

# Waste Elimination



customer experience. Improved.

**Shmulla.com**

# Agenda

---

## Wastes In Manufacturing

- Time Observations
- Time Observation Exercise

# Value-Add vs Non-Value-Add

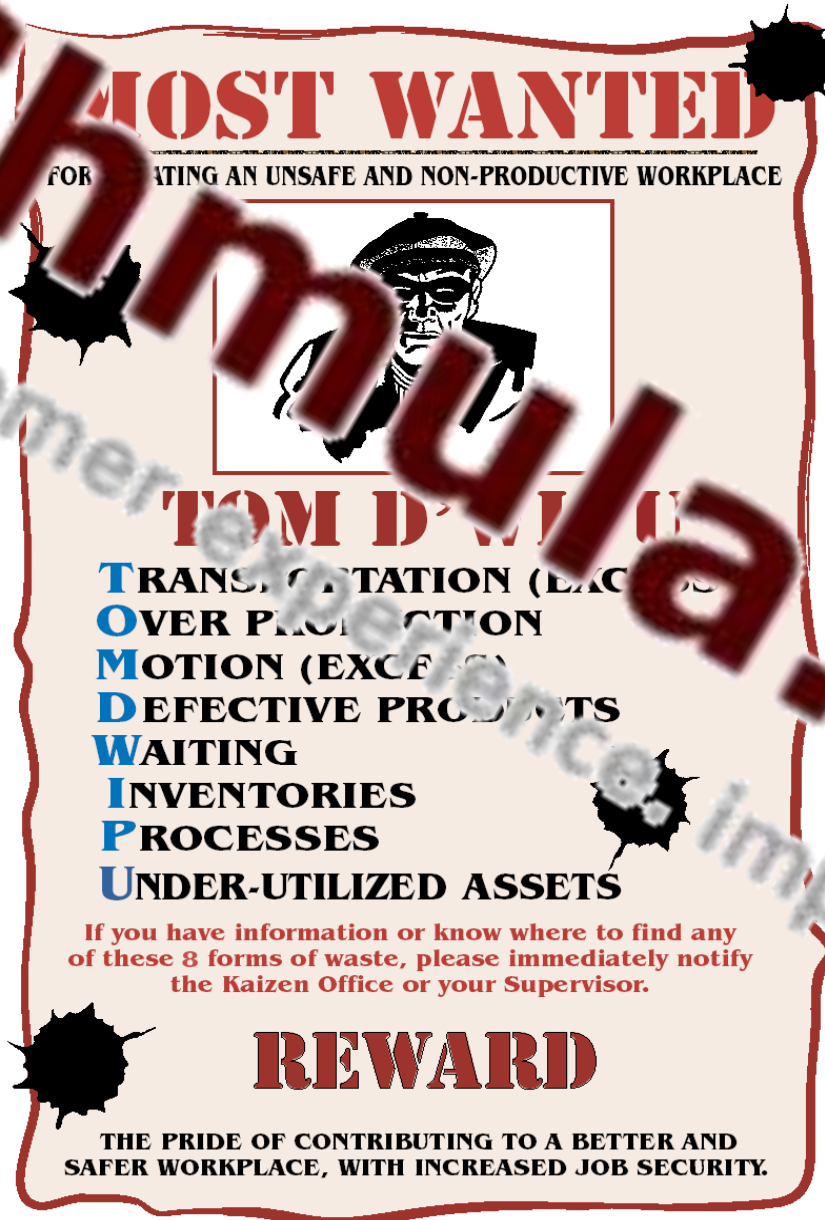
## Value-Adding Activities...

