

Standardized Work

Module 6.1

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These materials were developed as part of MIT's ESD.60 course on "Lean/Six Sigma Systems." In some cases, the materials were produced by the lead instructor, Joel Cutcher-Gershenfeld, and in some cases by student teams working with LFM alumni/ae. Where the materials were developed by student teams, additional inputs from the faculty and from the technical instructor, Chris Musso, are reflected in some of the text or in an appendix

Overview

➤ Learning Objectives

- Understand what is meant by standardized work
- Appreciate the value and limitations of standardized work
- See examples of standardized work results

➤ Session Design (20-30 min.)

- **Part I:** *Introduction and Learning Objectives (1-2 min.)*
- **Part II:** *Key Concept or Principle Defined and Explained (3-5 min.)*
- **Part III:** *Exercise or Activity Based on Field Data that Illustrates the Concept or Principle (7-10 min.)*
- **Part IV:** *Common “Disconnects,” Relevant Measures of Success, and Potential Action Assignment(s) to Apply Lessons Learned (7-10 min.)*
- **Part V:** *Evaluation and Concluding Comments (2-3 min.)*

Definition

- “Standardized work is A TOOL FOR MAINTAINING PRODUCTIVITY, QUALITY, AND SAFETY, at high levels”¹
- “Standardized work is defined as work in which the sequence of job elements has been efficiently organized, and is repeatedly followed by a team member”²
- “Standardized work is a process whose goal is kaizen. If standardized work doesn’t change, we are regressing”³

Source: 1) www.lean-biz.com/pdfs/standardize.pdf

2) *Pascal Dennis, Lean Production Simplified (New York:Productivity Press, 2002)*

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Why Standardized Work?

- Provides a basis for employee training
- Establishes process stability
- Reveals clear stop and start points for each process
- Assists audit and problem solving
- Creates baseline for kaizen
- Enables effective employee involvement and poka-yoke
- Maintains organizational knowledge

Elements of Standardized Work

➤ Takt Time and Cycle Time

- Takt Time = Daily operating time / Required quantity per day
- Cycle Time = Actual time for process
- Goal is to synchronize takt time and cycle time

➤ Work Sequence

- The order in which the work is done in a given process
- Can be a powerful tool to define safety and ergonomic issues

➤ In-Process Stock

- Minimum number of unfinished work pieces required for the operator to complete the process

JB's Pizzeria Exercise

- JB's Pizzeria has recently implemented standardized work to their pizza making business in the hopes of increasing customer satisfaction (via improving consistency and better satisfying customer tastes)
- The class will break into three groups to illustrate how JB's Pizzeria has improved with time
 - Group I – Makes pizzas without standardized work (SW)
 - Group II – Makes pizzas after SW implemented
 - Group III – Makes pizzas after SW and kaizen improvement
- The exercise will last five to ten minutes

JB's Pizzeria Exercise – Typical Results

- Typical results from the exercise are:

Group I – Makes pizzas without standardized work (SW)

1. Pizzas are “creative” with lots of variety in size, shape, and design
2. Group I tends to take the longest time to complete the exercise

