

Case study 2: The Dow Chemical Company

The company

The Dow Chemical Company, at just over 100 years old, is widely recognized as a technology-based manufacturing business. With annual sales of US\$28 billion, Dow is the world leader in the production of plastics, chemicals, hydrocarbons, and herbicides and pesticides. Dow is also a leader on performance plastics (adhesives, sealants and coatings). Other products include polyethylene resins for packaging, fibres and films, as well as performance chemicals such as acrylic acid. Dow has recently bolstered its polyethylene operations with the acquisition of Union Carbide, and also produces commodity chemicals (chlorine and caustic soda) and oil-based raw materials. They have customers in more than 170 countries who have a wide range of markets, including food, transportation, health and medicine, personal and home care, and building and construction, among others. Dow has a policy of sustainable development, and uses 'triple bottom-line' results – an approach that measures success by economic prosperity, environmental stewardship and corporate social responsibility. The company has approximately 50 000 employees around

the world, 208 manufacturing sites in 38 countries, and supplies more than 3200 products.

Drivers for change

Dow's mission is 'To constantly improve what is essential to human progress by mastering science and technology'. Dow has set its aspirations purposely high. These higher aspirations have fuelled the company's journey toward Six Sigma and business excellence. This mission is founded upon a long history of continuous improvement and corporate reinvention. Throughout the early 1990s, Dow employed a number of measures to streamline and improve its competitive position. Value-based management tools were instituted, quality performance mechanisms put in place and re-engineering practices implemented. In 1994, the company refocused and re-shaped its strategy. The result of this effort was a strategic blueprint containing four critical and interrelated components:

1. Competitive standard
2. Value growth
3. Culture
4. Productivity.

Following the development and implementation of the strategic blueprint, Dow continued its improvement journey. Global workstations established a communications pipeline that allowed all employees around the world to share a common computer systems, thereby accelerating the pace and quality of communications. Through this period Dow also implemented a people success system for the development and growth of human resources, and established a leadership development network to build on leadership skills and align the organization. The company also instituted growth acceleration initiatives to place increased focus on value growth, and launched strategic performance measures to track company performance against key metrics.

While the productivity measures implemented in the 1990s established strong competitive advantages, Dow leadership's vision extended beyond the role of leadership in the chemical industry and extended to business excellence. In late 1998, the Dow leadership embarked on a search for an enabler that would drive the company to the next level of productivity, performance and value. Leadership teams visited a number of top-tier global companies, holding discussions on the latest ideas and trends in productivity and improvement. The search led to Six Sigma.

Dow's implementation of Six Sigma began by taking a four-month hiatus to formulate a breakthrough implementation strategy. Within the context of this planning, a number of key decisions were made that set Dow's implementation of Six Sigma apart from that of others. One decision was that Six Sigma at Dow would be integrated into the business strategies of the company rather than being relegated to a corporate role. Many quality

programmes of the past that were relegated to corporate roles were plagued with responsibility but little authority. In effect, this decision added vigour to Dow's implementation of Six Sigma by placing accountability for results directly on the shoulders of the business leaders of the company.

Additionally, Dow wanted to distinguish its practice of Six Sigma beyond a focus of the MAIC (Measure, Analyse, Improve, Control) methodology of Six Sigma by incorporating linkages to those strategic drivers that are at the centre of focus for the company. The first of those drivers is a concentrated emphasis on Six Sigma projects that drive customer loyalty. Second, Dow chose to create a Six Sigma linkage to the technology of leveraging. Throughout the 1990s, Dow instituted a global business model and a single information technology platform. With Dow's integrated business structure, single information systems platform and global technology centres, the company was in a strong position to leverage best practices from Six Sigma.

Implementation design

The Dow leadership team travelled to Scottsdale, Arizona, to meet with the Six Sigma Academy in early 1999. Following a series of meetings, two businesses within the company implemented Six Sigma. Late in the summer of 1999 Dow leadership made a bold commitment, expanding the implementation to all its businesses and functions around the world.

Under the leadership of Kathleen Bader, the 'Staircase of Change Leadership' (see Figure 4.3) was employed to develop an implementation designed to drive change in a revolutionary, yet sustainable, manner. Each successive step in this staircase builds upon the previous step, forming a solid foundation for change leadership. The steps in this staircase include:

1. *Vision*. Dow's stated vision for Six Sigma is: 'Dow will become recognized and lauded as one of the premier companies of the 21st century, driven by an insatiable desire to achieve a Six Sigma level of performance and

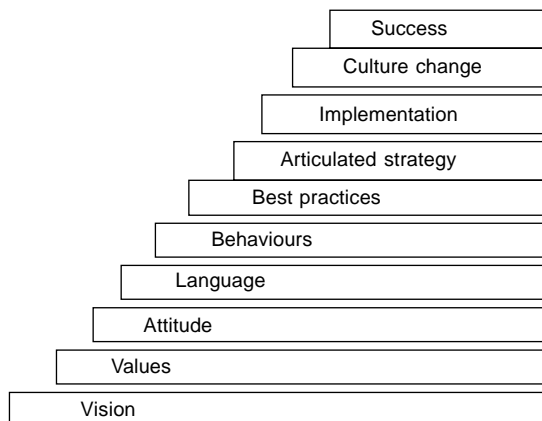


Figure 4.3 The Dow Staircase of Change Leadership.

excellence in all that we do'. Additionally, the Dow vision for Six Sigma was cast in the company's 1999 annual report to shareholders, 'delivering \$1.5 billion in EBIT cumulatively by 2003 ...'.