...transform raw materials and information into parts or products which the customer wants

## Non-Value-Adding Activities...

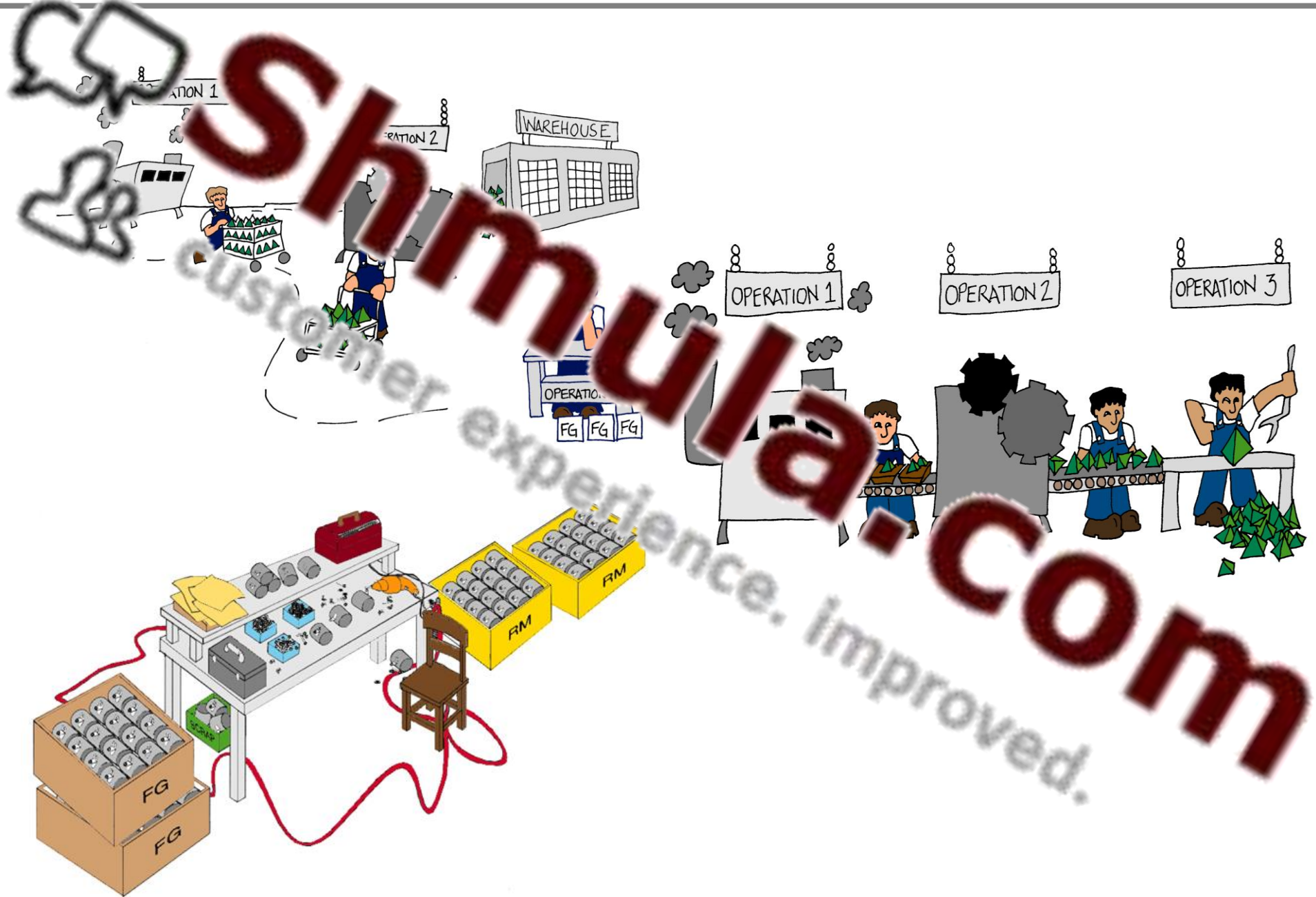
...consume resources, but don't directly contribute to the product.