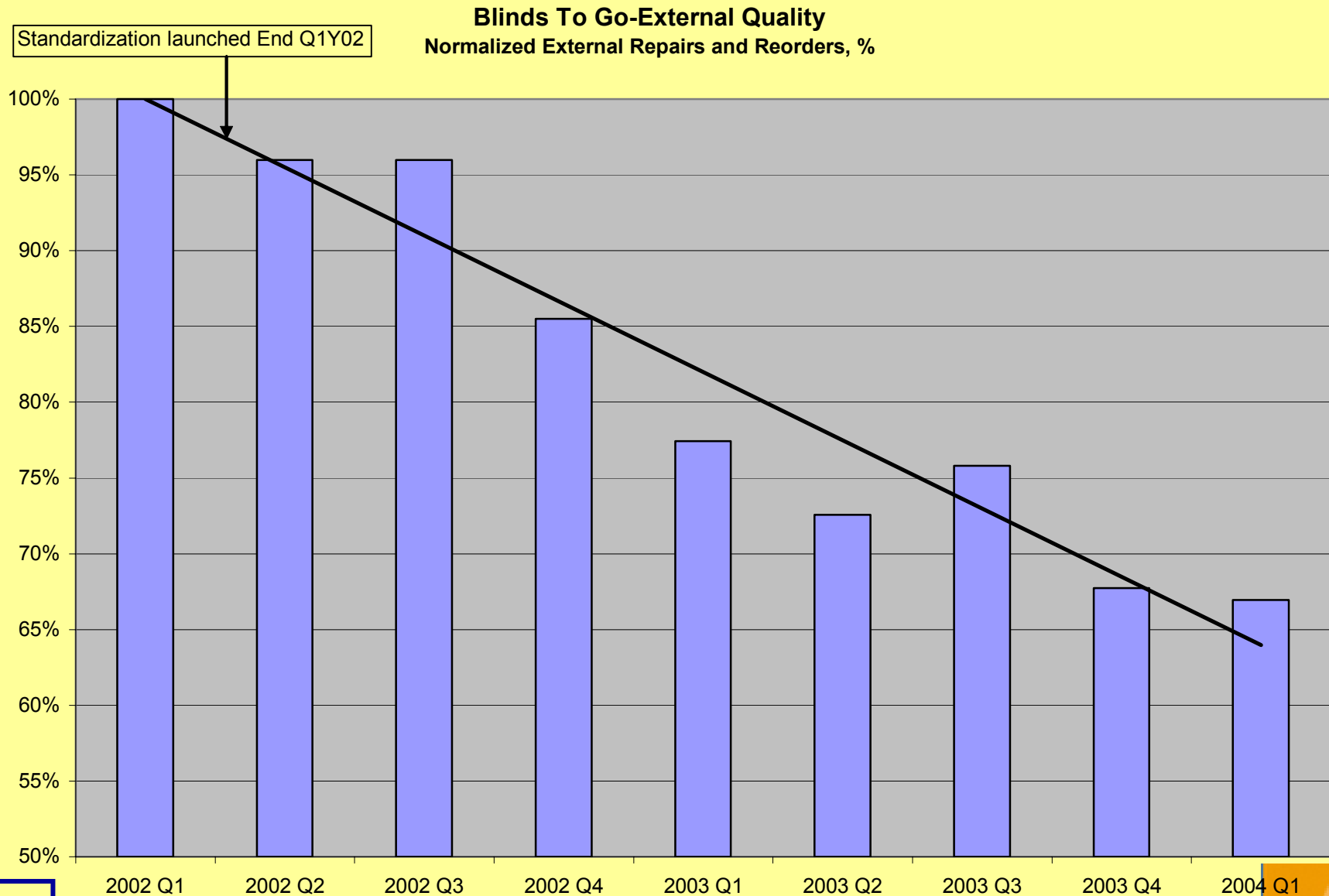
Group II – Makes pizzas after SW implemented

1. Pizzas closely resemble the desired product quality but with some minor variations
2. Group II tends to take nearly the same amount of time as Group I