2. *Values.* Dow widely communicates its corporate values – integrity, respect for people, unity, outside-in focus, agility and innovation – to encourage all employees to honour the relationships.
3. *Attitude:* In its highest form, Six Sigma represents a mindset change that focuses on results, accountability, and data-driven decision making. In the environment of a large global corporation the unified, passionate attitude of leadership is essential to effective change. According to Kathleen Bader, 'It is an attitude that imposes accountability . . . and induces results'.
4. *Language.* The soul of attitude is evidenced in language. The implementation of Six Sigma utilizes its own terminology. Utilizing the common language of Six Sigma was instituted as a leadership practice.
5. *Behaviours.* A listing of behaviours was communicated throughout the company in 'road shows'. These behaviours included: adopting intolerance for variation, measuring inputs not just outputs, demanding measurement and accountability, requiring sustainable gains, delivering on customer satisfaction to build loyalty, and leveraging for competitive advantage.
6. *Best practices.* Dow undertook a diligent study of best-in-class Six Sigma practitioners in order to identify key success factors and gaps. From this study came numerous best practices. Additionally, gaps were identified that were employed to differentiate Dow's implementation of Six Sigma. Specifically, these gaps were customer loyalty and leveraging. The application of customer loyalty to Dow's implementation of Six Sigma is much more than lip service and good intention; up to 25 per cent of all Six Sigma projects are focused on driving a customer loyalty differential for Dow. Moving a customer from being satisfied to being loyal can create a powerful, sustainable business impact, and Dow has implemented a process model that drives this critical transformation. Leveraging is defined as the effective multiple implementation of demonstrated best practices. Breakthrough quality, coupled with Dow's unique ability instantaneously to transmit a Six Sigma solution from Texas to Taiwan, turns ideas into impact on the bottom line. Breaking down silos and unleashing the power of leveraging across every Dow business around the world is having a multiplier effect on the company's implementation of Six Sigma. Leveraging is an integral component of Black Belt training at Dow. Furthermore, Dow has established Leveraging Champions within each of its businesses.
7. *Articulated strategy.* The drivers for change facing Dow created an urgency that would not wait for evolution, and a detailed and rigorous breakthrough strategy was developed. The Six Sigma breakthrough strategy implemented at Dow wove together three leading edge processes:
 - The stages of change
 - The management of change
 - Managing implementation.

8. *Implementation.* Full-scale implementation of Six Sigma at Dow began early in 2000. As many as four training waves, each containing approximately 200 Black Belts, have been conducted since the full-scale launch. Champions and Process Owners are also identified to make sure that control plans stay in place and gains are sustained for the long term.
9. *Culture change.* A Six Sigma resource commitment was established by the company. This commitment calls for 3 per cent of all employees to be Six Sigma Black Belts. Black Belts are expected to fulfil a two-year, full-time commitment to Six Sigma. In addition, employee compensation plans are tied to Six Sigma results. Top leadership has established an expectation that all employees have at least one personal goal tied to Six Sigma, and all of its professional-level employees must be engaged in a successful Six Sigma project by year-end 2005.
10. *Success.* There is an old maxim: 'Nothing succeeds like success'. Dow's Six Sigma implementation is generating significant financial results, and is effectively driving positive, powerful cultural change.

Key benefits achieved

While Dow does not release its aggregate Six Sigma results, it has announced that by year-end 2001 the company was more than halfway towards its goal of achieving US\$1.5 billion in cumulative Earnings before Interest and Taxes (EBIT) from Six Sigma.

Of all Six Sigma projects that have been closed through the realization phase, the average financial impact is US\$520 000 per project.

At the time of this writing:

- Dow has 1269 active Black Belts. This represents 2.4 per cent of the company's current population. Although this is short of the 3 per cent goal, the employee population has grown significantly in recent times due to major acquisitions.
- 23 per cent of all Dow employees have been involved in a successful Six Sigma project.
- Dow has more than 2800 active Six Sigma (MAIC) projects and more than 100 active Design for Six Sigma projects.
- Despite challenging economic conditions, Dow fully expects to achieve its goal of US\$1.5 billion in cumulative EBIT by 2003.