

# Building Food Safety Into the Company Culture

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## INTRODUCTION

Food is essential for life. It provides us with energy, protein, vital nutrients, happiness and joy; yet when harvested or processed improperly, food can cause human illness, death, unhappiness and despair. This conundrum is the very essence of food safety. In the developed world the level of estimated foodborne illness and death remains unacceptably high. For instance, in the U.S. it is estimated that each year 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases [CDC, 2011]. Major foodborne outbreaks occur on a relatively frequent basis in the developed world; we know this thanks to the improvement of outbreak surveillance tools, such as the CDC's PulseNet program, which leverages the insight of DNA-based molecular diagnostic tools to assist in outbreak investigations that traditionally relied upon basic epidemiology tools. These more advanced molecular tools have improved the ability to link clusters of foodborne illness to a common food source. As a case in point, in the past six years, PulseNet has identified outbreaks associated with fifteen foods that had never before been linked to outbreaks [McEntire, 2012]

The objectives of this paper are to describe the importance of human behaviour on food safety outcomes and how the complex nature of the food system must be considered when attempting to continuously improve food safety behaviour. In doing so,

it will focus on one company's experience: Maple Leaf Foods and its 2008 *Listeria* outbreak. This paper will describe the strategy developed and tactics deployed by the company to transform its food safety culture, as well as the lessons learned by Maple Leaf Foods since the event. The perspective, and examples provided will be taken from the viewpoint of the food manufacturer, clearly recognizing that the same principles of behavioural science apply at each segment of the food supply chain.

### *Multi-Disciplinary and Complex*

Because food safety is multi-disciplinary and complex, it has spurred the growth of an entire sub-section of professionals, including food scientists, operational food safety professionals, food microbiologists and toxicologists, regulators, auditors, nutritionists, among other disciplines. Individuals within these disciplines tend to operate in an uncoordinated fashion, with narrowly focused food safety objectives based primarily upon the practitioner's personal knowledge and experience, along with the specific mission and objectives of the firm or institution for which the individual works or is beholden to. In addition to the various disciplines involved in growing, harvesting, processing, transporting and marketing food, there is of course the consumer, the terminal point in the supply chain. Consumers play a role in the distribution and preparation of food, and therefore also have a point of view on what food safety means to them.

### *Focus and Priority*

These multiple points of view lead to complexity and a cacophony of ideas about the definition of food safety and how it can and should be addressed throughout the food supply chain. This diversity of ideas is not necessarily a bad thing, but it can create confusion and a lack of focus. It can lead to misaligned incentives in the food supply chain, mistakes in processing, and poor public policy. It can also lead to failed investments in off-target technologies, over-complication of systems, and at its worst, to apathy where operators in one food category or segment within a given supply chain do not accept their obligation to play a role in ensuring food safety.

Prioritization of resources and decision making are the key issues. How we as individuals and as a society allocate scarce resources toward our most important and critical food safety problems is of paramount importance. This is true whether you are dealing with decisions about a large multi-national food manufacturing budget, a governmental food safety regulation, or a food science department research and teaching budget. These decisions also include those made at a farm or ranch level and even the food handling decisions made in a consumer's kitchen.

### THE TECHNICAL AND SOCIAL SCIENCE CHALLENGE

#### *Technical Analytical Tools*

We have to become successful in reducing and ultimately eradicating foodborne illness in the food supply and can only do so if we are able to effectively focus on the most critical food safety risks, at the right point(s) in the supply chain, with the necessary level of technical and social scientific rigour.

There are a variety of food safety technological advances that can be employed at various points in the supply chain, from pathogen reduction techniques to analytical testing platforms. Advanced traceability tools improve our ability to track a problem if one occurs. To tie everything together, the Risk Analysis framework [WHO, 2012] guides our approach to food safety execution when making food, describing in detail the processes of risk assessment, risk management and risk communication. This framework encompasses many tools including the ubiquitous concept of Hazard Analysis Critical Control Points (HACCP). These tools are being used effectively today in the development of public policy and at most manufacturing locations around the world.

#### *Behavioural Analytical Tools*

Our need to feed a growing population has never been greater, yet as consumers we have never been further away from the natural state of growing, preparing and serving food than today. Many meals are prepared by someone else, rather than the consumer; production is more complex and larger-scale and food is more readily available in a semi- or fully-cooked state.

