# Virtual Learning Series

**April 15, 2020**

# Team-Based Decision Making and Execution


## RC Caldwell

**Principal Consultant - Lean Six Sigma Master Black Belt**

**Caldwell & Associates LLC**

# Agenda

- Types of General Business Decision Making
- Team-Based Decision Making
- Team-Based Execution
- Impact of Timing in Business Decision Making
- The New Medical Generator Increase Output Case Study

# Types of General Business Decision Making

## Command Decision Making

# Types of General Business Decision Making

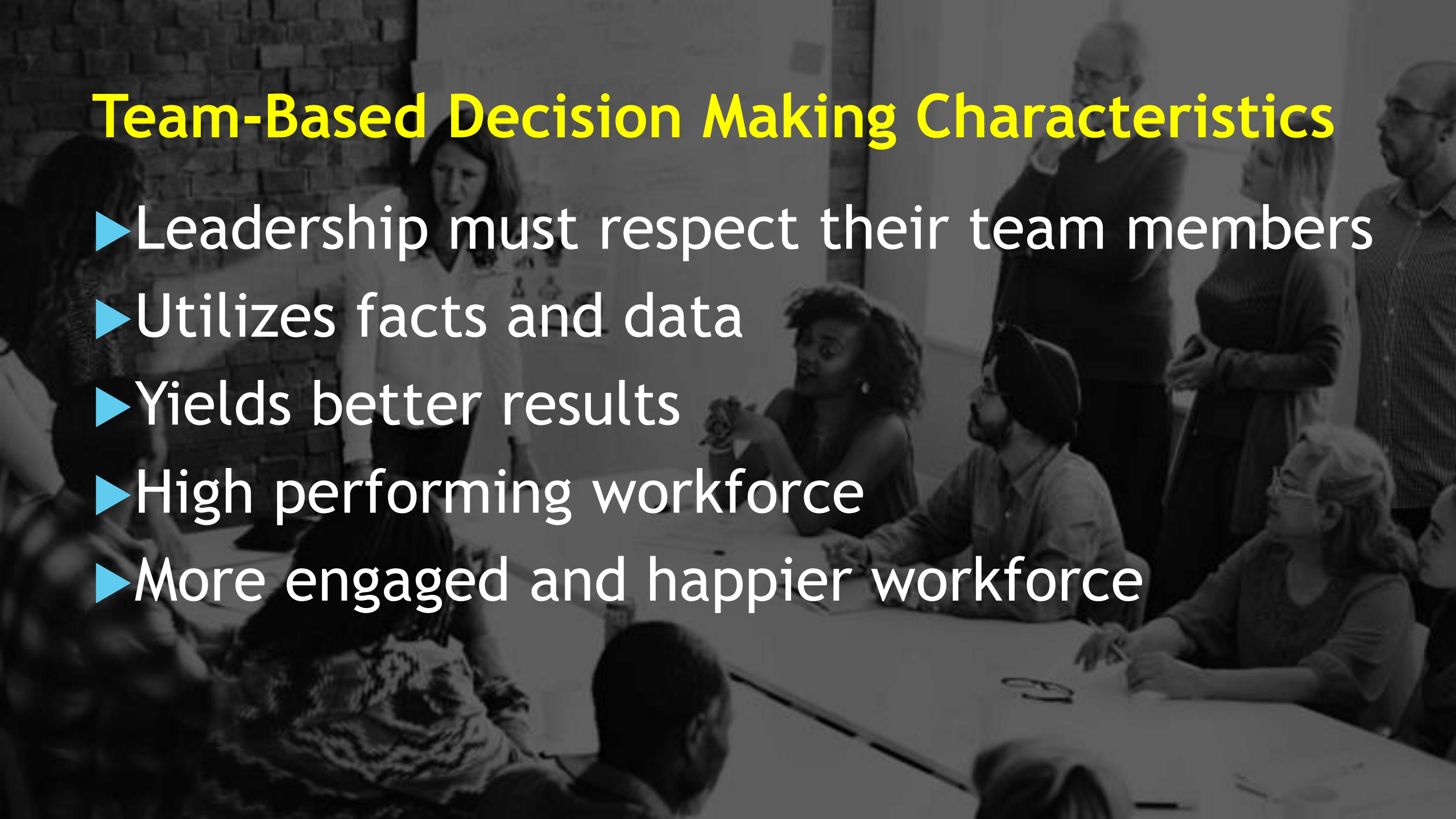

## Consensus-Based Decision Making

# Types of General Business Decision Making


## Just Do It Decision Making

# Types of General Business Decision Making

## Team-Based Decision Making

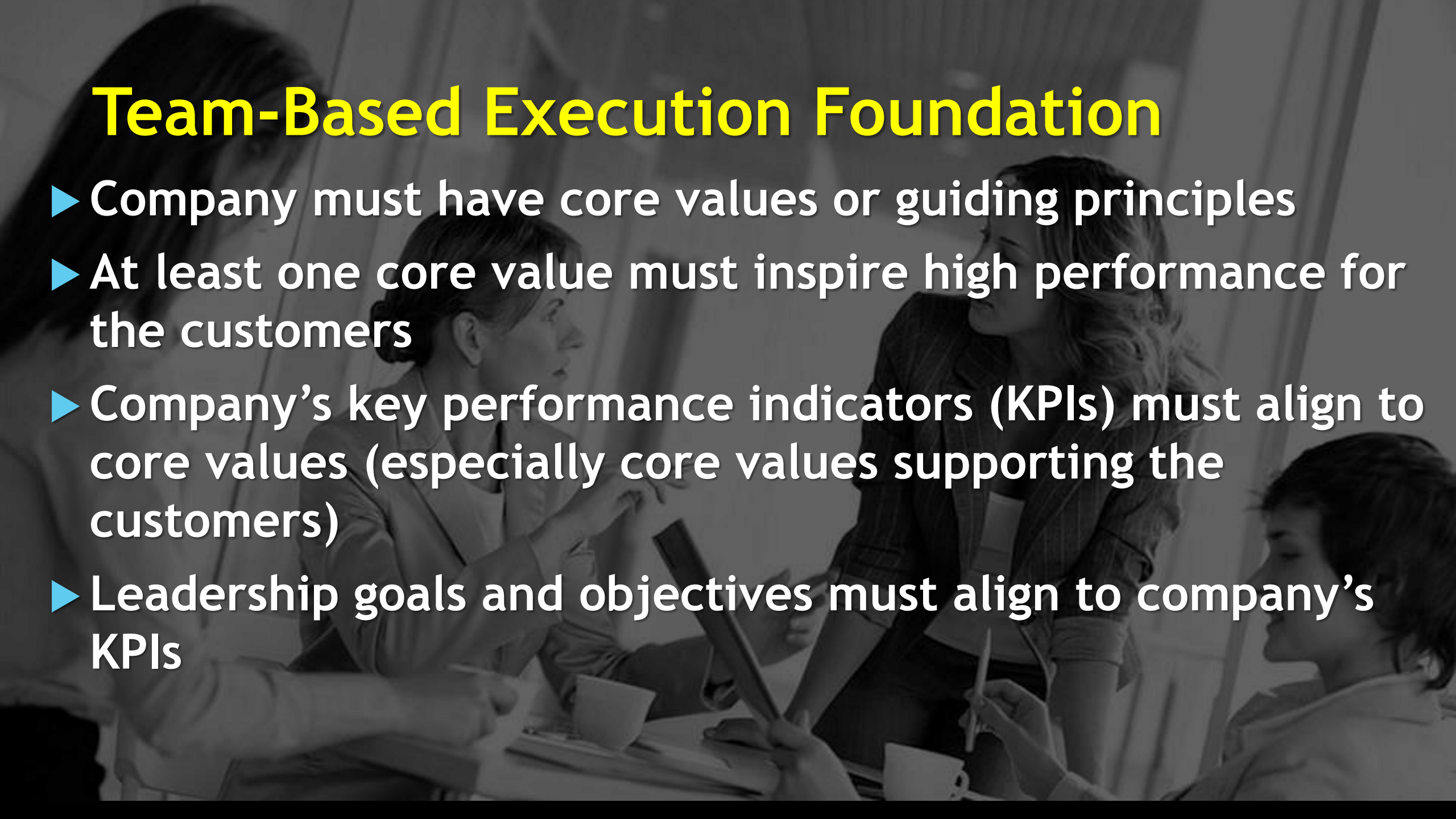


# Team-Based Decision Making Characteristics

- Leadership must respect their team members
- Utilizes facts and data
- Yields better results
- High performing workforce
- More engaged and happier workforce

