

SIX SIGMA IMPLEMENTATION AT MAPLE LEAF FOODS

Professor P. Fraser Johnson prepared this case solely to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

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Anthony Scire, plant manager at Maple Leaf Food's Rivermede plant in Toronto, was preparing for his meeting with Louann Hulsman, senior manager. Louann had asked to meet with Anthony the following Monday regarding a new initiative that she was heading, Six Sigma @ the Edge. Based on the recent success of Six Sigma at the Rivermede plant, Louann had approached Anthony about the Rivermede plant becoming one of the pilot sites for Six Sigma @ the Edge, and she wanted to discuss what would be involved. It was now Thursday, July 14, 2005, and Anthony wanted to dedicate some time so he would be adequately prepared for his meeting with Louann.

MAPLE LEAF FOODS

Maple Leaf Foods (MLF) was a leading global food processing company headquartered in Toronto, Canada, and total employment numbered approximately 23,000 people. MLF shipped product to more than 80 countries around the world from its 120 plants across Canada and the United States. For 2004, MLF reported sales of \$6.4 billion and net earnings of \$107 million.

The Maple Leaf brand first appeared more than 100 years ago, and over the years, the company evolved and grew through a number of mergers and acquisitions. In 1990, Maple Leaf Mills Limited and Canada Packers Inc. merged to form Maple Leaf Foods. In 1995, McCain Capital Corporation and the Ontario Teachers' Pension Plan Board acquired controlling interest in the company. MLF's president

and chief executive officer (CEO), Michael McCain, was appointed to the position in January 1999. He had joined MLF as president and chief operating officer in April 1995, as part of the new management team.

In 2005, the company sold its products through three flagship consumer brands — Maple Leaf, Schneiders and Dempsters — and a family of strong regional brands. Company operations were organized into two major groups. The Protein Value Chain Group included meat products and agribusiness, and comprised fresh and processed meats, animal nutrition, hog production and rendering operations. The Bakery Products Group comprised MLF's 88 per cent ownership of Canada Bread, a producer of fresh bakery products, frozen bread products and fresh pastas and sauces. Within both the Protein Value Chain Group and the Bakery Products Group were independent operating companies (IOCs) aligned by product lines (e.g., Maple Leaf Pork, Maple Leaf Poultry and Maple Leaf Consumer Foods).

MLF was driven by its seven core strategic principles: invest in market leadership; build our brands; drive costs out; innovate; add value to our products; add value for our customers; and diversify globally. A key element of the company's strategy was Leadership Edge, an initiative that focused on achieving competitive advantage by developing people at all levels in the organization. Development programs were in place to assist supervisors, managers and executives in living the Leadership Edge Values (see Exhibit 1).

SIX SIGMA

The term "Six Sigma" refers to 3.4 defects per 1 million opportunities. The concept behind Six Sigma is that if you can measure the number of defects produced from a process, you can systematically work to eliminate them.

Although the use of statistical tools to manage quality and performance dates back to the 1920s, Motorola was the first company to formally introduce the concept of Six Sigma in the mid-1980s to address quality concerns in the organization. More recently, Six Sigma has evolved into a management tool used by a number of Fortune 500 companies, such as Allied Signal, DuPont and 3M, to reduce waste within an organization. For example, General Electric (GE) has embraced Six Sigma as a customer-focused, data-driven philosophy. It is used as a common methodology throughout the company to systematically eliminate errors, with the objective of providing customers with near perfect products and services consistently, through the flawless execution of key processes. All GE employees are trained in the strategy, statistical tools and techniques of Six Sigma at various levels.¹

¹ www.ge.com/sixsigma, July 2005.

Six Sigma uses martial arts terminology to describe the level of training and experience of practitioners: green belt, black belt and master black belt. Black belts typically lead customer focused project teams using a systematic problem-solving methodology, change and project management skills and analytical techniques to drive fact-based decision-making. As described in Exhibit 2, the Six Sigma problem-solving framework is commonly referred to as DMAIC:

- Define what needs to improve.
- Measure the current state against the desired state.
- Analyse the root causes of the gap in performance.
- Improvement solutions are brainstormed, selected and implemented.
- Controls for long-term sustainability are implemented.

SIX SIGMA AT MLF

MLF began its journey to becoming a Six Sigma organization in 1999, and the company's first Six Sigma projects were completed in 2000. Michael McCain's objective was to build a corporate culture of continuous improvement, recognizing that this would be a journey, not a one-off program. Michael McCain explained:

There are a number of things that distinguish Maple Leaf Six Sigma from off-the-shelf versions. First of all is the very profound connection that we've created between Six Sigma and our leadership culture. Leadership Edge defined the type of people and culture at MLF, while Six Sigma defines the way we work. The very essence of Six Sigma is Leadership Edge.

