existing programs while providing linkages and a greater focus on the whole. It requires thinking well beyond increasing efficiency to improving effectiveness, thereby achieving results that contribute real value to organizational objectives in real time. The Operational Excellence program’s structure and internal culture sustain themselves.

**Sustainability**

Gaining results through consistent, sustainable practices is an essential element of Operational Excellence. Some enterprises have focused on performance objectives without assuring that the practices and procedures necessary to attain the improvements are mutually supportive, institutionalized, and sustained. The requirement for sustaining improvements is exceptionally important to the success of Operational Excellence. Without discipline and a commitment to sustainability, it is very tempting to prematurely declare victory and terminate an improvement initiative that has attained most of its objectives. Within Operational Excellence, programs and improvement initiatives continue until all elements that have produced success are sustainably embedded in the working culture to the point it is simply “the way things are done.”

**EFFECTIVENESS AND VALUE THROUGHOUT THE ENTERPRISE**

An operating enterprise requires a multiplicity of activities and tasks to make up the overall business/mission tapestry. At the working level, activities and tasks justify the job. Performance is thus hugely important to the person with direct responsibility. As important as they may be to an individual employee, there is typically little linkage between performance of individual working-level activities and tasks to business/mission effectiveness and value.

The same is true in reverse. Just as the picture in a complex jigsaw puzzle can’t be visualized from a few pieces, a financial executive concerned with cost effectiveness, profitability, and shareholder value who frets constantly over business results can’t connect contribution to corporate value from activity/task performance effectiveness at the working level. Operational Excellence provides the bidirectional awareness, linkages, and sight lines to translate practices, activities, and tasks into business/mission effectiveness and value. It will assure decisions at all levels are complementary and contribute to the overall objective: *safely produce greatest sustainable value*.

Value prioritization is a prime factor that must be uppermost in mind. Which activities and tasks contribute most to value and business success and how? There are
always more opportunities for improvement than time and resources. How are available time and resources used most effectively? What is the sight line between a given task/activity and value to the business/mission? If it isn’t there, can’t be defined, has low value-add or low probability of success the task/activity should be reconsidered, modified to create acceptable value, or perhaps eliminated altogether. And that leads to another question: can business results be controlled in real time? The issue is beginning to be addressed by enterprises where agility to meet changes in their competitive environment can spell the difference between success and failure. This issue is discussed in more detail in Chapter 6.

THE OPERATIONAL EXCELLENCE INITIATIVE

With the necessity established, the next question is where is Operational Excellence on the road to general acceptance? Some well-known enterprises mentioned at the beginning of this chapter are committed to Operational Excellence, with relatively well-defined processes for implementation. On the whole, Operational Excellence is in its early stages with great promise. Solid, universally accepted definitions and an implementable program are yet to be fully defined. The wide range of operating enterprises to which Operational Excellence is applicable makes it more difficult to establish solid definitions and implementing processes. This challenge is discussed in detail in the next chapter.

Many corporate executives have concluded that Operational Excellence is a good idea and are seeking more detail and looking for implementing methodology. Many more at the middle level of organizations have been charged with implementing Operational Excellence without a solid idea of how to translate an executive directive into an implementable program that will attain the results demanded. This book will fill that gap.

Developing and implementing an Operational Excellence strategy across multiple functions within an operating enterprise can be highly complex and extremely daunting. Dividing the program into focused areas under a comprehensive strategy, with clear objectives, robust leadership structure, and a well-defined implementing process has major advantages. It builds from a functional organization that all in the enterprise are familiar and presumably comfortable. It reduces complexity and engages the talents of the enterprise most effectively. Most importantly, it keeps the people affected reasonably within their comfort zone, while opening the opportunity for major improvements and greatly improving the probability of success.

Operational Excellence within an operating organization can be subdivided into three major groups. Figure 1.3 expands and refines Figure 1.2:

- Asset performance excellence: maximize the effectiveness of production assets.
- Support performance excellence: optimal effectiveness within engineering, finance, HR, etc.
Business systems, supply chain, and sales and marketing are included in support performance effectiveness and use the same principles and processes. Safety and human performance excellence apply equally to all. This grouping will be expanded in later chapters.

**Operating Performance Excellence**

Operating performance excellence is directed to optimizing production flow, scheduling, efficiency, and process parameters for most efficient operation and mission compliance. Process parameters include variables such as pressures, temperatures, speeds, tolerances, etc. Total Quality Manufacturing (TQM) and Lean Six Sigma are examples of typical proven practices. These are reinforced with a variety of process automation optimizing algorithms and procedures including Control Performance Excellence to be discussed in Chapter 6.