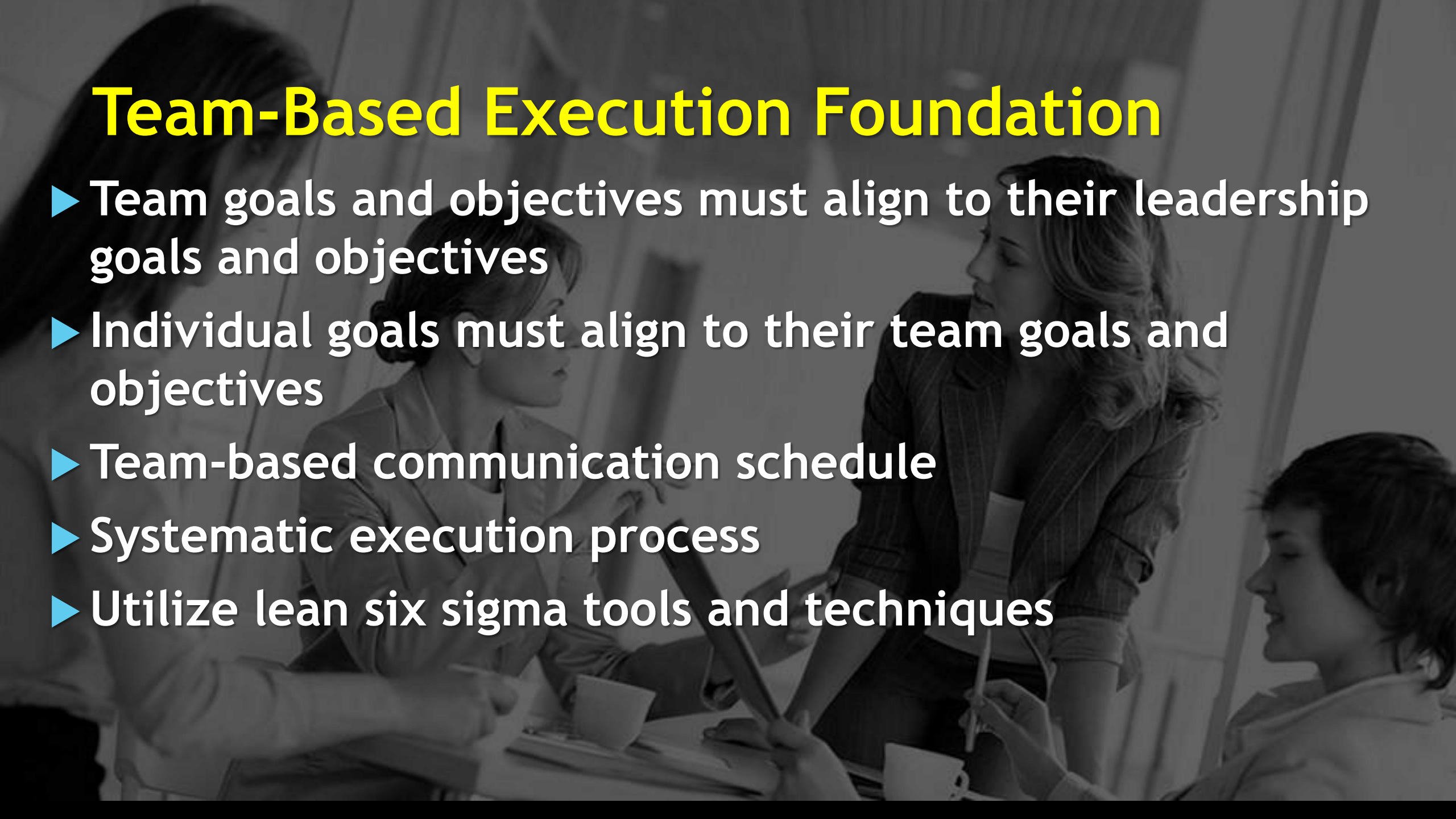
# Team-Based Decision Making Levels

- Front Line Teams
- Support Teams
  - Plant Level
  - Enterprise Level
- Executive Teams



# Team-Based Execution Foundation

- Company must have core values or guiding principles
- At least one core value must inspire high performance for the customers
- Company's key performance indicators (KPIs) must align to core values (especially core values supporting the customers)
- Leadership goals and objectives must align to company's KPIs



# Team-Based Execution Foundation

- Team goals and objectives must align to their leadership goals and objectives
- Individual goals must align to their team goals and objectives
- Team-based communication schedule
- Systematic execution process
- Utilize lean six sigma tools and techniques

# Team-Based Communication Schedule

- Front Line Teams
  - Daily meetings within their team with daily decisions
  - Project meetings with individual front line members are as needed

# Team-Based Communication Schedule

- Support Teams
  - Weekly meeting within their team
  - Some support team members meet daily with the front line teams
  - Project meetings with individual support team members are as needed

# Team-Based Communication Schedule

- Executive Teams
  - Weekly meeting with their direct reports
  - Monthly progress reports with the project teams where applicable
  - Monthly progress report with their functional teams
  - Lead quarterly plant wide meetings with entire workforce

# Systematic Execution Process Steps

for Continuous Improvement and Problem Solving

## Project Management Systems:

- Toyota – A3 Process
- Ford – 8D process
- Plan-Do-Check-Act
- DMAIC
  - Design Phase
  - Measure Phase
  - Analyze Phase
  - Improve/Implement Phase
  - Control Phase

# DMAIC Project Management

## Lean Six Sigma Tools and Techniques

| Lean | | Six Sigma |
|---|---|---|
| Identify Opportunities using the 8 Waste and 5S Group Technology Analysis, Rapid Plant Assessment (RPA) | **Define Phase** | Project Charter<br>Stakeholder Management; SIPOC Analysis<br>Voice of the Customer |
| Baseline Data Collection; Current State Value Stream Map; Current State Layout; Current Layout Spaghetti Diagram; Operator Analysis; Visual Management; | **Measure Phase** | Types of Data; Histograms and Pareto Charts; Box & Scatter Plot; Statistical Process Control (SPC); Gauge R&R studies; Process Capability (Pp/Ppk) |
| Future State Value Stream Map; Future State Layout; Future Layout Spaghetti Diagram; Cell Design; Setup Reduction Analysis; Pull Production; Kaizen Workshops | **Analyze Phase** | Root Cause Analysis; Hypothesis Testing; Failure Modes and Effects Analysis (FMEA); One Sample, Two Sample, and Paired T-Tests; ANOVA; Regression; |
| Multi-functional workers; 5S and Visual Workplace; Ergonomics/Motion Economy; Continuous Improvement Roadmap and Implementation Phase; | **Improve/ Implementation Phase** | Design of Experiment (DOE) |
| Statistical Process Control (SPC); Capturing Improvement Data; Audit Improvement; Standard Work and Sustain Improvements | **Control Phase** | Control Plan; Verifications and/or Qualifications Testing; Monitor Improvements; Sustain Improvements |

# DMAIC Project Management Documentation

## Project Charter Title

| | |
|---|---|
| **Project Sponsor:** | **Start Date:** |
| **Project Leader:** | **Completion Date:** |

### Problem Statement

- The problem statement describes what is wrong ("the pain").
- It is a description of the concern, problem, or opportunity.
- Don't state the pre-determined solution.