Bruce Miyashita, vice president of Six Sigma, elaborated further about the linkage between Leadership Edge and Six Sigma:

Six Sigma represented a significant culture change because it challenged accepted management beliefs and practices. Six Sigma is more successful in situations where management has built, or is actively building, a fact-based, scientific, transparent, open and customer-focused environment.

Six Sigma, in our experience, tends to fail where the management culture is not consistent with MLF values: passive resistance, unchallenged opinions, defensiveness and silos. Six Sigma also requires a readiness and ability to work pro-actively, the discipline required from high performance, and the ability to conduct organized projects across functions, locations and businesses.

We believe that as an organization increasingly practices each of our six Leadership Edge values on a daily basis, the quality of and the results from Six Sigma efforts will also improve. It is in this way that we see our values linked to Six Sigma.

By the end of 2004, MLF had more than 100 full-time black belts in the organization and had realized \$70 million in savings from projects completed in the two-year period between 2003 and 2004. Hundreds of Six Sigma projects had been completed since 2000, in all major areas of the business, including market research, R&D, sales force strategy, operations, risk management, acquisition strategy and energy management. Exhibit 3 describes the key elements of Six Sigma at MLF.

SIX SIGMA @ THE EDGE

Six Sigma @ the Edge was designed to engage front line employees in Six Sigma methodology and tools. Bruce Miyashita explained how Six Sigma @ the Edge fit within MLF Six Sigma journey:

Six Sigma typically begins with projects that reduce costs. However, the benefits from Six Sigma are not limited to cost savings. Over time, more and more projects focus on building revenue and growing the business. We are indeed experiencing this progression at Maple Leaf. The potential size of this benefit is enormous and is many times larger than cost reduction savings.

But cost reduction and revenue building are not the only benefits from Six Sigma. Ultimately we see Six Sigma is helping each employee to enhance and to realize his or her full potential and to help Maple Leaf benefit from those ideas and energy. Getting the most out of human capital is what makes the other two benefits possible. For example, we are now launching the Six Sigma @ the Edge initiative that is aimed at making the basic tools and methods of Six Sigma available to every one of our employees.

Michael McCain described his commitment to Six Sigma and the new Six Sigma @ the Edge initiative:

We will continue to build on what got us to where we are so far — our total commitment to attracting, developing and retaining outstanding people, and deployment of Six Sigma throughout the company. In the future, we will be taking action to carry the principles of the Leadership Edge and Six Sigma right to the front line of the organization — we call it Leadership @ the Edge and

Six Sigma @ the Edge. Engaging our front line team members is one of our most important strategic objectives.

Plans were to have Six Sigma @ the Edge piloted at one or two manufacturing sites and possibly one non-manufacturing site before roll-out. IOCs could nominate potential pilot sites using the following criteria:

1. The site has a plant manager and executive that wants to participate in Six Sigma @ the Edge.
2. The plant management team is relatively capable and progressive
3. The site is able to assign a site coordinator for the duration of the pilot, which could be approximately 12 months
4. Strong supervisor leadership program (SLP) participants a plus
5. Strong local black belt a plus
6. A track record of good green belt projects a plus
7. Reasonably good and stable labor situation for both hourly and salary positions
8. Some prior amount of hourly and/or supervisor involvement in Six Sigma projects a plus

THE RIVERMEDE PLANT

The Rivermede plant, located near Toronto, was part of the 10 plants in the Frozen Bakery IOC within Canada Bread. The Frozen Bakery IOC was the North American leader in the frozen par-baked bread market. Par-baked products were baked to within 90 per cent of completion, then quick-frozen and shipped to customers for the final 12 to 15 minutes of baking. Par-baking provided MLF customers — in-store bakeries, food services and club store operators — with the opportunity to reduce costs and deliver premium-quality, fresh-baked products throughout the day. Rivermede's products included breads, rolls, bagels, flatbreads, croissants and turnovers.

Anthony Scire was the plant manager at the Rivermede plant. Following graduation from university in 1991, as an industrial engineer, Anthony worked in various roles in the production operations function of Nestle, Frito-Lay and Clorox. His experience included positions as production manager, maintenance manager, business unit manager and plant manager. Anthony was hired as the plant manager of the Rivermede plant in December 2003.

