

TABLE OF CONTENTS

Why Read This Book?	xiii
Get Ready for Change	xv
What This Book Offers	xvi
1. Lead the Revolution	1
Move People Into Action	3
<i>Case: The Entertainment Center</i>	4
Change People’s Attitudes	6
<i>Case: Momentum Builds on Success</i>	6
Motivate at Every Level	7
<i>Case: Lost Sales at Nashua Copycat</i>	8
Spread the Word	11
<i>Case: The President Steps In</i>	12
Get Everyone Involved Quickly	16
<i>Case: A Catalyst in Every Group</i>	16
Overcome Resistance	19
<i>Case: Leveling Work and Staffing in Photo Finishing</i>	19
Recognize the Vital Few	23
<i>Case: Refocusing the Exploration Division</i>	24
Focus on Waste	26
<i>Case: Leading the Attack on Waste at Dow</i>	27
Find Waste from Lost Sales or Opportunities	29
<i>Case: Increasing Oil Well Productivity</i>	29
Apply the New Approach to Every Function	33
<i>Case: What About the Legal Staff?</i>	33
Find the Waste Where “There Isn’t Any”	38
<i>Case: More Photo Finishing Waste</i>	38
Speed Up the Changes	42
<i>Case: It’s The Pump!</i>	42
Lead with Imagineering	46
<i>Case: Imagineering in the Accounts Receivable Department</i>	48

Imagineering MindSet	52
Imagineering Questions	53
2. Educate and Act	55
Education and Training	55
The Core Activity	56
Finding the Waste	60
Waste at the Interfaces and Interstices	60
Boundaries	64
Working on the Wrong Thing	68
Major Corporate/Business Unit Processes are	
Usually the Trouble	69
Searching for Waste from Different Perspectives	69
Follow the Market, Technology, Competition	70
Follow the Money	72
Follow the Systems/Processes	73
Follow the People	73
Follow the Time	74
Estimating the Waste of Capital	74
Estimating the Waste of Material	76
Estimating the Waste of Time	76
Estimating the Waste from Lost Sales	
and Other Opportunities	77
Move Into Action and Develop a Plan	79
Initial projects	80
Project teams	82
Facilitators	83
3. Plan, Promote, Assess	85
The Quality Plan	85
Develop Communication and Publicity Programs	87
Assess the Organization's Current Position	88
<i>Case: Assessment of a Photo Finishing</i>	
<i>Company</i>	88
Waste of Materials	89

Waste of Time	89
Waste of Capital	89
Lost Opportunities	89
Level of Quality of Product and Service	90
Competitive Position	90
Customer Satisfaction	90
Productivity	90
Employee Attitudes	90
Strengths, Weaknesses, Opportunities, and Threats	91
4. Choose the Vital Few	93
What Should We Work On?	93
Develop and Define the Organization's Vision and Mission	95
Define Objectives	98
Further Identify Waste	99
Identify Key Programs to be Directed by Management	99
The Continuous Improvement Timeline	100
Other Projects	101
5. Organize Projects	103
Define the Objective	103
Select a Team	105
Train Team Members	105
Designate a Leader	105
Ensure Resources	106
Use a Facilitator	106
Start Small	106
Refine the Objective	107
<i>Case: Project to Reduce Pricing Problems</i>	108
Types of Projects	115
Attacking Waste of Material	115
Attacking Waste of Capital	116

Attacking Waste of Time	117
Attacking Waste Caused by Lost Opportunities	118
6. Major Management Innovations	119
Other Project Levels	121
Identifying MMI Opportunities	122
7. Analyze Work and Eliminate Waste	127
Crucial Concepts for Finding the Waste	127
The Main Event	128
Studying Waste at “Macro” and “Micro” Levels	130
Project Work and Identification of Waste	131
Tools	131
Assessment of the current situation	132
Flowcharting	132
Work analysis	133
Worksampling	133
Costing the activities and tasks	133
Questioning activities and tasks	133
Looking for bottlenecks	133
Methods analysis	133
The Six Questions of Methods Analysis	134
Imagineering	135
8. Respect People	137
Human Relations Process Checks	137
1. The Golden Rule	137
<i>Case: Layoffs to Come</i>	139
2. The System is the Problem	142
<i>Case: Tracking Down the Handling Damage</i>	142
3. Cooperate, Don’t Compete	145
<i>Case: The Lone Star Becomes a Team Player</i>	145
4. Remove Artificial Caps	147
<i>Case: “I Don’t Want to Know”</i>	148
5. Know the Benefits of the New System	149