Group III – Makes pizzas after SW and kaizen improvement

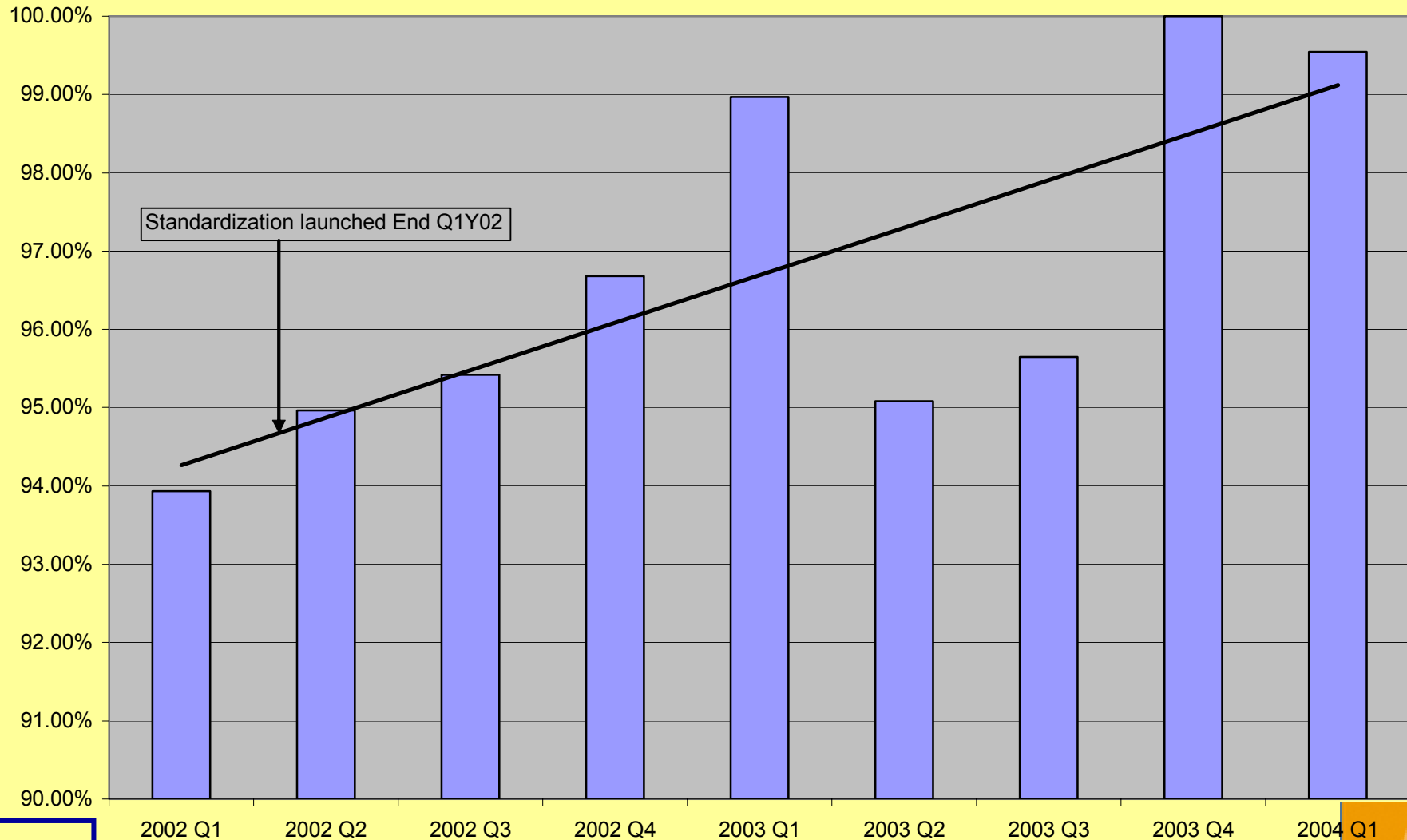
1. Pizzas look like “prototype”
2. Group III tends to finish earliest

Blinds To Go Example



Blinds To Go Example

Blinds to Go
Normalized Labor Efficiency



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Worker attrition is an issue

