Introduction to
Cycle Time Optimization
(CTO)
Definition

**Cycle Time Optimization (CTO)** is an operating philosophy of maximizing the efficiency of suboptimal value-added activities while minimizing non-value-added activities and time for the best quality, cost and responsiveness to customer needs. **Optimal Thinking** is the core of all activities.
Cycle Time Optimization Chart

- Value-adding Activities:
  - Optimal: Green bars
  - Sub-optimal: Purple bars

- Non-Value-adding Activities:
  - Optimal: Green bars
  - Sub-optimal: Purple bars

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Some Suboptimal Examples

Case (1) : Excessive NVA Activities

Case (2) : Excessive Queue Time

Case (3) : Continuous Optimization

Case (4) : Combination
Systems Concept

- Each system has input, output, process and feedback
- Each system has smaller systems inside
- Each system is part of a bigger system
- Systems are inter-related

If any one of the parts is suboptimal, the whole system is suboptimal.
Principles in Process Optimization Design

1. Perform activities in parallel as early as possible
2. Set up common priority system
3. Minimize variability in the system
4. Minimize queue time
5. Minimize suboptimal and non-value-adding activities
6. Optimize value-adding activities
7. Minimize errors (Do it right the first time)
8. Detect errors at the source
9. Set up feedback system for timely corrective action
10. Set up optimal process-oriented performance metrics and measurement system
11. Perform best process failure mode and effect analysis
Root Cause Analysis

Areas to consider:

• People
• Process
• Equipment
• Material
• Measurement
• Environment
Types of Optimization

- Continuous
- Breakthrough
- Combination
For more information on CTO, please contact:

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