The industry is dynamically adjusting food safety practices to the needs of a growing population, and a critical component of the food manufacturing industry are people -- people who handle food and make thousands of decisions about food safety every day. Unfortunately, just like the consumer, many of these critical people employed and working within the food supply chain may be equally unaware of the complexity of the systems and how their behaviours and decisions impact food safety and human health. The behavioural sciences offer us management tools that can be effectively

applied to anticipate human needs for direction, training and motivation. One such tool has been described as the ABC model [Johnson, Dakens, Edwards, Morse, 2008]. This tool recognizes that in order to consistently achieve desired behaviours (B), an individual or group of individuals require a set of Antecedents (A) which always precede behaviour. Secondly, and most importantly, the ABC model recognizes that consequences (C), which occur after the behaviour and can be either positive or negative in nature, have a profound effect on whether the desired behaviour will continue or the undesirable behaviour will stop. Applying tools such as the ABC model helps connect “what” we have to do with “why.” If this is immediately followed by “did we do it?”, then we can celebrate behaviour or correct it, depending on the answer.

Focusing on changing food safety culture is about bringing together technical and behavioural analytics to ensure everything we eat is safe, nutritious and brings the happiness and joy that healthy eating should bring.

“The science of food safety must merge with the people skills of management in order for a company to maintain a stellar, spotless food safety record” to quote Dr. John Butts, Research Vice President at Land O’Frost, a company with a proven track record of the results this merger can create. [Hanacek Butts, 2010]. PEOPLE must execute any process with scientific clarity and rigour, and PEOPLE must act on the outcomes of those tools and processes in an effective and sustainable way to enhance food safety!

**PEOPLE, and more specifically our behaviours, are the common denominator that defines success and failure in our journey to eradicate foodborne illness.**

## THE MAPLE LEAF FOODS STORY

On August 23, 2008 Maple Leaf Foods was advised by the Canadian Food Inspection Agency (CFIA) and Health Canada that DNA testing had confirmed a link between a national outbreak of listeriosis and products produced at the company’s Bartor Road plant in Toronto. The detailed report was commissioned by the Canadian government to document the event, the causative factors and lessons learned during and after the crisis. [Weatherill, 2009]. The report covers in significant detail what occurred during this outbreak and the investigation that followed.

Maple Leaf Foods was viewed as a company with a strong commitment to food safety. Its systems at the Bartor Road plant were determined to be compliant with all regulatory requirements under the Federal Meat Inspection Act and got satisfactory ratings during government inspections and third party audits. The company had introduced its own food safety procedures, which included a comprehensive HACCP plan and additional layers of a 40 step food safety plan had been in place. Policies and procedures had been established at the corporate level and food safety performance was monitored and routinely reported to the Maple Leaf Foods Board of Directors. The internal company “40 steps” program had been in place throughout the Maple Leaf Foods manufacturing sites and the Bartor Road facility had been audited against this plan and rated satisfactory on all counts during 2008.

The source of the *Listeria* contamination was found to come from deep inside slicing machines on lines 8 and 9. Although rigorous sanitation of this equipment was completed on a daily basis in accordance with supplier and company procedures, areas were found where bacteria may have

accumulated thereby avoiding the routine sanitation process. Other environmental factors were found relating to the age and location of the building, condensation, airflow and drain back-ups which could have contributed to the contamination. Management of these issues, in combination with inconsistent compliance to GMPs within the plant might also have contributed to the overall risk. A combination of technical and behavioural deficiencies and assumptions were found to be at the root of the problem which ended up taking the lives of 23 Canadians. It led to the transformation of the Maple Leaf Foods food safety strategy and a public commitment from the company's CEO to never let such an event happen again on his watch. The new strategy placed focus on people and systems equally, and was carefully communicated with a vision that all employees could support and appreciate. The stated food safety vision is to "always produce safe, great tasting food manufactured in a safe environment" [McCain, 2012].