### Project Goal

- Should describe the "relief" to the "pain"
- Should be SMART
  - Specific
  - Measurable
  - Achievable
  - Relevant
  - Time-bound

### Project Scope

- The scope clearly defines the boundaries of the project.
- It is essential to scope the project correctly because:
  - Too large of scope leads to unresolvable problems or taking too long to solve.
  - Too narrow of scope leads to incorrect solutions or may create additional problems in other areas.

### Potential Benefits and Risk

- Describe improvement benefits and any risk involved in the project.

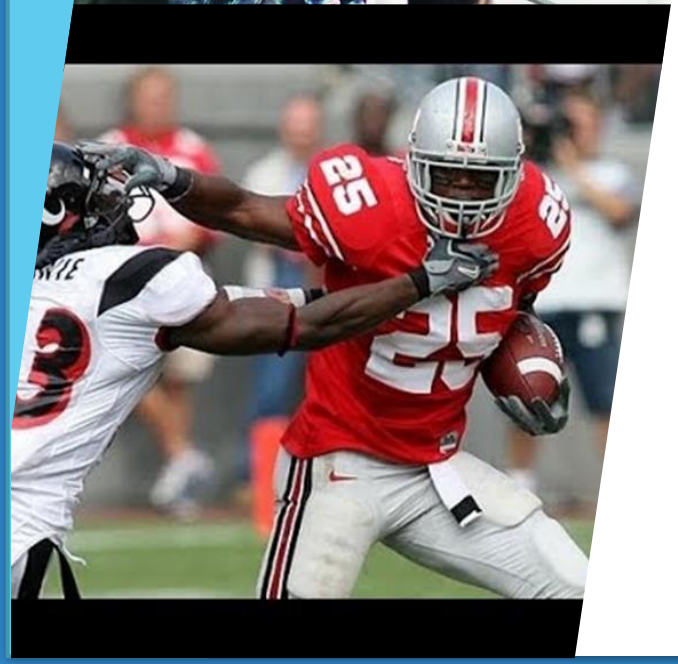
### Major Milestones

| Deliverables | Owner | Planned Date | Actual Date |
|---|---|---|---|
| **Define Phase** | | | |
| **Measure Phase** | | | |
| **Analyze Phase** | | | |
| **Improvement Phase** | | | |
| **Implementation Phase** | | | |
| **Control Phase** | | | |

# DMAIC Project Management Documentation

| Project Charter - Project Team Example | | |
|---|---|---|
| **Roles** | **Name** | **Title** |
| Project Leader | Joe TTTT | Plant Manager |
| Sponsor | Mary JJJJ | CEO |
| Core Team Member | Fred SSSS | Supervisor |
| Core Team Member | Jerry HHHH | 1st Shift Operator |
| Core Team Member | Ann FFFF | 3rd Shift Operator |
| Core Team Member | Tom | Quality Supervisor |
| Core Team Member | Kim TTTT | Maintenance Repair Technician |
| Subject Matter Expert | Danielle CCCC | Support Engineer or Lean Six Sigma |
| Extended Team Member | Rod KKKK | Accountant |
| Extended Team Member | Susan DDDD | Raw Material Supplier Engineer |

# DMAIC Project Management

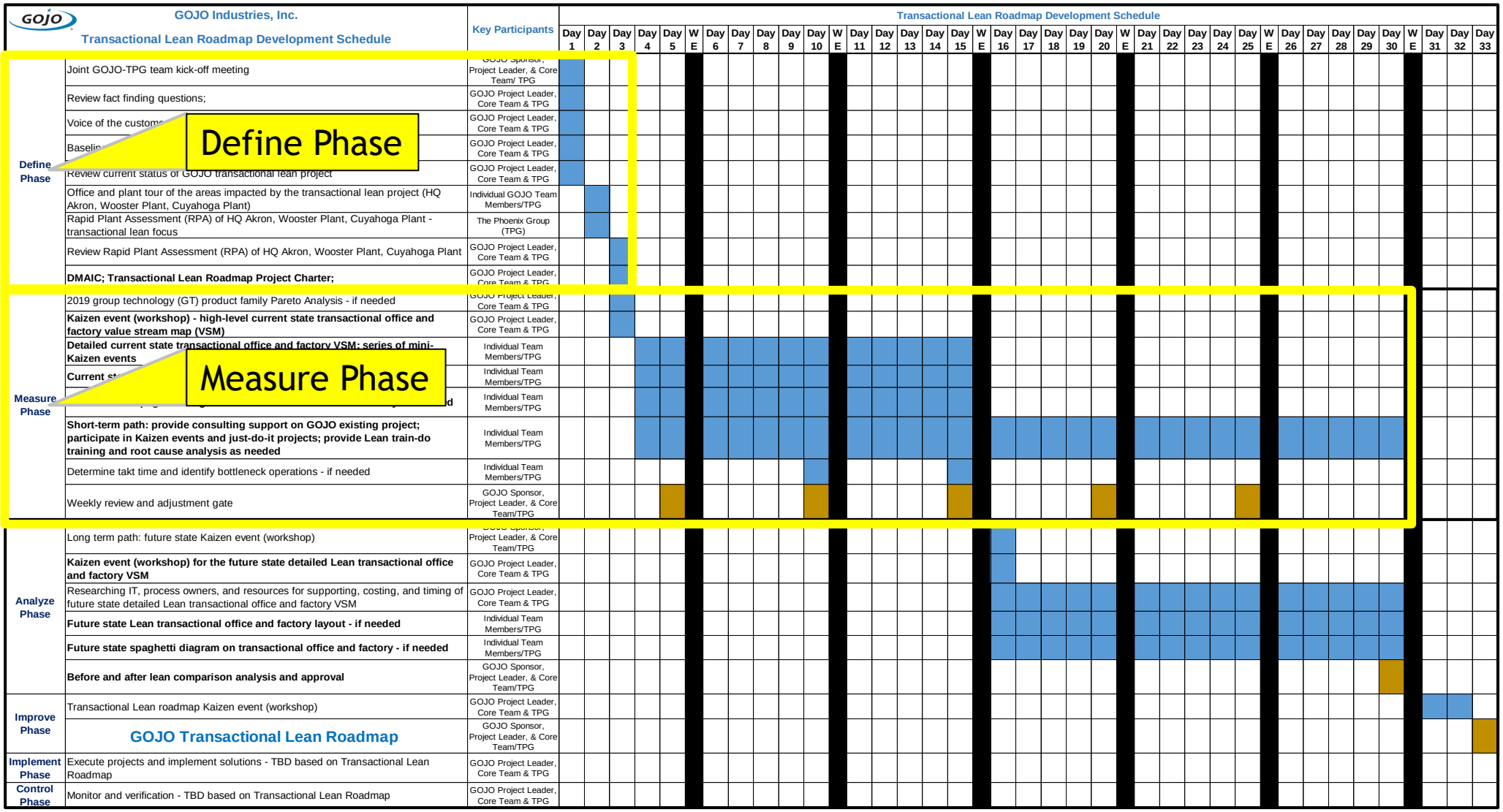


## Project Roles & Responsibilities

- Project Sponsor
- Project Leader
- Subject Matter Expert
- Core Team Member
- Extended Team Member

# DMAIC Project Management Documentation

## Gantt Chart Example



GOJO Industries, Inc.