The Rivermede plant employed 175 unionized hourly people, down from more than 300 in 2003. The reduction was a result of a capital project that eliminated approximately 50 jobs and the loss of a major account. Despite the workforce reduction, Anthony considered labor relations to be "good." Anthony described his challenges at Rivermede:

My two biggest challenges are getting consistent performance from our operations and managing the complexity of our product line. A lot of what is accomplished here on a day-to-day basis is a result of brute force and personal effort. I am focusing on creating a disciplined environment where we can manage performance and accountability. As a result we have made a number of changes that involve people and leadership, processes and equipment. For example, we recently changed maintenance to a rotating continental shift to give us full coverage across shifts.

Six Sigma at Rivermede

Six Sigma was rolled out to the Frozen Bakery IOC in late 2000, and the first Six Sigma projects began in early 2001. Anthony described his plant's history with Six Sigma:

As I understand the situation, Rivermede had a failed start with Six Sigma in 2001 and when I first arrived in late 2003 I was told we should get rid of our black belts. They were viewed as a hindrance by the people in the plant, who did not see them as a resource. However, at that time Six Sigma was not my biggest priority. I had to get up to speed and we had a major capital project underway — new mixers for the bagel line.

As it ended up, we weren't getting the expected benefits from our new mixers when they were first installed. Yield rates were expected to increase, but didn't change. I did some trials with my production manager, but the results were inconsistent. One day in a conversation with Chihab Kaab, one of our black belts, he suggested that we start a project and use design of experiments methodology. We called it the 'mixer DOE,' which I championed and Chihab acted as the project leader. I really promoted the project and we got a lot of different people involved. In the end we were successful in increasing water absorption on the mixers by 10 per cent.

Following the successful mixer DOE project, a number of other Six Sigma projects were initiated at Rivermede. During the following months, all of Anthony's direct reports championed at least one project, with strong participation from the supervisory and hourly ranks. (See Exhibit 4 for a description of Six Sigma project roles and responsibilities.) Anthony estimated that approximately one-third of the hourly workforce had participated in at least one six sigma project. He commented on the progress of Six Sigma at Rivermede:

I have a strong attraction to the Six Sigma methodology and I'm committed to making Rivermede a Six Sigma plant. I believe it can help us get control, discipline and predictable performance from our operations.

We have had some projects that have really worked well and a couple that have not succeeded. The important thing is that we learn from our successes and failures. I believe that the keys to a successful Six Sigma project are an energetic and capable project leader, a supportive champion, clear goals and problem statement, and discipline to the process. I expect 100 per cent of my staff to participate in a Six Sigma project and it is part of their performance review.

I recognize that some plant managers see Six Sigma as one-off improvement projects. However, I see Six Sigma as a philosophy, which is consistent with our corporate values.

In August 2005 the Rivermede plant had seven Six Sigma projects underway, including projects on sugar metering, scaling weight reduction, Tim Hortons waste reduction, 5S in maintenance and statistical process control (SPC) in its par-baked breads and rolls department. Anthony was championing two of these projects.

RIVERMEDE AND SIX SIGMA @ THE EDGE

The Rivermede plant had been nominated for participation in Six Sigma @ the Edge by Anthony's two-up manager, Michelle Fehr, senior VP operations. However, the final decision regarding participation by the Rivermede plant was left to Anthony and Louann. In preparation for his meeting with Louann, the first issue that Anthony had to resolve was whether the plant was ready for Six Sigma @ the Edge. Anthony felt that Six Sigma had made a strong positive impact on the organization, and he was concerned about the potential problems that another false start would create:

Six Sigma @ the Edge will involve a full roll-out to all of our hourly people. Although I believe that we need to tap the people on the shop floor if we are to eventually get the full value from Six Sigma, however, I want to satisfy myself that we are ready to take this next step.

The second issue that Anthony wanted to address at the meeting on Monday with Louann was how Six Sigma @ the Edge would be implemented. He described some of his concerns:

I'll need to identify the resources needed for implementation, which means creating a budget. For example, how many black belts, green belts and white belts will I need, and where will I get them? Training costs are another issue. I have a plant to run, so I will need a coordinator. A steering committee will also have to be created.

A third issue was how Six Sigma @ the Edge would change the dynamics in the plant. Anthony commented:

I expect that embracing Six Sigma @ the Edge will mean that the roles of my managers, supervisors and the plant workforce will change. I need to understand what to expect and how to handle the transition.

As Anthony sat down at his desk to prepare for his meeting with Louann the following Monday, he contemplated the challenges of implementing Six Sigma @ the Edge. While he regarded this as a great opportunity, he did not want to underestimate the risks and wanted to make sure he understood exactly what would be involved before agreeing to continue with the pilot project.

