LeanTPS™ Chapter 4

DISCOVERING MUDA

Seeing Waste and Understanding Work



David Devoe

About this chapter

Discovering Muda develops the ability to examine actual work and distinguish its purpose from the effort consumed in performing it. The chapter explains value-adding work, necessary incidental work, and avoidable waste within the operating relationships of the Toyota Production System. It connects those distinctions with unevenness, overburden, Quality protection, and leadership responsibility for the conditions under which people work.

This chapter stands on its own by introducing the operating references needed for the discussion. In the sequence of the book, Chapter 2 establishes the environmental conditions through 5S Thinking, and Chapter 3 develops Standardized Work as the reference for the repeatable operator method. Discovering Muda then deepens observation and investigation against those conditions. Later chapters develop Jidoka, Kaizen, Just In Time, and application of the complete system. Observation, standardization, and improvement reinforce one another throughout that learning sequence.

The experience behind the teaching

My teaching draws on 13 years at Toyota BT Raymond and TPS study at Toyota Industries Corporation in Takahama, Japan. The retained presentations used for this chapter include examples of assembly, material presentation, waste observation, and the responsibilities of leaders. The chapter develops those teaching relationships in newly written prose. An archive slide establishes what the retained material says, while a completed operating result requires additional evidence.

Examples and figure credits

The Reach Truck fastening and Rock Truck wheel examples come from separate retained training sequences. Their descriptions are kept separate, and neither is presented as a measured improvement project. The timing, demand, mixed-model, queue, and information-work examples identified as constructed illustrations were prepared for this chapter. Their values explain the reasoning and do not report Toyota or client performance. Original teaching figures distinguish the purpose of work from the conditions creating loss.

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Independent publication. Not endorsed by Toyota. Apply the relevant workplace Safety, Quality, technical, and operating requirements. The examples explain observation and decision-making rather than authorize changes to a production process.

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Chapter contents

Select a section title to navigate. Page numbers refer to this edition.

4.0 Discovering Muda Within the Production System 4
4.1 Customer Requirements and the Purpose of Work 8
4.2 Value Adding Work Incidental Work and Avoidable Waste 12
4.3 Muda Mura and Muri 16
4.4 Observing a Complete Work Cycle 19
4.5 The Reach Truck Fastening Example 25
4.6 The Rock Truck Wheel Example 29
4.7 Overproduction and the Release of Work 33
4.8 Inventory and the Conditions It Conceals 36
4.9 Waiting and Protective Interruption 39
4.10 Motion and the Human Method 42
4.11 Conveyance and Material Presentation 45
4.12 Processing Defects Repair and Rework 48
4.13 Participation and the Use of Human Capability 51
4.14 Investigating Causes and Selecting Countermeasures 54
4.15 A Worked Illustration of Manual Work and Demand 58
4.16 Discovering Muda in Information Work 64
4.17 Human Machine Coordination and New Task Allocations 67
4.18 Leadership Responsibility and Confirmation at the Work 70
4.19 Worked Study Observing a Mixed Model Assembly Method 74
4.20 Worked Study Following Work Held Outside a Released Queue 78
4.21 Worked Study Investigating Repeated Technical Clarification 82
4.22 Chapter Review and the Connection to Jidoka 85
Appendix 4A A Record for Work Observation 87
Appendix 4B Practice Cases and Reasoned Review 89
Appendix 4C A Worked Observation Report 93
Source Notes 99

Discovering Muda

4.0 Discovering Muda Within the Production System

Muda becomes understandable when the observer can explain what the work must accomplish and how its conditions consume resources. A person may search for a component, wait for an answer, reposition a container, or repeat an entry because the process does not provide what the task requires. The visible activity is the starting evidence. Its cause may lie in planning, presentation, maintenance, information, or an earlier management decision. Discovering Muda therefore begins with attention to actual work and continues into responsibility for the conditions producing it.

The Toyota Production System connects waste reduction with capable execution, built-in Quality, and the movement of work in response to demand. Toyota's published descriptions relate the system to Jidoka and Just In Time and to the continuing improvement of the human method. This chapter develops a governance interpretation of those relationships: the organization must define the required condition, make a departure recognizable, and provide a dependable response when correct work cannot proceed. [4]

An observer who concentrates only on visible movement can miss the function of the activity. Walking to obtain a verified component may be necessary in the present arrangement. The distance may still reveal an opportunity to improve presentation. Confirming a critical characteristic may be required to protect the next process even though the check does not physically transform the product. The improvement question concerns how to secure the requirement with less difficulty, delay, or risk. Removing an activity without understanding its function can create a loss that appears elsewhere.

The operating condition as a reference

An operating condition includes the requirements and resources needed to perform the work correctly. The method may depend on a particular component identity, tool capability, product state, sequence, or replenishment arrangement. Timing matters because the next process needs a usable output at a particular rate. People also need instruction and a practical route to assistance. These conditions provide the reference against which the observer can examine what actually happens.

The reference does not need to be perfect before observation starts. An incomplete instruction, uncertain quantity, or disputed handoff can become the subject of the investigation. The observer must describe the uncertainty rather than conceal it behind a confident classification. A team can begin by establishing what is known, which requirement remains unclear, and who can resolve it. Discovery develops the reference while revealing the limits of the current method.

A useful observation connects a fact with a question. The fact may be that an operator leaves the station twice during one cycle to obtain the same item. The question concerns why the item is unavailable at the point of use and what arrangement would meet the requirement more dependably. Describing the person as inefficient adds no evidence about that cause. Leadership needs an explanation of the condition before it can select a responsible countermeasure.

Local effort and system performance

A busy process can still delay delivery. Producing a large quantity of the easiest model may raise a local output total while the next process waits for another model. Moving all available material into the station may reduce the frequency of replenishment visits while making selection, access, and product identification harder. The local activity and the complete production requirement must therefore be examined together.

The boundary of the study determines what the team can legitimately conclude. An improvement in one work element does not establish an improvement in lead time, total labor requirement, or customer delivery. Each claim needs evidence at the relevant boundary. The team should identify the local effect, examine its influence on connected work, and retain any limitation that remains unresolved.

Discovering Muda gives the reader a disciplined way to ask those questions. The chapter develops observation, classification, causal investigation, and verification as connected responsibilities. Waste categories help direct attention, while the work itself provides the evidence needed to decide what should change.

Following the loss beyond the visible activity

The place where effort becomes visible is not always the place where the organization can remove its cause. An assembler may walk because a supplying process delivers containers in an unsuitable sequence. A planner may expedite because release decisions exceed the capacity available for a