Transactional Lean Roadmap Development Schedule

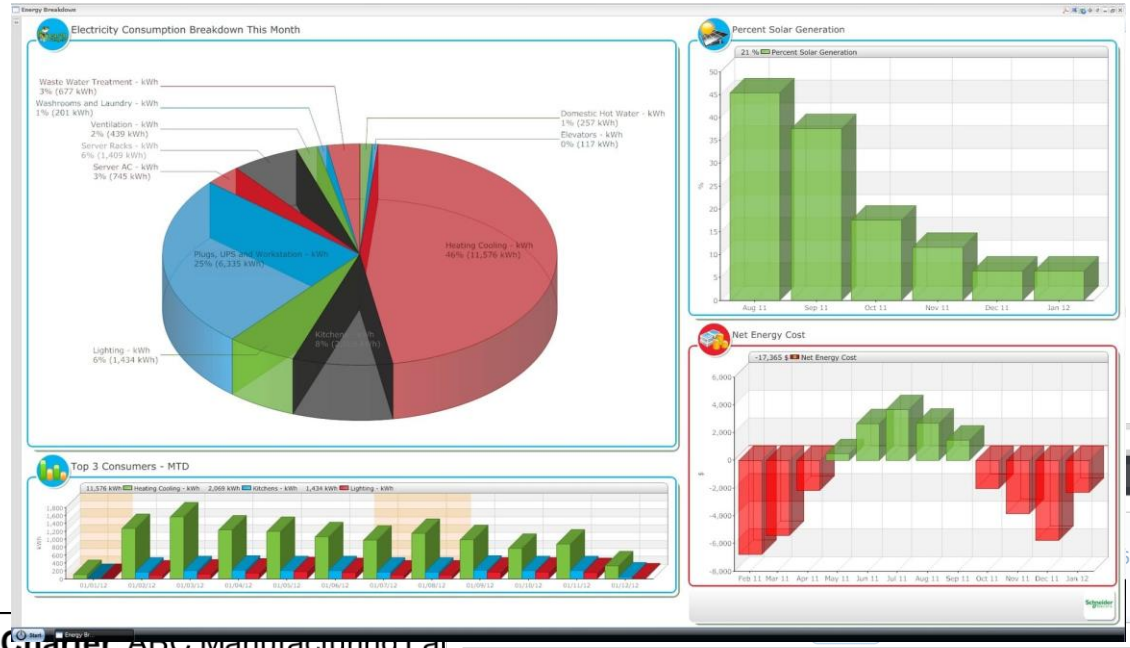
| | | Key Participants | Transactional Lean Roadmap Development Schedule: Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | W E | Day 6 | Day 7 | Day 8 | Day 9 | Day 10 | W E | Day 11 | Day 12 | Day 13 | Day 14 | Day 15 | W E | Day 16 | Day 17 | Day 18 | Day 19 | Day 20 | W E | Day 21 | Day 22 | Day 23 | Day 24 | Day 25 | W E | Day 26 | Day 27 | Day 28 | Day 29 | Day 30 | W E | Day 31 | Day 32 | Day 33 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Define Phase | Joint GOJO-TPG team kick-off meeting | GOJO Sponsor, Project Leader, & Core Team/ TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Review fact finding questions; | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Voice of the custom | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Baselin | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Review current status of GOJO transactional lean project | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Office and plant tour of the areas impacted by the transactional lean project (HQ Akron, Wooster Plant, Cuyahoga Plant) | Individual GOJO Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Rapid Plant Assessment (RPA) of HQ Akron, Wooster Plant, Cuyahoga Plant - transactional lean focus | The Phoenix Group (TPG) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Review Rapid Plant Assessment (RPA) of HQ Akron, Wooster Plant, Cuyahoga Plant | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **DMAIC; Transactional Lean Roadmap Project Charter;** | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measure Phase | 2019 group technology (GT) product family Pareto Analysis - if needed | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Kaizen event (workshop) - high-level current state transactional office and factory value stream map (VSM)** | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Detailed current state transactional office and factory VSM; series of mini-Kaizen events** | Individual Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Current st** | Individual Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Individual Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Short-term path: provide consulting support on GOJO existing project; participate in Kaizen events and just-do-it projects; provide Lean train-do training and root cause analysis as needed** | Individual Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Determine takt time and identify bottleneck operations - if needed | Individual Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Weekly review and adjustment gate | GOJO Sponsor, Project Leader, & Core Team/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Analyze Phase | Long term path: future state Kaizen event (workshop) | GOJO Sponsor, Project Leader, & Core Team/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Kaizen event (workshop) for the future state detailed Lean transactional office and factory VSM** | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Researching IT, process owners, and resources for supporting, costing, and timing of future state detailed Lean transactional office and factory VSM | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Future state Lean transactional office and factory layout - if needed** | Individual Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Future state spaghetti diagram on transactional office and factory - if needed** | Individual Team Members/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Before and after lean comparison analysis and approval** | GOJO Sponsor, Project Leader, & Core Team/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Improve Phase | Transactional Lean roadmap Kaizen event (workshop) | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **GOJO Transactional Lean Roadmap** | GOJO Sponsor, Project Leader, & Core Team/TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Implement Phase | Execute projects and implement solutions - TBD based on Transactional Lean Roadmap | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Control Phase | Monitor and verification - TBD based on Transactional Lean Roadmap | GOJO Project Leader, Core Team & TPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

