

# FOOD MANUFACTURING AND SIX SIGMA



by **THOMAS R CUTLER**

To succeed in food and beverage industries, firms must have an immediate grasp of production and product margins. The benefits of developing a Six Sigma program are numerous...

**T**he term Six Sigma is a statistical measure and a business strategy. Statistically, six sigma can be defined as less than 3.4 defects per million opportunities, such as plus or minus six standard deviations from the mean, said simply: near perfection.

The most common approach to Six Sigma is DMAIC:

- D Define** a suitable project for Six Sigma efforts based on business objectives as well as customer needs.
- M Measure** the variables of the process and count the defects.
- A Analyse** the process to identify and validate root causes of problems.
- I Improve** the process by implementing and testing solutions.
- C Control** the modified process to ensure the key variables remain within the maximum acceptable ranges over time.

The benefits of developing a Six Sigma program are numerous including fewer defects, less waste, and reduced costs leading to increased customer satisfaction. As with all business improvement techniques, a Six Sigma program should not be taken lightly. To achieve

Six Sigma levels of performance requires long term vision, commitment, leadership, management and training.

## Food safety and Six Sigma

Business strategies such as Six Sigma may prove as beneficial as lean technique to an organisation. According to Evan Garber, President of Escape Velocity Systems, "Security means two separate things to a food or beverage company...formulas are a proprietary competitive edge and critical to quality and safety control. We believe there must be three levels of security that can specify formula visibility groups, formula change approvals, optional electronic signatures, and very specific access rules."

## Illustrates impact of integrated solutions

Lynne Hambleton, author of *Treasure Chest of Six Sigma Growth Methods, Tools, and Best Practices*, details on QFD (Quality Function Deployment). She notes that QFD helps manufacturers:

- Translate customer requirements into specific offering specifications
- Prioritise possible offering specifications

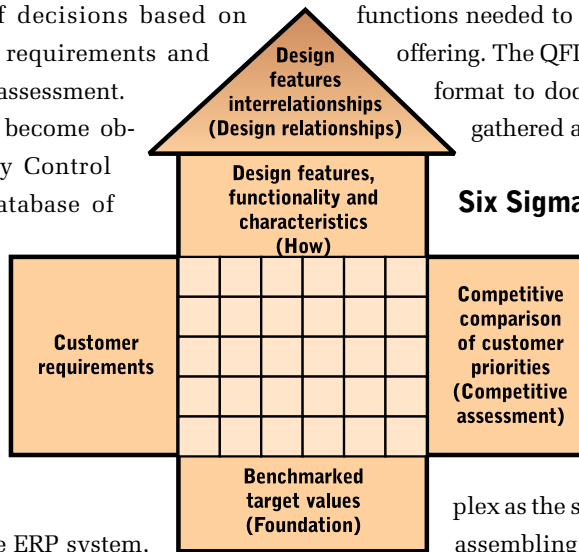
and make trade-off decisions based on weighted customer requirements and ranked competitive assessment.

These trade-offs become obvious when Quality Control keeps their own database of test profiles, test results, hold status, and more. The challenge, according to Garber, “When changes to the QC database do not affect current inventory in the ERP system, someone must make adjustments or physically segregate the materials in the warehouse so that they are not used. This practice leads to errors, untimely data, and the possibility of using or shipping something that was not approved.”

Production reporting is not timely enough to affect the current day’s production. With an active and integrated system, production is notified immediately if yields or costs go outside of specifications. Most food quality business must track attributes, such as: solids content, nutritional details, sugar content, and colour on a lot-by-lot basis. These food manufacturers often have different attribute specifications for different customers. Because the ERP is used for inventory control, the ERP system is a perfect place to manage these complexities and generate the customer-specific Certificate of Analysis.

According to Hambleton, “The Quality Function Deployment is a powerful prioritisation tool that combines several different types of matrices into one to form a house-like structure. Sometimes referred to as a HOQ (House of Quality), this tool captures the Voice of the Customer to identify the required quality, features, and

functions needed to be deployed in a single offering. The QFD process uses a graphic format to document the information gathered and processed.”



**House Schematic of QFD**  
 Treasure Chest of Six Sigma Growth Methods, Tools, and Best Practices by Lynne Hambleton

**Six Sigma – a Tool in Food Quality and Business Efficiency**

Hambleton notes, “A QFD structure can be as simple or as complex as the situation requires. When assembling a team to build a QFD, ensure that the team is cross-functional, with multiple perspectives represented.” High competition, highly variable material costs, regulatory requirements and quality

management are some key challenges to food and beverage industry profitability.

Escape Velocity Systems’ Garber concluded, “To succeed in these food and beverage industries, firms must have an immediate grasp of production and product margins, and be able to make timely sales and operational decisions based upon accurate data. Having a coherent, cohesive data repository with efficient work flows is a key component of managing these complex issues.” Systems that support food quality are required whether technological or process-based, whether driven by legislation or good business practices or both. **I2.0**

Thomas R. Cutler is the President & CEO of Fort Lauderdale, Florida-based TR Cutler, Inc., the largest manufacturing marketing firm worldwide – www.trcutlerinc.com. Cutler is the founder of the Manufacturing Media Consortium of three thousand journalists and editors writing about trends in manufacturing. Cutler is a frequently published author within the manufacturing sector with more than 300 feature articles authored annually; he can be contacted at trcutler@trcutlerinc.com.

**Food quality issues to test in technology solution integration: Instant lot traceability, quality control and customer specific requirements.**