#### *The Maple Leaf Foods Approach to Food Safety Culture Transformation*

First and foremost, people within the company needed consistent direction and a shared common purpose. This was formalized with the development of a long term food safety strategy which articulated a multi-year plan for accomplishing the aspirational vision described above. The leadership team at Maple Leaf Foods recognized that the existing culture that was in place leading up to the tragic events of 2008 did not have the necessary emphasis on food safety behaviour and that improvements needed to be made. The Maple Leaf Foods team also recognized that the most effective means of enacting fast and meaningful change was to leverage the

existing leadership values as a means of driving towards new and better food safety behaviours. There was a solid understanding that a culture exists within any organization which can be defined as "The patterns of behaviours that are encouraged or discourage, by people and systems, over time" [Johnson, Dakens, Edwards, Morse, 2008]. Maple Leaf Foods had a well-entrenched culture and what was needed was an emphasis and focus on the importance of food safety behaviours within the context of that existing company culture. While some may argue that a major food safety breach at a company requires wholesale change in culture, and adoption of "a food safety culture," the reality is that cultures are developed over long periods of time and are not simply changed to meet a new demand. [Schein, 2004] The culture must be able to adapt to current conditions in a sustained and timely way, and that was the approach taken at Maple Leaf Foods.

Five areas of focus were adopted to drive the change that was deemed necessary to effectively implement the food safety strategy and improve the food safety behaviours embedded within the Maple Leaf Foods Culture.

- 1) Governance and Portfolio Management
- 2) Education & Training
- 3) Communication
- 4) Systems & Processes
- 5) Action Measures

#### *Governance and Portfolio Management*

The company's Food Safety and Quality organizational structure was changed to improve governance and lines of decision making. As such, two new councils were formed:

- A Leadership Council (internal) which governs the food safety strategy and its execution. It is comprised of senior leaders within the function and is responsible to liaise both within the individual businesses and with other functional councils in the company.
- An Advisory Council (external) which provides expert advice on the execution of the food safety strategy and acts as an independent body that provides external insight and candid technical critique on a regular basis.

Both councils are chaired by a newly-created position of Chief Food Safety Officer. This clear structure ensures direct linkage to Maple Leaf Foods' CEO and keeps food safety at the forefront when long-term strategic decisions across the company are being made.

Further to the governance structure, a process for managing food safety initiatives and decision making was formalized in the form of a "portfolio management" approach. This approach ensures routine review and governance is applied to facilitate effective execution of the longer term, 3-5 year strategy. The process of review is partitioned into annual, quarterly, monthly and weekly segments. During each of these segments, the status of initiative execution is discussed from a risk-to-plan perspective and when issues arise, these are actioned for removal. The rhythm is important to ensure the human resources are prioritized against requirements for time and effort. It also provides an avenue to solve smaller, weekly/monthly issues before these grow bigger and disrupt the company's annual commitments.

### *Education & Training*

The company food safety education and training approach was redeveloped to align learning objectives and methods to the new strategy and to ensure that the funding and resource needs were in place to execute the plan.

A five-tier education program termed "Food Safety Foundations" was developed to provide all Maple Leaf Foods employees with equal opportunity to take on their individual roles in food safety. Tier 1 focuses on all senior executives; Tier 2A on middle managers involved in every aspect of the business; Tier 2B on leadership and salaried staff at all manufacturing sites; Tier 3 on the in-plant associates; and Tier 4 on support staff throughout the business.

The common thread in each of the educational Tiers is the WHO Risk Analysis model [WHO, 2012]. True to the model, each course educates the participants in Risk Assessment, Risk Management and Risk Communication. By tailoring the content and delivery methods to this framework, participants can find themselves discussing everything from the high-level, strategic implications of a well-executed risk assessment, to a world-class example of risk communication between a production supervisor and an associate working on a production line. The use of the Risk Assessment framework also provided a platform upon which all employees would adopt a common language regarding food safety principles and practice and a common understanding of how to approach food safety risk prevention and problem solving. Having all employees have a common language and understanding of how food safety issues will be addressed, encourages and facilitates constructive teamwork and alignment. For instance, when a marketing manager learns that their new product launch will take longer than planned due to

the need to complete a more detailed food safety risk assessment that includes a microbiological challenge study, they will have a better appreciation for the purpose of the delay.

To reach the production supervisors and in-plant associates in a consistent and simple manner, Maple Leaf Foods made a decision to invest in the electronic learning platform SISTEM, for all its manufacturing sites. Through this electronic training platform each supervisor, regardless of competencies in the training arena, is empowered to effectively run a myriad of basic to more complex interactive food safety training sessions. The training platform gives them confidence, as well as the ability, to become that all-important go-to person whenever their direct reports have questions or concerns regarding HACCP or other key food safety processes.