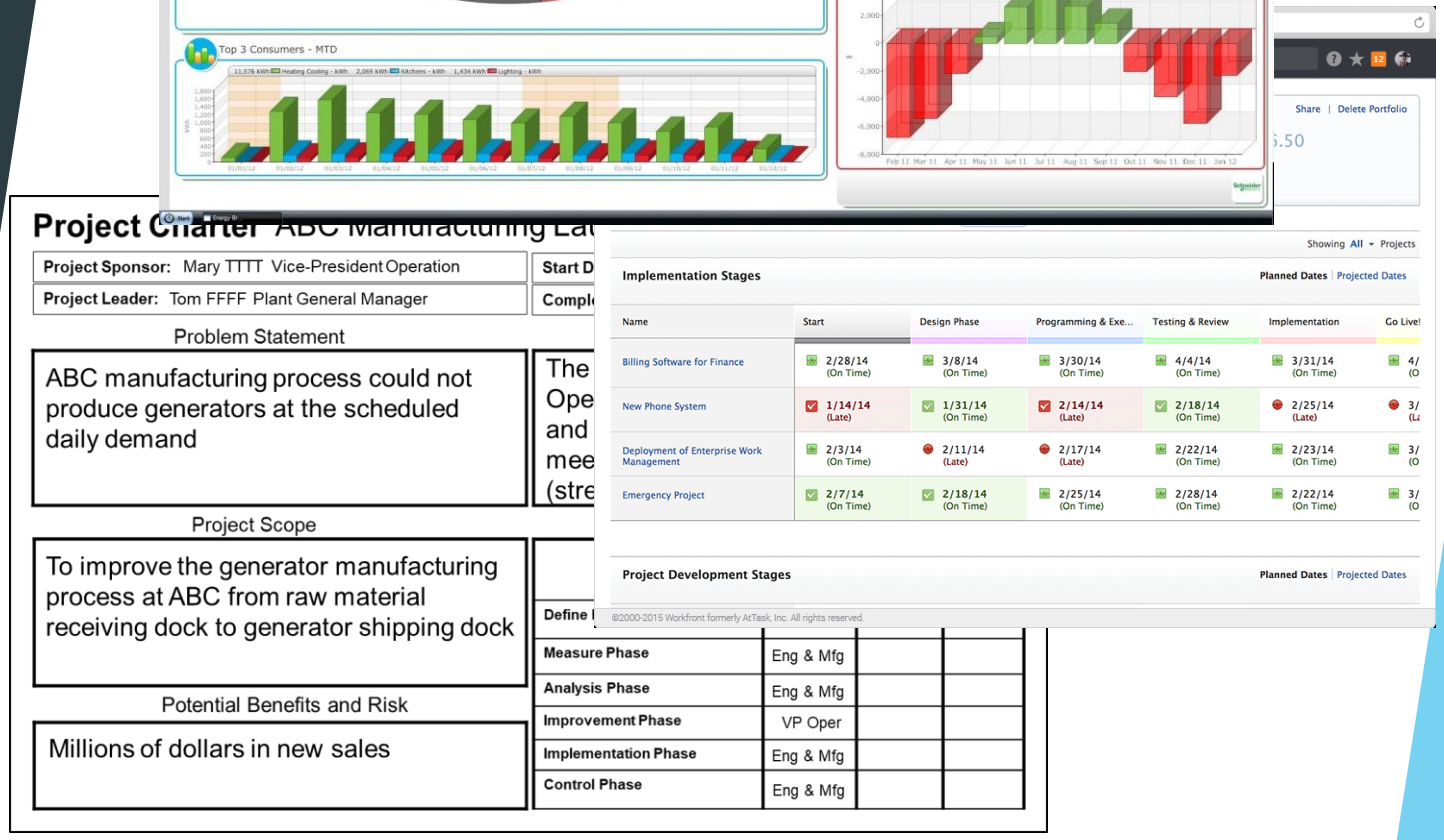
Define Phase

Measure Phase

# Enterprise Project Management Software

- Cloud based Project Management software
- Instantis
- Workfront
- Smartsheet
- InMotionNow

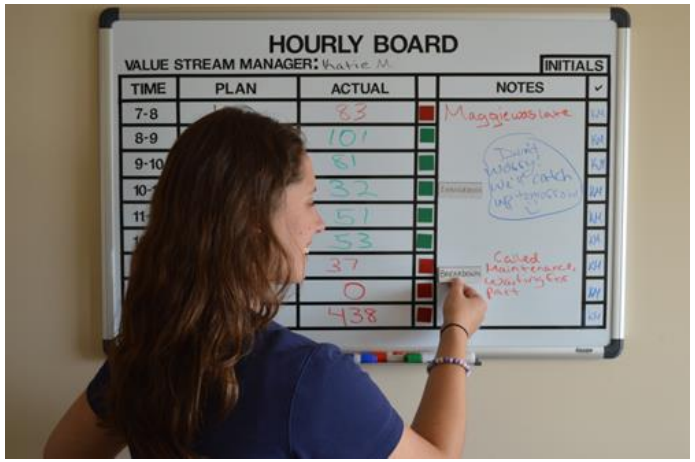


# Plant Production Communication Boards

- KPI’s align with core values
- Customer driven KPI’s
- Team success stories
- Daily production reports
- Safety results and awareness





# Impact of Timing in Decision Making

## Decision Tree

November 31, 2019

**Small Medical Company**

Increase ventilators output by 400%

- Existing Plant Expansion $1.75 M
  - Quickest Completion → 3 months, 20% Probability
  - Slowest Completion → 9 months, 80% Probability
- Buy a New Plant $3.8 M
  - Quickest Completion → 2 months, 40% Probability
  - Slowest Completion → 6 months, 60% Probability
- Partner with Automaker $1.0 M
  - Quickest Completion → 1 months, 40% Probability
  - Slowest Completion → 3 months, 60% Probability

March 11, 2020
COVID-19

# The ABC Manufacturing Launch of New Medical Generator Increase Output Case Study

This increase output case study is based on actual events at Medical Device Generator Company, but names, data, and information have been modified to protect confidentiality and proprietary agreements.

# Overall Project Charter

## Project Charter ABC New Generator Increase Output Project

| | |
|---|---|
| **Project Sponsor:** Mary TTTT Vice-President Operation | **Start Date:** 4/22/2015 |
| **Project Leader:** Tom FFFF Plant General Manager | **Completion Date:** 6/22/2015 |

### Problem Statement

ABC manufacturing process could not produce generators at the scheduled daily demand

### Project Goal

The objective was to join forces with ABC Operation's Team to improve the quality and production rate of the generator to meet the daily demand of 100 units/day (stretch goal of 120 units/day)

### Project Scope

To improve the generator manufacturing process at ABC from raw material receiving dock to the generator shipping dock

### Potential Benefits and Risk

Over a billion dollars in gross sales

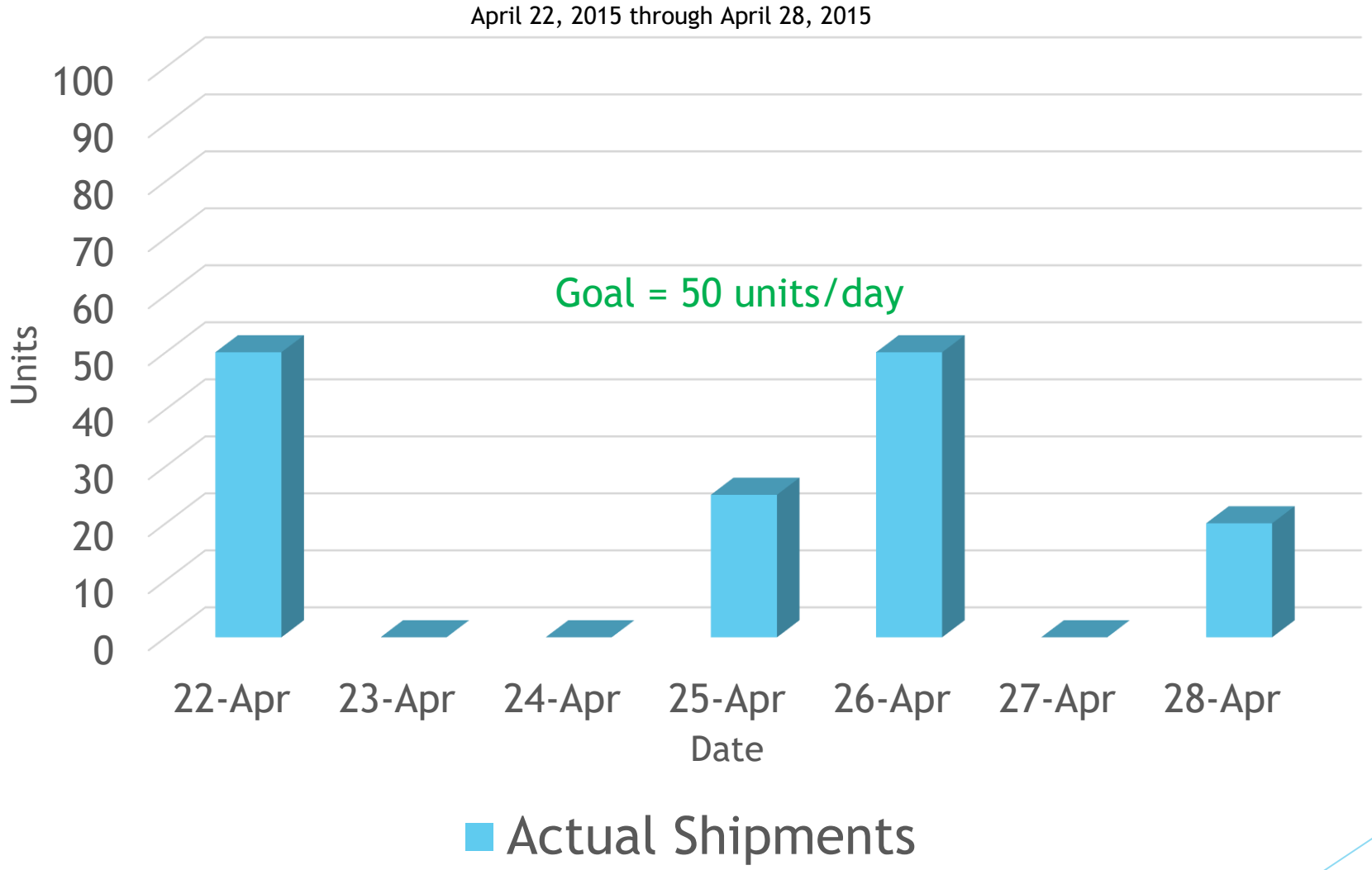
### Major Milestones

| Deliverables | Owner | Planned Date | Actual Date |
|---|---|---|---|
| **Define Phase** | Eng & Mfg | | |
| **Measure Phase** | Eng & Mfg | | |
| **Analysis Phase** | Eng & Mfg | | |
| **Improvement Phase** | VP Oper | | |
| **Implementation Phase** | Eng & Mfg | | |
| **Control Phase** | Eng & Mfg | | |