Part I: Introduction

Part II: Concepts

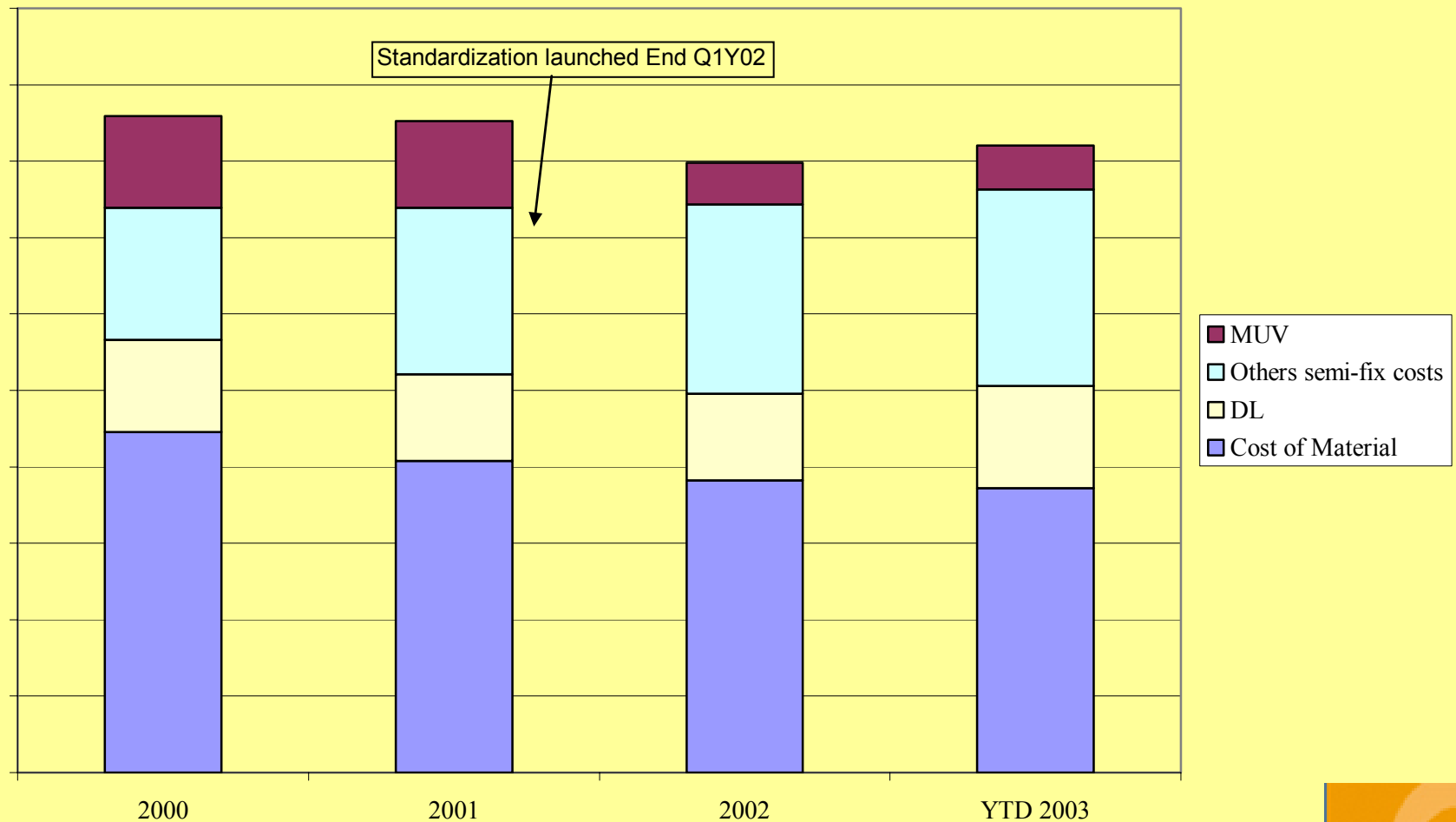
Part III: Application

Part IV: Disconnects

Part V: Conclusion

Blinds To Go Example

Blinds To Go Inc.
Manufacturing costs



MUV = material use variance
DL = direct labor

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Disconnects & Misconceptions

- Standardized work is sometimes mistaken to be a static work process
- Workers may feel threatened that their jobs are at risk and therefore may not participate fully in optimizing the process
- Standardized work may not show immediate results due to other factors:
 - worker attrition
 - additional training requirement
 - improvement cycle just beginning

Concluding Comments

- Standardized work is a method of defining efficient work process that are repeatedly followed by workers
- Standardized work often aims to maintain productivity, quality, and safety at high levels
- ***Improvement is endless and eternal***

Toyota Proverb

Appendix: Instructor's Comments and Class Discussion for 6.1

- Standardized work is a core foundation for almost all other principles of lean/six sigma
- One of the big differences between lean and mass:
the source of the standardized work
 - Lean: standardized work comes from teams, is constantly improved
 - Mass: standardized work imposed by management and industrial engineers, very rigid
- Important goal of standardized work: eliminating wasteful motion

Appendix: Instructor's Guide

Slide	Time	Topic	Additional Talking Points
1-2	2-3 min	Introduction, overview and learning objectives	<ul style="list-style-type: none"> • Identify overall themes – don't just read from the slide
3-5	5-8 min	Key Concepts	<ul style="list-style-type: none"> • Three definitions shed light on different aspects of standardized work (SW): <ol style="list-style-type: none"> (1) Illustrates direct benefits expected from a SW implementation, (2) Consists of a somewhat direct definition of SW, (3) Expresses the ultimate potential of SW, continuous improvement • Contrast SW with Taylorism and industry's recent separation of mental and physical labor (industrial engineers vs. line workers) • Point out that the seven benefits listed on slide 4 are interwoven • Stress that SW is a beneficial tool by itself but becomes even more powerful as part of a lean system

Appendix: Instructor's Guide

Slide	Time	Topic	Additional Talking Points
6-10	7-10 min	Exercises/Activities/ Measurables	<ul style="list-style-type: none"> • 3 teams in 3 restaurants at different stages of implementation • May see negative results before Kaizen implementation • Blind to Go business model: step customer's order in 5 days, before SW: everyone do differently, after SW: 35% Reduction in Quality Repairs, Decrease Material Use Variance (Matl waste)
11	5-7 min	Disconnects	<ul style="list-style-type: none"> • Process Discipline is over emphasized
12	1-2 min	Concluding comments	<ul style="list-style-type: none"> • SW is a method of defining efficient work processes that are repeatedly followed by workers which aims to maintain productivity, quality, and safety through continuous improvement