Using The Five Human Relations Process Checks	151
More Ways to Keep People Moving	151
9. Team Up With Customers and Suppliers	152
Principles of Customer and Supplier Relations	153
<i>Case: A Free Breakfast</i>	154
Caveat Emptor Is Obsolete	155
10. Improve Continuously ... Forever	159
Keep Imagineering!	159
More Sophisticated Work	160
Keep the Waste Out	161
Core Values	163
Twenty-first Century Quality	164
Is Real Improvement Increasing?	165
Appendix A - Step-by-Step Guide to Work Analysis .	168
Getting Started and Analysis	168
Continuing Analysis and Implementing Changes	169
Step 1: Explain the Process	169
Step 2: Identify Activities	170
Step 3: Flow Chart Major Activities	174
Steps in Making a Flow Chart	176
Step 4: Classify Activities Into Five Categories	180
Step 5: Estimate Times for Activities and Tasks	185
Running Work Records	186
Step 6: Estimate the Cost of Activities	189
Step 7: Fix the Obvious	193
Step 8: Question Each Activity and Task	195
Step 9: Imagineer	199
Step 10: Prepare Recommendations for Improvement	200
Step 11: Implement	200

Appendix B- Developing the Continuous Improvement Attitude	203
The Keys to Motivation	204
First key—Dissatisfaction with the Present	204
Second key—Availability of a Better System	204
Third key—Knowhow	205
The Mind Set for Change	205
Obstacles to Overcome	206
The Right Attitude	207
Appendix C- Education and Training For the Revolution	209
A Typical Education and Training Schedule	210
Training	212
The Simple Tools	212
Principles of Work and Waste	213
Human Relations	214
Course Objectives	214
Course Content	215
communications and teamwork	215
mutual respect	215
customer and supplier relationships	216
Imagineering	217
Keep Courses Flexible	217
Extra Training for Supervisors, Engineers, Managers ..	218
Selected Advanced Training	219
Infrastructure for Training	219
Appendix D- Using Random Work Sampling	221
Appendix E- Practice Flow Chart	228
Notes	239
Resources	240

CHAPTER 5

ORGANIZE PROJECTS

A successful project requires:

- Choice of an appropriate problem or opportunity and agreement by the team that the project will be worthwhile and trust the team is capable of doing it.
- A well-defined objective
- Team members with background and/or experience in the process being studied
- Training for team members in the appropriate technical tools and team skills
- A committed leader
- Necessary support and resources
- A methodology to solve problems or explore opportunities by improving and changing processes.

DEFINE THE OBJECTIVE

The organization should consider each step—from the development of the mission and vision to the implementation of recommendations—in terms of its objectives. What will the next step accomplish, and how will it fit into the larger scheme? A project objective should be measurable but not a fixed figure, since such a goal may set an artificial cap on performance. Typical objectives for management-directed projects are:

- Reduce the waste in process X to or below a level of 3%
- Identify and eliminate causes for customer complaints
- Reduce the cycle time between order receipt and shipment by at least 75%
- Reduce the days outstanding of accounts receivable to raise at least \$30,000,000 cash

TYPES OF PROJECTS

Since errors are a form of waste, this project was a typical one for finding, quantifying and eliminating the waste. Other projects can be much more complex, but they can then be divided into sub-projects until a relatively small team can handle each sub-project. Senior management coordinates these more complex projects, keeps them on track and allocates resources, creating management-directed programs.

To give you some ideas of typical projects, I will list some under the four categories of material, capital, time, and lost opportunities. Obviously many projects will attack more than one kind of waste. For example, eliminating rework can save material, time, and capital. If the rework is a bottleneck operation, it can also represent lost opportunities.

Attacking Waste of Material

1. Review suppliers specifications to see if they are too tight, too loose, or not clearly defined.
2. Establish a partnership with your supplier(s) so that you are both trying to reach the same objectives of low cost and high quality. Work together and share cost reductions. Improve the ordering system by having orders entered electronically from the supplier's computer to yours. Also share information on inventory control, stocking levels, etc.
3. Review specifications with your customer(s) to see if changes can be made that will benefit both parties by lowering cost and/or improving performance.
4. Review vendors' quality performance and work with them to improve. Or find vendors already committed to continuous improvement.
5. Increase yield of good product coming from a manufacturing operation. Identify and quantify causes of scrap

- and rework. Set priorities for improvement.
6. Reduce use of supplies by recycling, better measurement and control, etc.
 7. Compare material input to a process with material output from the process to discover sources of loss.
 8. Study energy use to identify and quantify waste. Analyze lighting, heating, air conditioning, use of process heat and electricity, etc.
 9. Study packaging materials to minimize cost, optimize function, and sell more product
 10. Analyze inventory losses and controls to reduce shrinkage. Identify sources of losses, prioritize and eliminate them.
 11. Review use of forms to see if each is necessary and if all copies are necessary. (Also saves time.)
 12. Study the distribution system including suppliers, production facilities and warehouses. Imagineer the perfect distribution system and make plans to get closer to perfection.
 13. Review the engineering design process to insure it includes input from manufacturing, purchasing and marketing people.