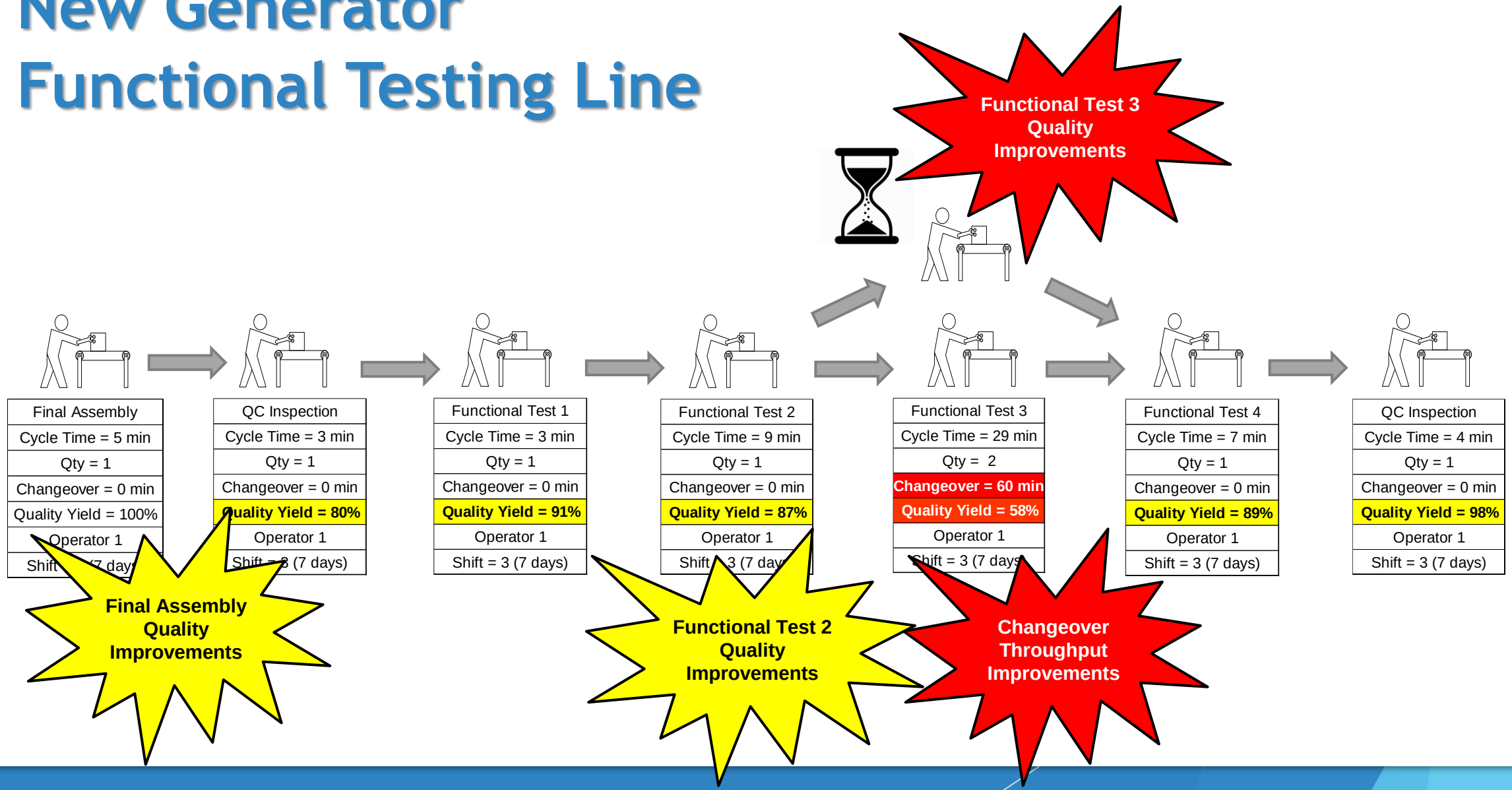
# ABC New Generator Increase Output Project Team

| ABC Manufacturing Launch of New Generator - Project Team | | |
|---|---|---|
| **Roles** | **Name** | **Title** |
| Co-Project Leader | Tom FFFF | Plant General Manager |
| Co-Sponsor | Mary TTTT | Vice-President Operations |
| Co-Project Leader | Greg YYYY | R&D Director |
| Co-Sponsor | Rob SSSS | Vice-President R&D |
| Core Team Member | Fred SSSS | Generator Line Supervisor |
| Core Team Member | Katrina LLLL | R&D Design Engineer |
| Core Team Member | Jerry HHHH | 1st Shift Operator |
| Core Team Member | Omar BBBB | 2nd Shift Operator |
| Core Team Member | Charlene VVVV | Supply Chain Manager |
| Core Team Member | Paul YYYY | Lean Specialist |
| Core Team Member | Ann FFFF | 3rd Shift Operator |
| Core Team Member | Mark CCCC | Quality Supervisor |
| Core Team Member | Kim TTTT | Maintenance Repair Technician |
| Subject Matter Expert | Danielle CCCC | IT Support Engineer |
| Subject Matter Expert | Andy DDDD | Lean Six Sigma Master Black Belt |
| Extended Team Member | Rod KKKK | Accountant |
| Extended Team Member | Bill WWWW | R&D Design Engineer |
| Extended Team Member | Susan DDDD | Raw Material Supplier Engineer |

# ABC Generators Daily Shipments Tracking

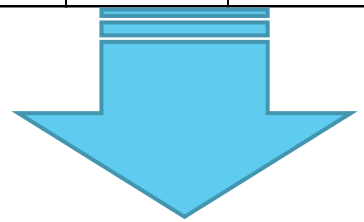


# New Generator Functional Testing Line

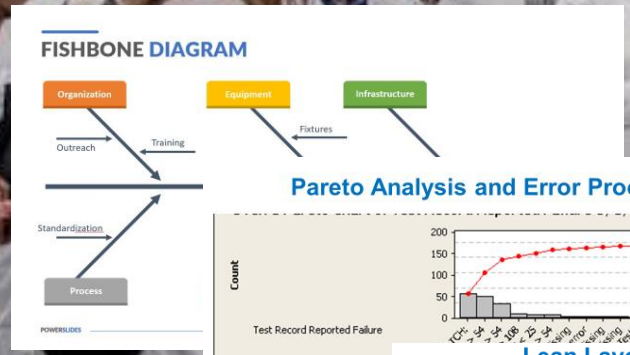


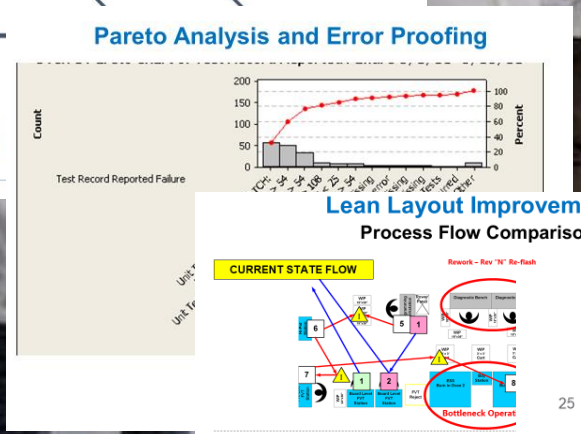
# ABC New Generator Increase Output Project Example