**Asset Performance Excellence**

Asset performance excellence is defined as follows:

_Safely gain optimum sustainable lifetime value, utilization, productivity, and effectiveness from physical manufacturing, production, and infrastructure assets._

With this broad outline, recall that Operational Excellence is an overall holistic initiative. Therefore, all elements are managed for consistency, coordination, cooperation, mutual reinforcement, and contribution to the value objective. There will be a great deal of cross-function coordination to assure development of optimum
improvement initiative. The Operational Excellence Steering Team, to be introduced in Chapter 9, has primary responsibility for coordinating cross-function activities to assure greatest sustainable value.

The ISO55000 series mentioned earlier specifies the strategy, management system, and controls necessary to create greatest value from operational assets. Because asset management is an integral subset of Operational Excellence, it is imperative for the Operational Excellence strategy, management, and control structure to be fully compliant with ISO55000.

SUCCESS—GREATER THAN THE SUM OF THE PARTS

As illustrated in Figure 1.3, operating and asset performance excellence along with other functional improvement programs all exist under the roof of Operational Excellence and are mutually complementary. Cross-function coordination and cooperation, overseen by the Steering Team, is a large, essential part of gaining optimum results in all areas. Everyone has mutual responsibilities, and all elements mesh together seamlessly toward a common purpose. Within Operational Excellence, Production Operations, Maintenance, Engineering, Information Technology, Human Resources, Finance all work together cooperatively from one menu to assure that the appetizers compliment the main course. Each person concentrating on their responsibilities is totally confident in the knowledge that everyone else is doing their part to make all the elements complementary and highly successful. The following abbreviated list will be detailed in later chapters.

Essentials for Success

- Active, visibly committed leadership at all levels, continuing reinforcement from the executive and senior management level
- Enterprise business/mission objectives and strategy fully defined
- Operational Excellence program detailed by a written charter including clear objectives, organization, plan, milestones, and metrics
- Program strategy and objectives harmonized with business/mission strategy and objectives to assure consistency, efficiency, and maximum contribution
- Organizational structure designed for effectiveness and sustainable success
- Commitment to excellence, continuous improvement throughout
- Engaged, trusting, committed, responsible, ownership working culture in place
- Multifunction teams at the working level concentrating on attaining optimal performance, eliminating deficiencies, and empowered to implement improvements
- Improvements implemented considering value and time to achieve gains
- Quick wins with real benefits to demonstrate Operational Excellence works
- Continuing communications to publicize successes, establish, and build support
• Assure basics are in place: operating and work practices and procedures fully
detailed, followed, and used for training
• Accurate, secure, and user-friendly data and information systems
• Continuous follow-up.

APPLICATION

This book concentrates on value-driven Operational Excellence. Because the applica-
tion and implementation of Operational Excellence to production efficiency and most
of the other functional areas are very specific to the operation and mission, many of
the examples, discussions, and explanations will be based on Operational Excellence
applied within manufacturing/production enterprises broadly defined to include dis-
crete manufacturing, process, and production companies, as will be explained in the
next chapter. Although categories and details may differ, the same basic concepts
hold true for other mission-oriented and service enterprises. The concepts, organi-
zation, human elements, and methodology are identical for all implementations of
Operational Excellence.

WHAT YOU SHOULD TAKE AWAY

Operational Excellence is the single, master, unifying improvement program for the
enterprise. It is the enterprise-wide improvement program for production and busi-
ness system effectiveness and increased value. Production/mission efficiency, asset
management, etc. all fall under Operational Excellence. The Operational Excellence
program is equivalent to safety in terms of procedure, organizational, and individual
commitment. Common objectives, unified management, control and administrative
systems, and coordination and active communications between functional initiatives
assure complementary, mutually reinforcing activities. On the basis of multifunc-
tion improvement action teams, requirements in one functional area that may require
participation by another are immediately identified and resolved. Finally, successes
and lessons learned are communicated throughout the enterprise by the Operational
Excellence program so that everyone benefits.

Advantages and benefits of an opportunity-driven Operational Excellence program
to increase business value safely and sustainably reduce risk, and lost opportunity
includes the following:

• Gains highest safety and environmental performance
• Increases business value and operating effectiveness
• Reduces risk
• Leads to all the processes and improvements necessary to establish and maintain
  mission/industry best performance
• Results in greatest value, operating effectiveness, and reliability
WHAT YOU SHOULD TAKE AWAY

- Gains optimal resource effectiveness
- Builds an effective organization and working culture
- Leads to improved practices and procedures
- Demonstrates results
- *Sustaining.*

Greater detail will be found in Chapter 4.