**Background Information**

Coca-Cola Refreshments (CCR) Manufacturing Plant- El Paso, TX
- Inaugurated 1908
- 327 employees
- Two Production Lines:
  - Aluminum Can
    - 11.5 million cases annually
  - PET (Polyethylene terephthalate)
    - 3.5 million cases annually

**Problem**

CCR spent $170k in overtime payroll
- Total Production Time Lost
  - Line 2 (PET) 2016: 45.30%
    - Breakdowns = 26.60%
    - Minor Stops = 12.80%
- Unknown unplanned Downtime causes
- No failure documentation system
- Failure Mitigation is not standardized

**Waterfall Analysis- 2016**

**Methodology/Objectives**

- **Define**
  - Research Machines in Production Line (PET)
  - PET Production Process Facility Factory
  - Project Scope/Problem Statement
  - Time Phased Project Activities (SIPOC Chart)

- **Measure**
  - Time Studies - Repairs/Machine Failures
  - Waterfall Analysis
  - MTBF Line
  - Interactions - Operators/Machinery
  - High/High Machine Failure Categorization

- **Analyze**
  - Life System
  - Corrective Action Bag
  - Parts/Clutch Machine Failure Categorization
  - Operator Failure Mitigation Procedures
  - Time Studies - Repairs/Machine Failures

- **Improve**
  - Implementation of Solutions

- **Control**
  - MTBF & MTTR
  - Confirm attainment of project objectives and deliverables
  - Monitor Improvements

**Instructors**

- Juan Barraza - CCR Operational Excellence Manager
- Jesus Gonzalez - CCR Maintenance Manager
- Victor Hernandez - CCR Plant Mechanic

**IE Senior Design Team:**
- Edgar A. Pariente
- Kevin O. Reyes
- Victoria Hi de Villanueva

**Results/Conclusion**

- **Standardized Failure Mitigation Procedures**
  - Identified Critical Machines - Filler, Depalletizer, Labelers
  - Design Standardized Failure Mitigation Procedures - 67
  - Increased Machine Availability (PET) + 07.49%
  - Identified Unplanned Downtime Causes - 78.66%
  - Financial and Productivity Improvements +459,000 containers/mo

- **Increasing Production Line Availability**

- Analyze PET Can Line
- Identify Critical Machines
- Design Standardized Procedures for Failure Mitigation
- Increase Machine Availability (PET)

- **Line 2 Layout**

- **Results/Conclusion**

- **IE Senior Design Team:**
  - Edgar A. Pariente
  - Kevin O. Reyes
  - Victoria Hi de Villanueva