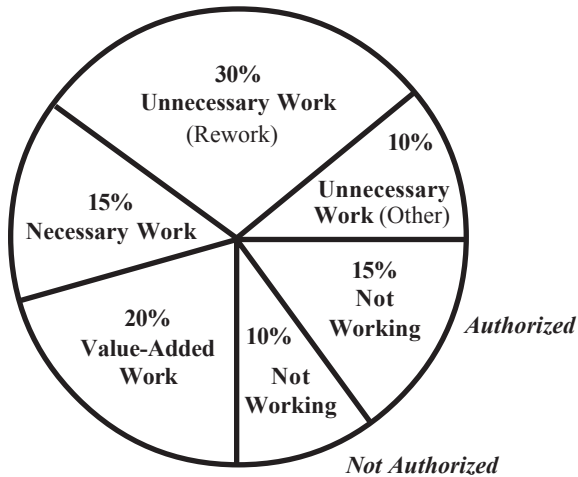
Attacking Waste of Capital

1. Analyze how to eliminate a bottleneck operation without buying new equipment. Study operating speed, downtime, scheduling, etc.
2. Investigate the various pools of inventory to see if a “Just-in-time” approach can reduce the amount needed.
3. Examine the range of products or services sold to see if the variety offered can be reduced.
4. Review all old (more than three or six months?) inventory and develop a plan to get rid of it. Also plan so that no more inventory becomes “old.”
5. Maximize use of present equipment before buying addi-

minutes, and a particular activity, retyping incorrect invoices, took 60 minutes, then $60/1440$, or 4% of the time was spent on retyping incorrect invoices. You need a fairly fine breakdown of activities to understand the work that is going on. But if any one activity totals much less than 3% of the total time of a person, the breakdown is probably too fine. Combine that activity with some similar activity.

A typical company making a study will come out with something like the pie chart below.

The Way We Work



You may get something different from this, because a running record generally does not identify the waste as accurately as does work sampling. To get a reasonably accurate estimate of the time spent, you will need a work sampling study. Also, you have not yet factored in vacations, holidays and absenteeism. However, most people are shocked at the small amount of time spent on value-added work. It is nothing to be ashamed of. It is happening everywhere. But you cannot change it until you know how you are spending your time. To get a reasonably accurate estimate of time spent, you will need to do work sampling. See Appendix D.

a study is completed before acting. As things that need to be done become obvious, set priorities and implement.

If an action requires approval, have your plan well prepared so that you can answer any questions, make any needed modifications, and move into action quickly when you receive approval.

VA	Value Added
N	Necessary
RW	Rework
UN	Unnecessary
NW	Not Working
II	Insufficient Info

Categories Of Activities & Tasks

- _____ Fill out expense report
- _____ Approve expense report of subordinate
- _____ Provide second approval of expense report
- _____ Audit approved expense report
- _____ Pay reimbursement of expenses
- _____ Prepare for sales call on potential customer
- _____ Make sales call on potential customer
- _____ Make phone calls to get appointments with potential customers
- _____ Travel to present customer's office
- _____ Take customer to lunch
- _____ Play golf with customer
- _____ Present new product information to customer
- _____ Take order from customer
- _____ Ask customer to pay overdue invoice
- _____ Resolve customer quality complaint
- _____ Explain billing error to customer
- _____ Explain forthcoming price increase to customer
- _____ Prepare journal entry for monthly closing
- _____ Compute standard cost variances
- _____ Prepare monthly profit and loss statement
- _____ Print and distribute monthly accounting reports
- _____ Prepare annual budget
- _____ Correct mistaken accounting entry
- _____ Take physical inventory
- _____ Prepare sales tax return
- _____ File amended tax return
- _____ Talk to supervisor about your health problem and absenteeism
- _____ Talk to supervisor about your new baby
- _____ Talk to fellow employee about your new baby
- _____ Talk to fellow employee about your health problem
- _____ Talk to supervisor about ball game