Over the last decade, many companies have started to work on operational excellence, particularly when the economic downturn forced manufacturing leadership to cut costs drastically. Now on the rebound, the market offers companies many new opportunities. At the same time, growing corporate risk awareness and environmental citizenship concerns are driving businesses to invest in more sustainable production.

In order to select the right strategy to address all these different goals, it is vital for organizations to have a coherent overview of the risk and value opportunities and their chance of success. Yet in their effort to develop an all-encompassing strategic approach, companies often struggle to identify the correct initiatives and fail to make a serious impact on the bottom line.
The DuPont Operational Excellence model is designed to help companies across a wide range of industries and geographies select and apply best practices with respect to four main value drivers:

![Figure 1: Operational excellence drivers](image)

This structured approach is based on more than 200 years of experience operating thousands of different processes in hundreds of manufacturing locations in over eighty countries around the world. However, in order to ensure that your operations strategy has the right focus for your company, you need a good understanding of how business value is created. The value tree below shows how the four value levers above generate business value.

![Figure 2: Value tree for business value: operational excellence](image)
What contributes value to your business?

How much value can a business create? To answer this question we need to investigate more fully what value lever a process contributes. The operational KPIs are linked to the financial KPIs via the DuPont model. In the 1920s, DuPont was one of the first companies to analyze business performance in terms of financial KPI’s and still today, this DuPont model is taught at business schools around the world.

Figure 3: Financial performance indicators
A modern Asian refinery operates near world-class at close to zero unplanned downtime. Benchmark performance has dropped significantly over the last years, causing a two percent gap in current refinery availability compared to the first quarter. This has resulted in hundreds of millions worth of dollars of deferred production.

Despite Six Sigma-based improvement projects the refinery did not succeed in closing the gap. A risk-based asset performance management strategy is required to tackle future reliability risks.

A closer study of the risk profile indicates that significant risks to operations will threaten the current excellent performance in the near or more distant future. A comprehensive operational risk management strategy is required to manage major refinery operations risks.

A large Middle East refinery suffers from reliability issues due to aging assets. Benchmark performance has dropped significantly over the last years, causing a two percent gap in current refinery availability compared to the first quarter. This has resulted in hundreds of millions worth of dollars of deferred production.

A modern Asian refinery operates near world-class at close to zero unplanned downtime. Meanwhile the operation and maintenance costs are as low as first quartile level. On the face of it, it appears that the company is following an excellent operations strategy. However, after 15 years of operation, the first signs of asset aging are appearing and have led to unexpected corrosion incidents. The question arises if the right risk management strategy is in place.

A closer study of the risk profile indicates that significant risks to operations will threaten the current excellent performance in the near or more distant future. A comprehensive operational risk management strategy is required to manage major refinery operations risks.
The road to operational excellence

Once you understand the value drivers for your business, the journey towards achieving operational excellence typically begins with an initial step-change improvement, followed by continuous incremental advances. Instilling a culture of operational excellence results in a significant and sustained competitive advantage. At DuPont, the implementation journey runs through a change-management process, which consists of the following steps:

1. Build the business case for Operational Excellence
2. Understand the impact of key drivers
3. Integrate sustainability in the vision, strategy and objectives
4. Manage risks, reduce cost and build stakeholder’s value
5. Develop competencies and support cultural change

The opportunities for improvement are identified using DuPont’s rapid value assessment method. It takes a fingerprint of a company’s current performance and culture; then quantifies the value and risk opportunities in order to prioritize improvement actions. In the waterfall diagram below, topside value opportunities in various areas of operation are displayed in green. The downside operations and logistics risks, such as process safety incidents or supply interruptions, are displayed as negative value destructors.
To achieve operational excellence, DuPont combines best management processes, globally recognized technologies and technologists, Six Sigma methodology, and a proven culture-change model. At numerous sites around the world DuPont has successfully implemented operational excellence using an integrated four-dimensional model.

