

# Process Optimization in Consumer Beverages Manufacturing

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## *Executive Summary*

### *MIE463 - Team 14*

#### *Background & Scope*

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As one of the world's largest consumer packaged goods (CPG) companies, PepsiCo owns 22 different billion-dollar brands, enjoyed all over the world. Some of the most notable brands include, Pepsi, Frito-Lay, Quaker Oats, Gatorade and Tropicana. In order to effectively make sure their consumers can enjoy their PepsiCo products, it is imperative to have a robust and reliable supply chain in place.

This project serves to dissect, analyze and improve the production stage of Gatorade at the PepsiCo Beverages plant in Mississauga, the largest PepsiCo plant in Canada. The scope of the project is limited to solely the production phase of Gatorade, which begins with receiving empty Gatorade bottles and ends when packaged Gatorade is placed onto pallets, awaiting pickup by the warehousing team.

#### *Process Analysis*

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The project team first investigated the company culture and noted that problems arise due to two major differences between the union and management:

1. Differences in goals (efficiency vs ease of work)
2. Differences in tenure (new faced management vs experiences union workers).

The team then defined the mission that drove the future roadmap of the entire project:

*Ensuring that the production of Gatorade is executed as efficiently and cost-friendly as possible.*

To track project success, the performance metrics that were identified were the running efficiency and the changeover times. The target goals for each respective metric was to increase the running efficacy from 58% to 62% and reduce changeover times by 25%.

The team then conducted a thorough RCA to isolate the main contributor to low production efficiencies. This analysis revealed that the main source of low efficiency was related to poor planning and execution of changeovers. With this in mind, a new process vision and support strategies were created that solely focused on improving the changeovers. To get a more thorough understanding of the current changeover process, the team created a process map outlining all of the required steps. This revealed that the major lag in the process is re-adjusting the machine parameters after production resumes.

## *Design Solution*

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With the root cause problem identified, the project team set out to find the optimal solution to remedy the issue. The team proposes creating a changeover procedure that outlines all of the optimal settings for all of the machine parameters. This will allow the operators to look at the documented and displayed settings during changeovers and adjust the parameters accordingly. This will remove all guess-work from the process and ensure that the machine is running perfectly when production resumes.

In order to determine the optimal settings, the team will communicate extensively with the front line to get their opinion and feedback. Additionally, the team will utilize IT in the form of the Production Tracking System (PTS), which is a software system that tracks various factors of the production line. The team will then utilize PTS data to determine when the line was running the best and record these dates. They will then check to see what each parameter was set to on that particular date and document these values.

The major hurdle in this project will be gaining buy in and adoption from the front line. The notion of a defined procedure will cause the operators to feel as if they are losing their autonomy and decision-making abilities. Therefore, it is important that they are incorporated into the project, so that they know their voice is heard and valued. This will give them a sense of ownership in the project, making them more likely to support its implementation. With the support of the front line, the implementation phase of the project is sure to be conducted smoothly, with little to no resistance.

## *Conclusion*

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Therefore, through the use of BPM methodologies, the project team was able to:

1. Define the Gatorade production process
2. Isolate the main problem leading to poor efficiency
  - Poorly executed changeovers
3. Remedy the situation through a thorough design solution
  - Data driven changeover procedure created in tandem with the front line

The successful implementation of this project is sure to increase the production efficiency of Gatorade and thus, improve the performance of PepsiCo as an organization.