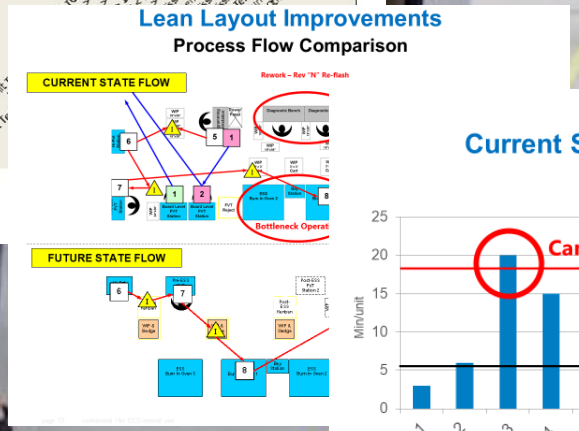
| Action Item Log | | ABC New Generator Incresase Output Project | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Last Updated 4/30/2015 | | | | | | | | | |
| | | | | Co-Team Leaders | | | | | |
| No. | Continuous Improvement Project Description | Priority | Primary Metric | ABC | OEM | Current Status | Target Date | Date Closed | Action Items/Notes |
| 1 | Functional Tester 3 - Quality Yield Improvements | High | Quality | Mark CCCC | Andy DDDD | On time | 5/15/2015 | | 4/31 - Meet with all 3 shifts; IT support |
| 2 | Buy additional Functional Tester 3 | High | Capacity | Fred SSSS | Charlene VVVV | On time | 6/20/2015 | | 5/1 - Test machine supplier meeting |
| 3 | Functional Tester 3 - Quick Changeover | High | Throughput | Paul YYYY | Katrina LLLL | On time | 5/30/2015 | | 5/4 - Set up reduction training |
| 4 | Functional Tester 1 - Quality Yield Improvements | High | Quality | Mark CCCC | Andy DDDD | On time | 5/15/2015 | | 4/31 - Meet with all 3 shifts; IT support |
| 5 | Functional Tester 2 - Quality Yield Improvements | High | Quality | Mark CCCC | Andy DDDD | On time | 5/15/2015 | | 4/31 - Meet with all 3 shifts; IT support |
| 6 | Functional Tester 4 - Quality Yield Improvements | High | Quality | Mark CCCC | Andy DDDD | On time | 5/15/2015 | | 4/31 - Meet with all 3 shifts; IT support |
| 7 | Packaging Lean Layout Improvements | Medium | Throughput | Paul YYYY | Katrina LLLL | On time | 6/20/2015 | | 5/15 - Current state layout review |
| 8 | Final Assemby Quality Improvement | High | Quality | Mark CCCC | Andy DDDD | On time | 5/30/2015 | | 4/31 - Meet with all 3 shifts; |
| 9 | Buy additional Functional Tester 3 | Low | Capacity | Fred SSSS | Charlene VVVV | On time | 8/30/2015 | | Waiting on first test machine |