The three central pillars in the operational excellence model build technical skills through the implementation of best practice processes and systems; capabilities through a targeted, unified training program; as well as mindsets and behaviors in order to achieve the cultural transformation. The management process links the three pillars to ensure successful delivery of business value.

These four dimensions are inseparable if operational excellence is to be attained successfully. Many examples exist of companies that focus on one or two pillars, but then fail to reach or sustain the desired operational performance level for long. An integrated approach and clear leadership focus is required to achieve a real business transformation and sustainable operational excellence.

Figure 6: Four dimensional operational excellence model
The role of culture in achieving operational excellence

Over decades of experience in manufacturing, we at DuPont have learned that the reduction of operational risk and value generation are closely related through the culture on the work floor. Companies that succeed in creating a proactive risk culture can use its strength to focus on value generation through an operational excellence culture.

According to the Bradley theory, developed by DuPont in the 1990s, the cultural maturity of a company can be categorized in four stages. In the first two stages, the culture is driven top down by leadership. People follow example behavior and comply with rules in the dependent stage. However, what happens when management is not present? In the independent stage, people start realizing that they themselves can benefit. They begin to internalize safe and more efficient behavior. In the interdependent stage people network as an organization and correct each other’s unsafe or value-destroying behavior. Only at this stage is maximum value creation and operational risk reduction accomplished. The key to tackling value creation and reducing operational risk therefore lies in strengthening a company’s culture so that employees become independent and empowered enough to generate maximum value for the business.

The improvement roadmap directs the organization to achieve this long-term change as a foundation for operational excellence. It prioritizes the improvement actions that are required to achieve the desired level of excellence in a realistic timeframe. Implementation of the roadmap requires commitment from senior management, strong (project) leadership and experienced transformation leaders. Getting the balance between the four dimensions of the operational excellence model right is essential to keeping everyone in a company working at the same pace towards the same goal, and to changing the operational culture from top management to plant floor.

This type of operational excellence management system offers companies the benefits of lower costs, increased efficiencies, fewer injuries, maximum sustainable returns on operating assets, and an enhanced competitive position. Achieving operational excellence offers organizations many advantages including:

- Optimal allocation of resources to ensure the highest return on sustainability investments
- Accelerated progress towards sustainability goals
- Reduced corporate sustainability risks
- Increased organizational alignment, clarity, and operational discipline
- Increased national and international recognition, reputation and interest level for investors.

Figure 7: DuPont Bradley and growth curves
CHANGING BUSINESS DRIVERS

2012 Revenue $38bn
Plant sites 239
Employees 38,000+
Countries 45

Figure 8: DuPont Operational Excellence results

Achieving results
DuPont launched its own global operational excellence program in 2006. Transformation of over 200 sites was completed in just five years’ time and has generated unsurpassed business results: US$ 6 bn value generation through capacity release, variable and fixed cost reduction, and US$ 3 bn working capital reduction.

These figures demonstrate that an integrated, cohesive approach to value generation can result in a steady performance even through times of economic uncertainty. Operational excellence is achievable. It just has to be tackled the right way.

ABOUT DUPONT
DuPont Sustainable Solutions (DSS) is one of 10 DuPont businesses. Bringing customers the benefits of an integrated global consulting services and process technology enterprise, DSS applies DuPont’s real-world experience, history of innovation, problem-solving success, and strong brands to help organisations transform their workplaces and work cultures to become safer, more operationally efficient and more environmentally sustainable. For more information, visit our website at: www.sustainablesolutions.dupont.co.uk

DuPont (NYSE: DD) has been bringing world-class science and engineering to the global marketplace in the form of innovative products, materials, and services since 1802. The company believes that by collaborating with customers, governments, NGOs, and thought leaders we can help find solutions to such global challenges as providing enough healthy food for people everywhere, decreasing dependence on fossil fuels, and protecting life and the environment. For more information about DuPont, visit: www.dupont.co.uk

DuPont Sustainable Solutions

http://j.mp/LnD_Opex-MH
http://j.mp/DuPont_DSS_Opex-MH

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