Exhibit 1**LEADERSHIP EDGE VALUES****1. Do What's Right**

- Respecting all ideas
- Challenging the status quo
- Providing active leadership of Six Sigma

2. Be Performance Driven

- Being fact-based
- Encouraging debate
- Managing it by measuring it

3. Bias for Action

- Taking effective action
- Leading and championing projects
- Building effective teams

4. Continuously Improve

- Being open to new ideas
- Getting involved in projects
- Measuring performance with the sigma metric

5. Be Externally Focused

- Understanding the Voice of the Customer
- Driving our processes off of the Voice of the Customer
- Benchmarking (between IOCs and outside MLF)

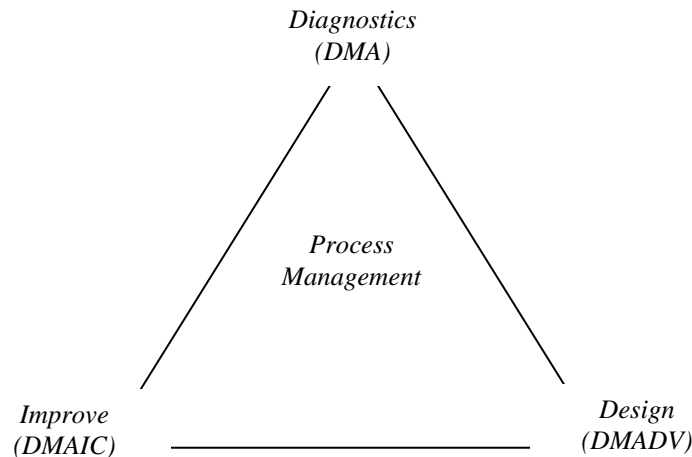
6. Dare to Be Transparent

- No passive resistance
- Admitting mistakes
- Sharing knowledge

Source: Company records

Exhibit 2

SIX SIGMA METHODOLOGIES



MLF has four standard methodologies for diagnosing, improving, designing and managing processes:

1. Diagnostics (DMA)

- *Define-Measure-Analyze*
- Diagnose processes
- Investigate business issues

2. Improve existing processes (DMAIC)

- *Define-Measure-Analyze-Improve-Control*
- Manufacturing
- Non-manufacturing

3. Design new processes (DMADV)

- *Define-Measure-Analyze-Design-Verify*
- Optimization
- Products or processes

4. Process Management

- Processes drive roles and responsibilities
- Standard processes
- Process dashboards and control plans

Source: Company records

Exhibit 3

MLF SIX SIGMA KEY ELEMENTS

Element	Characteristics
Profound knowledge = Analysis + Experience	<ul style="list-style-type: none"> • Breakthrough (profound) improvement and not just incremental improvement • Hypotheses (experience) confirmed through facts • Two-way transparency (being undefensive)
Customer insight	<ul style="list-style-type: none"> • Profitable insights into customer's needs that are a competitive advantage • Driving process and product design off of customer / stakeholder needs • Understanding customer / stakeholder needs (to avoid over or under-designing)
Statistical and fact-based problem solving	<ul style="list-style-type: none"> • Managing by measuring it • Measuring the right things, not everything • Fact, and not just opinions
Personal change	<ul style="list-style-type: none"> • "You cannot lead others through change if you cannot change yourself." • Being able to acknowledge and confront one's own personal resistance to change
Process thinking	<ul style="list-style-type: none"> • Processes that are as lean and as simple as possible • Standardization that enables de-centralization • Consistent processes ("the customer feels variability, not an average") • Systemic thinking (the whole is only as good as the weakest link)
Creativity	<ul style="list-style-type: none"> • Openness to counter-intuitive insights • Understanding that great problem-solving requires creativity and synthesis
Discipline	<ul style="list-style-type: none"> • Planning and preparation as essential to decisive, effective action • Preventing and anticipating, not reacting • Using the power of the scientific method
The DNA of the company	<ul style="list-style-type: none"> • Six Sigma and Leadership Edge as the DNA of MLF • Six Sigma as an indication of Leadership Edge values (the "canary in the coal mine")

Source: Company records

Exhibit 4

SIX SIGMA PROJECT ROLES AND RESPONSIBILITIES

Project Role	Responsibilities
Project Champion	<ul style="list-style-type: none"> • Accountable for the project • Champions the use of Six Sigma methods on their project
Project Leader	<ul style="list-style-type: none"> • Provides change management, problem solving and project management rigour • Provides objectivity • Can be a Black Belt or any employee (Green Belt)
Process Owner	<ul style="list-style-type: none"> • Manages the process on a daily basis • Owns the control plan
Subject Matter Experts	<ul style="list-style-type: none"> • Provides as-needed expertise • Internal or external to MLF
Team Members	<ul style="list-style-type: none"> • Responsible for doing project tasks • Part-time or full-time
Informed	<ul style="list-style-type: none"> • Stakeholders who need updates

Source: Company records