# 7 Wastes In Manufacturing



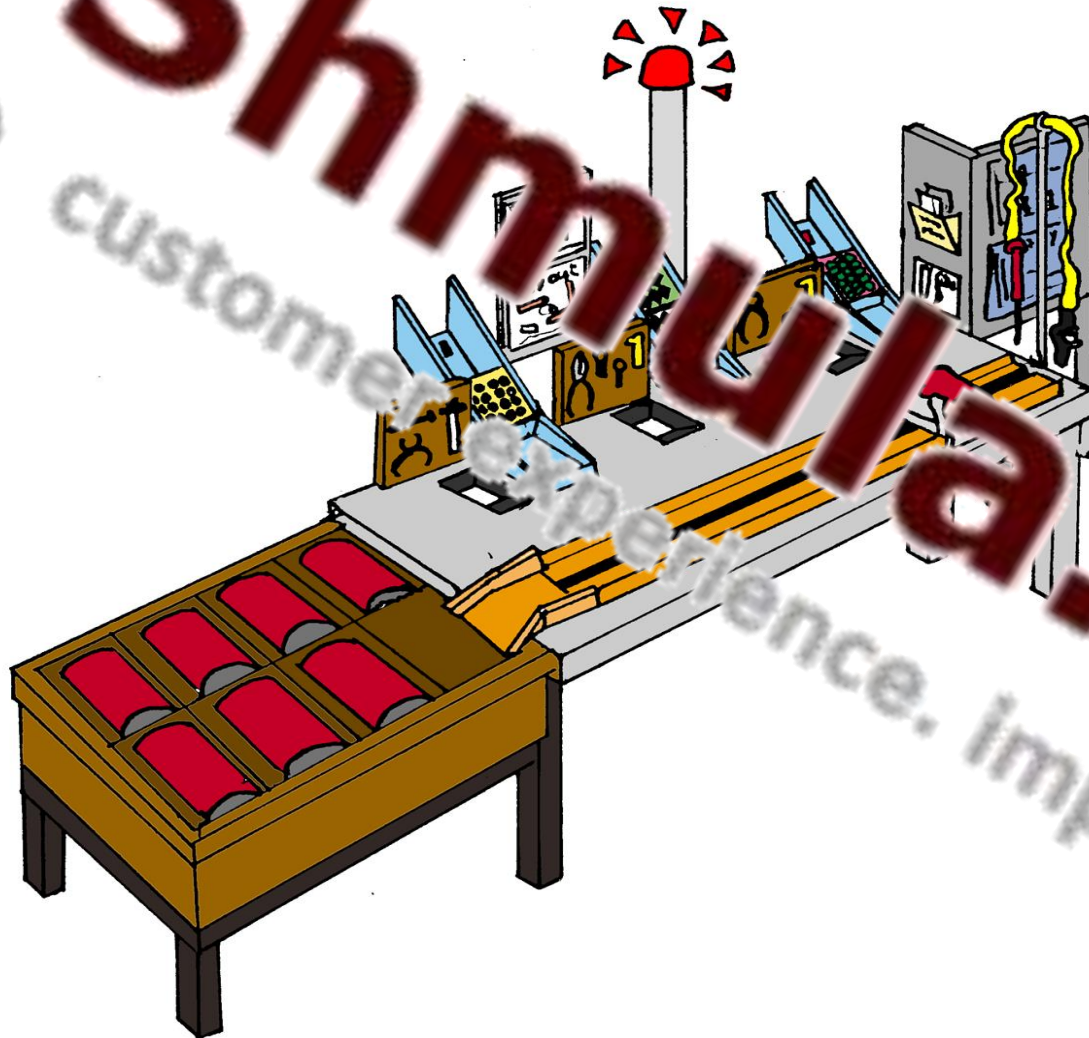


# Which Is Your Work Area?



# Work Station Goal: Organization

& Visibility



Seven Deadly  
Wastes

# Time Observation

---

- Observe a work station operation
- Identify task elements and enter on the Time Observation Form
- Time the process and calculate elemental times (i.e. work steps) and total cycle time
- Note NVA items in “Remarks” column