#### *Communication*

The process for food safety communication was changed to ensure that all Maple Leaf Foods staff has access to consistent messages regarding performance, industry news and key “must know” food safety processes. A note from the Chief Food Safety Officer goes out to all 22,000 employees on a monthly basis. The purpose of the note is to highlight wins and individual contributions to food safety. The note also highlights industry challenges and learning’s.

To reach hourly associates, a set of “food safety communications kits” were developed. A kit centres on a food safety “must know” process, e.g. “Fighting Physical Hazards”, and consists of a 40-day rollout timeline where each plant manager reviews a set of key messages captured on three cue cards. The messages are also displayed simply on a

poster, so that when the production supervisor discusses these key messages with hourly associates, both the cue cards and the poster reinforce the “must know” process with employees.

#### *Systems & Processes*

As part of its Food Safety strategy, Maple Leaf Foods committed to having all sites certified to a Global Food Safety Initiative (GFSI) benchmarked scheme. This commitment was actioned in 2010-2011, with all 56 MLF manufacturing sites certified. To support this external certification, an improved focus on Internal Audit was launched in early 2011, closely followed by an upgraded standardized Food Safety and Quality Management system (FSQMS). All three initiatives – 3<sup>rd</sup> party certification, Internal Audit and FSQMS--work in concert to drive food safety sustainability and improvements across the diverse business of fresh meat and poultry, prepared meats and bakery facilities at Maple Leaf Foods.

#### *Action Measures*

How food safety performance is measured and acted upon was also enhanced as part of the food safety strategy rollout. This was done to ensure that critical discussions take place and that actions are followed up on, whether they involve an investigation or the implementation of improvements.

The company initiated a process soon after the 2008 *Listeria* tragedy whereby all of the key stakeholders from the ready to eat (RTE) facilities, including operations and food safety quality leaders, gathered on a daily morning phone call to discuss data and actions taken as a result of every positive *Listeria* finding. This process proved highly effective at engaging teams across a large network of over 20 RTE facilities who

were working diligently to share best practices and rapidly improve the *Listeria* control programs within their facilities. Every *Listeria* positive test on food contact or non-food contact surface is mapped, tracked and discussed. The evidence of the effectiveness of this rigorous approach is in the improvement made to bring the *Listeria* prevalence rate from 3.14% in early 2009 to today's average run rate of 0.14% rate [Huffman, 2012]. This performance is maintained through a daily review and action of the data in a fact-based and transparent manner.

To ensure a broad view to food safety performance, this process is being adopted for the MLF Food Safety Scorecard. Seven key metrics are tracked and actioned on a monthly basis by each food manufacturing facility. The data is rolled up to various levels and actioned as per the role of the stakeholders reviewing the analysis.

The key to success for both the *Listeria* data improvements and the MLF Food Safety Scorecard are that the data are reviewed and acted upon in a timely manner that will lead to change in behaviour and system improvements. Idle data is useless. Actioned data is data that can be discussed, analyzed and understood by the people within the system that are in the best position to take action toward continuous improvement [Davenport, 2007]. When improvements are noted, they must be celebrated, and when gaps are identified they must be recognized and corrected. The ABC model is used to guide how to utilize the data to deliver the appropriate and timely consequences to support the desired human behaviours.

## LESSONS LEARNED – SO FAR

### *Readiness & Maturity*

In a large, multi-site operation such as Maple Leaf Foods, where food safety risk profiles of the various food products vary greatly and maturity of competencies and systems span a wide range, it is critical that there is flexibility in the sequence and the pace of deployment for each specific tactic. People operating within each of the various product categories also vary in their skill sets and technical maturity, and therefore the plans must account for stakeholder readiness.

Specifically, a lesson that has been learned is that a one-size-fits-all food safety approach for employees will not work, and especially if the person does not understand or appreciate the value of the tactic. Instead, managers and employees are encouraged to take the time to investigate what their goals should be and what desired behaviours they are looking for, rather than following a standardized, cookie-cutter approach. Managers have also found that developing a clear picture of readiness and maturity of a particular business, manufacturing site or specific work team before initiating a change in a food safety plan is essential to ensuring engagement and buy-in.