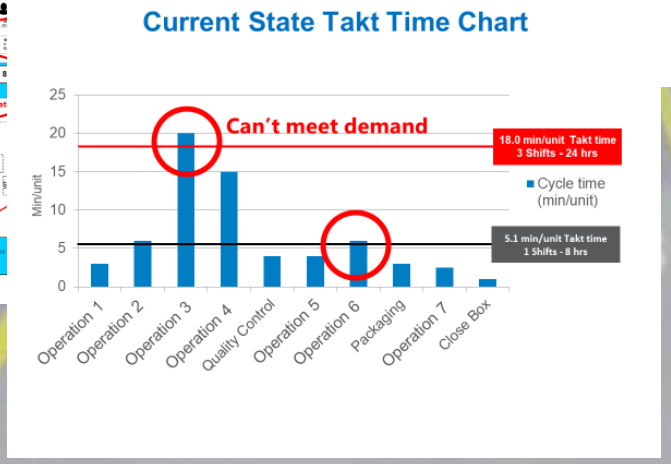


# ABC New Generator Increase Output Project



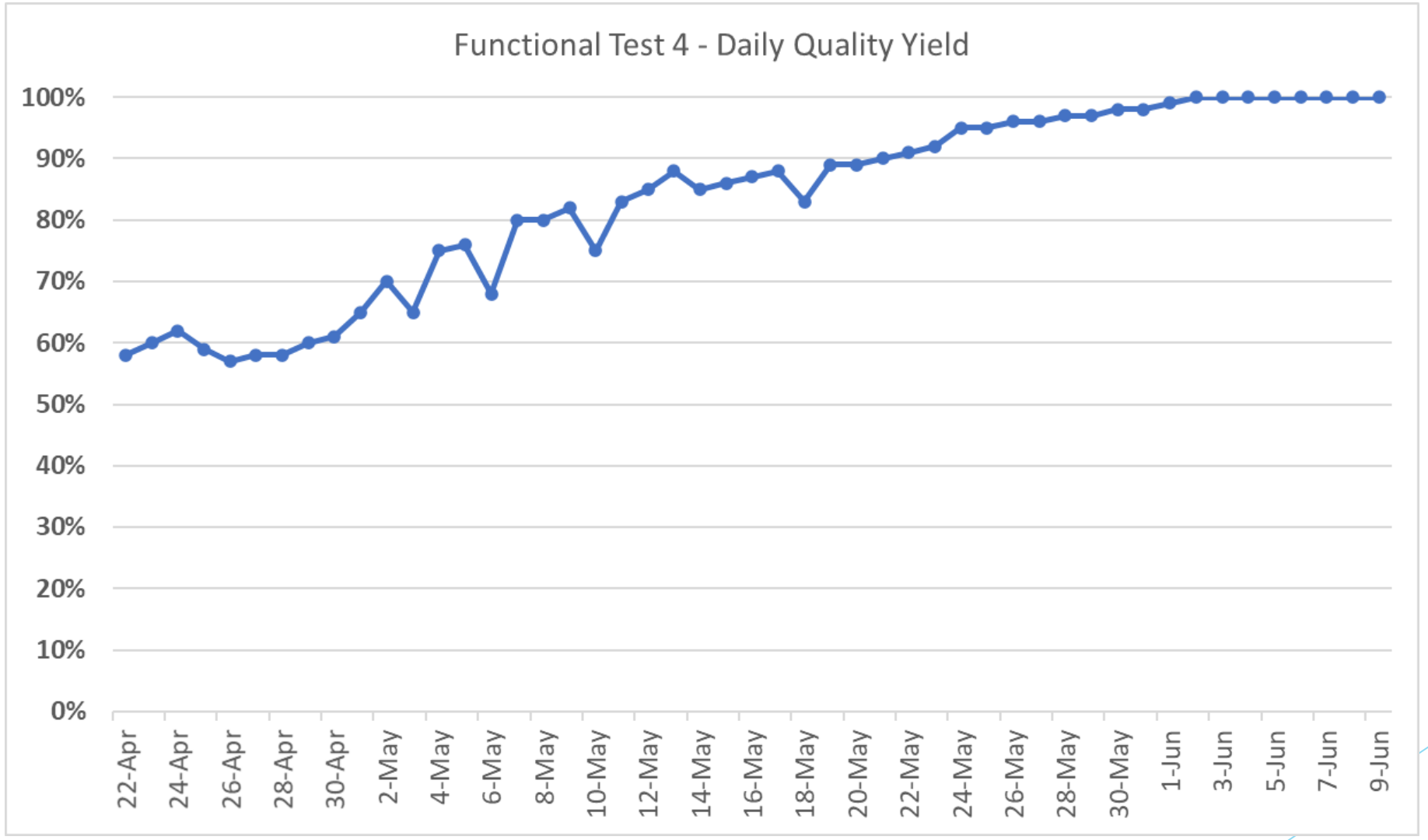



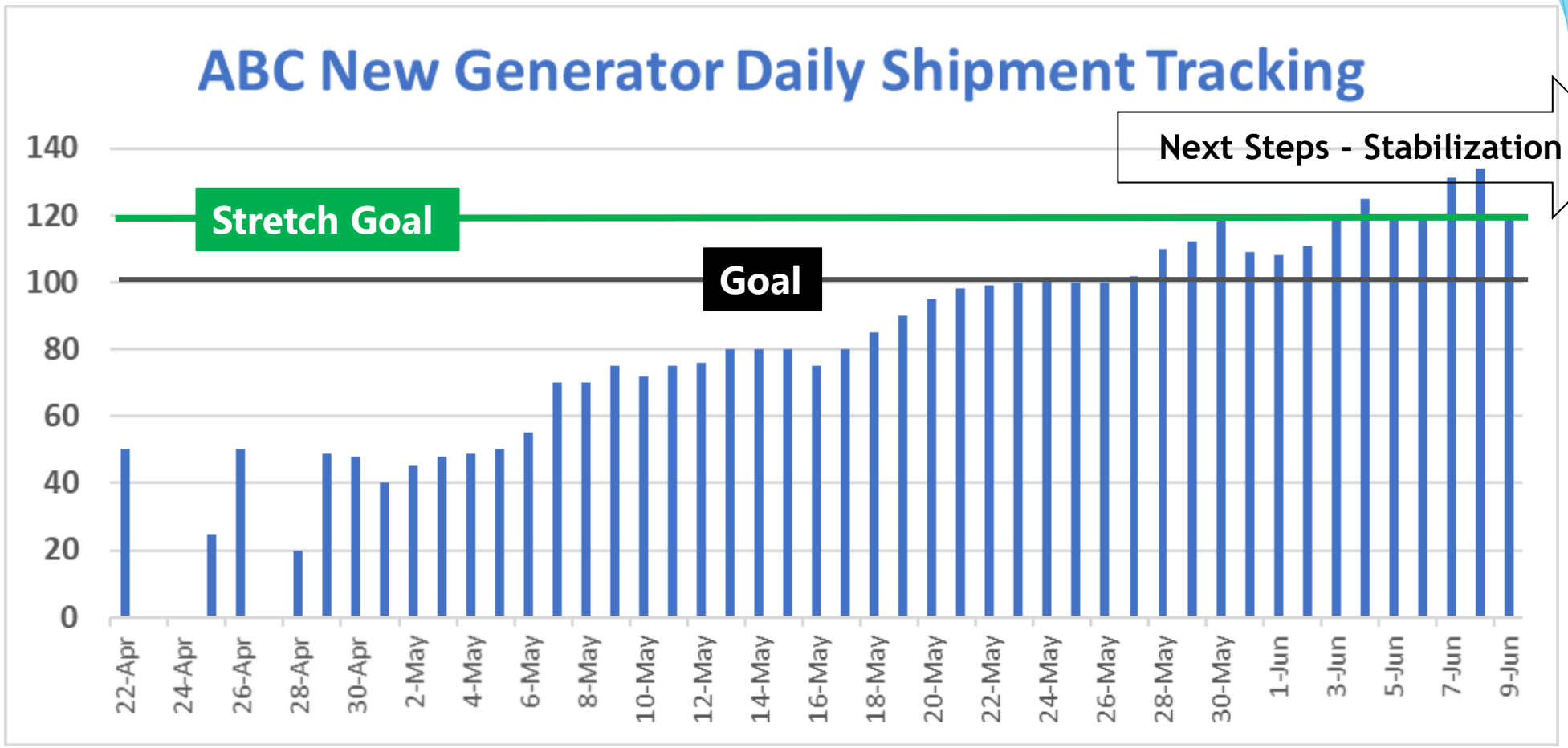




- Daily huddle meetings
- Weekly updates

# Functional Test 4 - Daily First Time Quality Yield







# The Team Exceeded Expectations! ☺

# Thank you!

Danke (German)

Gracias (Spanish)

Spasibo (Russian)

Obrigado (Portuguese)

Terima Kasih (Malay)

Dankie (South African)

Merci (French)

Tak (Danish)

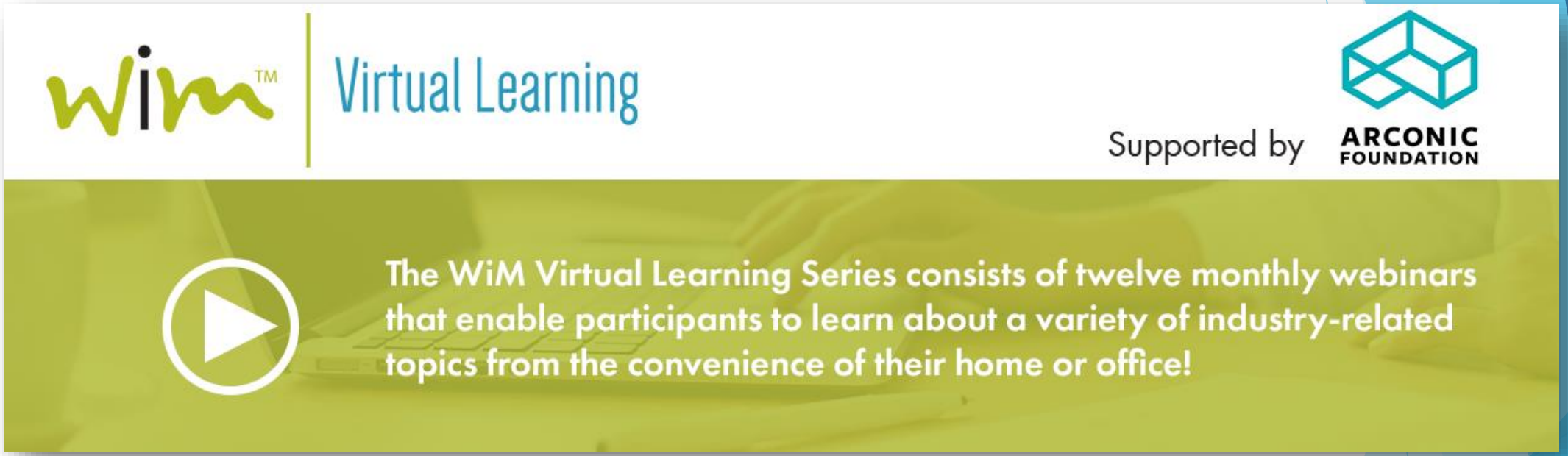
Grazie (Italian)

Do Jeh (Cantonese)

Arigato (Japanese)

Āmeseginalehu (Ethiopian)

# Virtual Learning Series




**View the full 2020 VLS schedule here:**
https://www.womeninmanufacturing.org/virtual-learning

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**May 20, 2020**
**Emotional + Social Intelligence**
**Presented by Martha Clarke**

**June 17, 2020**
**Hard Power v. Soft Power - Navigating Based on Personal Brand**
**Presented by Brooke Foley**

**July 15, 2020**
**Ethics, Integrity & Courage - Understanding Yours**
**Presented by Brooke Foley**

**August 5, 2020**
**Adaptability & Leading Change**
**Presented by Dr. Graeme Codrington**


LEADERSHIP CONSORTIUM

Key Objectives

- Broaden their personal impact
- Create an introspective on building and rebuilding teams
- Transform the leaders of tomorrow
- Lead with a vision
- Connect and engage people to a shared vision

- **For seasoned leaders** that lead others in manufacturing: senior managers, directors, department leads, vice presidents or any role which manages other leaders.
- **Outcome-based, cohort-style program** with opportunities to learn through new experiences, reflection and peer coaching.
- One virtual introduction event, two 2.5 day in-person sessions, 5 webinars and a virtual project report-out

# Thank you for your attention and participation!

If you have questions from the presentation or about any of WiM's educational programs, please email them to Stacey@buildeveloplead.com with the subject line "**VLS FAQ**"

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