# Time Observation Form

Process:							Observer:							Date:	
Step	Operation Element	1	2	3	4	5	6	7	8	9	10	11	12	Task Time	Remarks
1	Stand up From Chair		53	38	23	13	54	42	29	17	7'02	51			
2	Walk to Blackboard	18		45	34	23	4'06	53	40	27	13	8'01			
3	Pick Up Chalk	20	06		3		09	55	43	29	16	04			
4	Write on Board	30	15	2'01			M		53	38	27	15			
5	Put Down Chalk	33		05	51	37	2	00			31	18			
6	Walk Back to Chair	43	27	14	50	46	32	19	6'0	52					
7	Sit Down	46	30	16	04	48	3	2	09	54	42				
Time for 1 Cycle															

← Lowest repeatable cycle time



# Analysis of Time Observation

walk to blackboard

pick up chalk

18			
20			
2			

Step 1:  $20 - 18 = 2$

Sit down

Time for 1 Cycle

46	1'30	2'16	3'04	3'33	5'22	6'09
3	3	2	3	2	3	3
46	44	46	48	44	47	47

Step 2

# Analysis of Time Observation (cont'd)

Step 3

46	1'30	2'16	3'04	3'48	4'35	5'22	6'09
3	3	3	2	3	3	3	3
46	44	54	48	44	47	47	47

44

Step 4

Operation Element	1	2	3	4	5	6	7	8	9	10	11	Task Time
Walk to blackboard	18	1'04	48	34	23	4'00	53	40	20	1'00	1'00	1'00
Pick up chalk	20	06	51	37	25	09	55	43	29	16	04	04
	2	2	3	3	2	3	2	3	2	3	3	

# Analysis of Time Observation (cont'd)

Step 5

Operation Element	7	8	9	10	11	Task Time	Remarks
Went to blackboard	3	40	27	13	8'01	10	
	1	11	10	11	10		
Pick up chalk	5		9	16	04	3	Dropped the chalk
	(10)	3	2	3	3		

Step 6

	7
	10
	10
	3
	9
	2
	0
44 46 48 44 47 47 47 4	44

1

Process:

Step	Op
	E
	Sta
	Ch
	W

[illegible]

1  
3  
2



# Shop Floor Time Observation

- Select several operations to observe in Delta site
- Working as individuals (or sub-teams), conduct a time observation of one of the operations identified above
- Define work elements (include and non-cyclical operations)
- Complete several time observations based on takt time (TT) as time allows
- Record abnormal occurrences for each work element
- Establish “Lowest Repeatable” cycle time (CT)
- Create a CT/TT chart and plot your observed CT on the chart
- Estimate total non-value added CT observed
- Report results to group
- Conduct a spaghetti diagram

# Copyright and Licensing

This training material is not free. Please do not distribute it except as permitted by the terms of the license you purchased. These licensing and restrictions apply even if you received this presentation as part of a promotional offer.

This presentation is intended for use in training individuals within an organization. The handouts, forms and presentations may be customized for each application.

The Files and Presentations are distributed on an AS-IS basis without warranties of any kind, either expressed or implied.

A summary of this license is included at the end of this presentation.

Questions? Contact

Pete Abilla at [shmula@shmula.com](mailto:shmula@shmula.com)

or at 801-400-3895

**Shmula.com**

Improve the Customer Experience

# Special Licensing Information

All material contained within this presentation is protected by copyright law. All rights are reserved except as noted below:

## Corporate License Terms:

1. This material is licensed only. No ownership of content is transferred.
2. The purchaser may only use the training material within a single corporate reporting entity. This includes, but is not limited to, reporting divisions or subsidiaries of larger organizations. A good rule of thumb is that one license is required for each president in the organization.
3. This training material may be modified to meet the needs of the purchaser. The original training material or its derivative works may not, however, be sold or otherwise distributed outside the purchasing company.
4. This license may not be transferred.
5. This presentation is intended for use by a single organization to train its own employees, or people with whom they regularly do business, such as members of its supply chain or other vendors.
  - a) It is not intended for third-party training, such as, but not limited to, training conducted by consultants or corporate trainers.
  - b) The material in this presentation or its derivative works may not be sold by any party except Shmula, LLC.
  - c) No compensation may be received for the use of the material for training purposes or for any other reasons.
6. If any part of this license is not enforceable, the other provisions remain intact.