### *Have a common purpose and make it personal*

Food Safety actions and specific tactics need to be anchored in a common purpose and organizational commitment. The people within the organization need to feel a real connection on a personal level to that common purpose and need to have a strong belief that they can contribute to achieving the purpose. At Maple Leaf Foods we have a stated vision that every day we will strive to “provide consumers safe, great tasting food manufactured in a safe work

environment.” We have learned that our unique experience from the tragic recall event of 2008, combined with this aspirational goal is a powerful tool to engage people within the organization. We have also recognized that as we make improvement and learn new ways of working, we must adapt our tactics. As an example, the metrics in the Food Safety Scorecard are revisited annually to ensure that all the effort required for making decisions based on analytics, is driving the desired behaviours towards our common vision.

#### *Action metrics*

Managing food safety risks requires ongoing assessment of data and information from the manufacturing process, and is not limited to the data collected during the operation of the HACCP plan and its foundational pre-requisite programs. There is another element of data analysis that comes from the world of human behaviour sciences. Using data that can quantify human behaviours can be helpful in understanding why people within the food system behave the way that they do. We have identified the need to have a broad group of individuals responsible for acting upon food safety data, as multiple people within the supply chain play critical roles in food safety, not just the food safety and quality team. To this end, there are a wide range of desired behaviours that must be understood and monitored across a large spectrum of functional roles within the manufacturing environment. Capturing data from observational audits, employee surveys, and behaviour-based quantitative metrics is critical to driving toward sustainable behavioural change.

Becoming an organization which makes decisions based on analytics is a long term commitment. Moving away from using intuition toward a system of decision-

making based upon data analysis is critical. In addition, consistently taking action on the data in a timely fashion is equally as important. This approach takes time and effort and most importantly a commitment from the top-down.

#### SUMMARY

Maple Leaf Foods learned a hard lesson about food safety and it has transformed its commitment to Food Safety manifested in a drive toward embedding great food safety behaviours into the existing company culture. Its focus on combining technical risk analysis with behavioural sciences has led to the development and deployment of a food safety strategy deeply rooted in company values and management commitment. Through the five tactics described in this paper we have begun the journey toward food safety transformation through adoption of best practices for systems and people. Our approach to food safety has been one where we treat food safety as a non-competitive issue and have been open to sharing our learning's about what happened during the *Listeria* outbreak, how we changed due to this tragic event and how we as an organization will continue to take a leadership position in food safety to continuously raise the bar for food safety across our industry. We also have benefitted immensely from learning best practices from numerous other companies in North America as well as around the world. We trust this brief story will bring value to others as we continue to learn and improve.

## REFERENCES

- CDC. (2011). *Centers for Disease Control and Prevention*. Retrieved from <http://www.cdc.gov/foodborneburden/index.html>
- Davenport, T. H. (2007). *Competing on analytics: the new science of winning*. Boston: Harvard Business School Publishing Corporation.
- Hanacek, A., & Butts, J. (2010). Science + Culture = Safety. *The National Provisioner* , pp.21-31.
- Huffman, R. (2012). *Maple Leaf Foods EMP Performance*. Toronto, Ontario.
- Johnson, J., Dakens, L., Edwards, P., & Morse, N. (2008). *Switchpoints: Culture Change on the Fast Track to Business Success*. John Wiley & Sons.
- McCain, M. (2012). <http://www.mapleleaffoods.com/en/market/food-safety/food-safety-at-maple-leaf/food-safety-pledge/>. Retrieved from [www.mapleleaf.com](http://www.mapleleaf.com)
- <http://www.mapleleaffoods.com/en/market/food-safety/food-safety-at-maple-leaf/food-safety-pledge/>
- McEntire, J. (2012, May 17). *The changing culture (or lack thereof) in foodborne illness investigations*. Retrieved from [www.leavittpartnersblog.com](http://www.leavittpartnersblog.com).
- Schein, E. H. (2004). *Organizational Culture and Leadership*. San Francisco: John Wiley & Sons, Inc.
- Weatherill, S. (2009). *Listeriosis Investigative Review*. Retrieved from [http://www.listeriosis-listeriose.investigation-enquete.gc.ca/index\\_e.php](http://www.listeriosis-listeriose.investigation-enquete.gc.ca/index_e.php)
- WHO. (2012). *Risk Analysis Framework*. Retrieved from About Risk Analysis In Food: <http://www.who.int/foodsafety/micro/riskanalysis/en/>