

# Implementing Lean Principles in an Office Environment



Presented by  
Missouri Enterprise

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


# Introduction To Missouri Enterprise

- ◆ Missouri nonprofit corporation
- ◆ Mission: Help Missouri Businesses Succeed
- ◆ Statewide staff of manufacturing and business management professionals
- ◆ Part of the national Manufacturing Extension Partnership
- ◆ Funding and strategic partners:
  - US Department of Commerce – NIST
  - Missouri Department of Economic Development
  - Universities, community colleges, local economic developers, other federal, state organizations and private consultants
- ◆ Core services:
  - Process improvements – [Lean Enterprise](#), Six Sigma
  - Quality systems – ISO implementation and compliance
  - Growth strategies and marketing – Eureka Winning Ways



# Agenda

-  **Introduction to Lean Concepts**
-  **Benefits of a Lean Office**
-  **The 8 Wastes of Lean Enterprise**
-  **Lean Tools – Reducing and Eliminating the 8 Wastes**
  -  VSM Value Stream Mapping, Work Place Organization/5s, Visual Controls, Quality at the Source, POUS Point of Use Storage, Work Force Practices, Office Layout, Batch Size Reduction, Standardized Work, Pull/Kanban, and Kaizen Events
-  **Fundamentals for Continuous Improvement**
-  **Implementation Strategy**
-  **Questions**



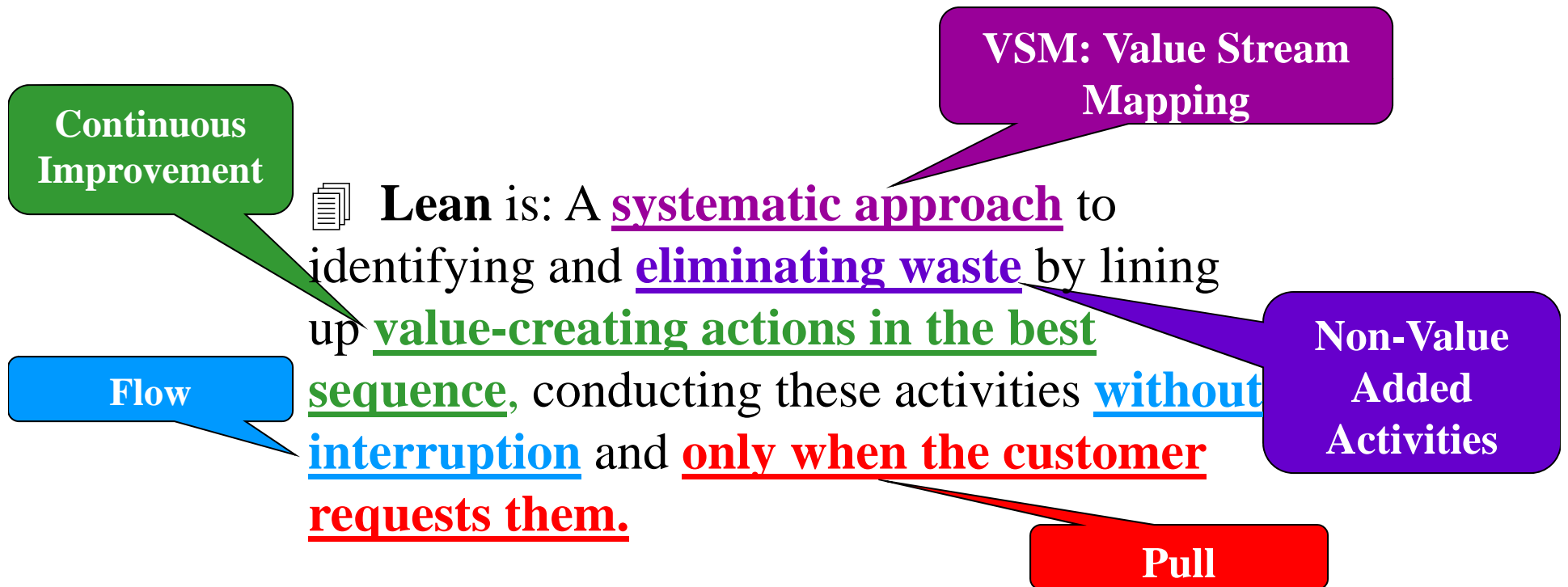
# Traditional Office Environment - Disadvantages

- ◆ Long lead-times
- ◆ Large queues of work-in-process
- ◆ Handoffs are opportunities for mistakes
- ◆ Employees unaware of how their work fits into the whole-  
unable to improve
- ◆ Approval systems required to control fragmented work
- ◆ No process ownership-process owners (higher managers) are unaware  
of how work is done
- ◆ Measures do not focus on improving overall process
- ◆ Lengthy problem resolution cycles and finger-pointing
- ◆ Lack of timely feedback on performance
- ◆ Department goals inconsistent with organizational goals
- ◆ Necessity to have expediting or expeditors
- ◆ Checkpoints are established to identify mistakes



# What is Lean Office?

📁 The application of lean techniques in an office environment.



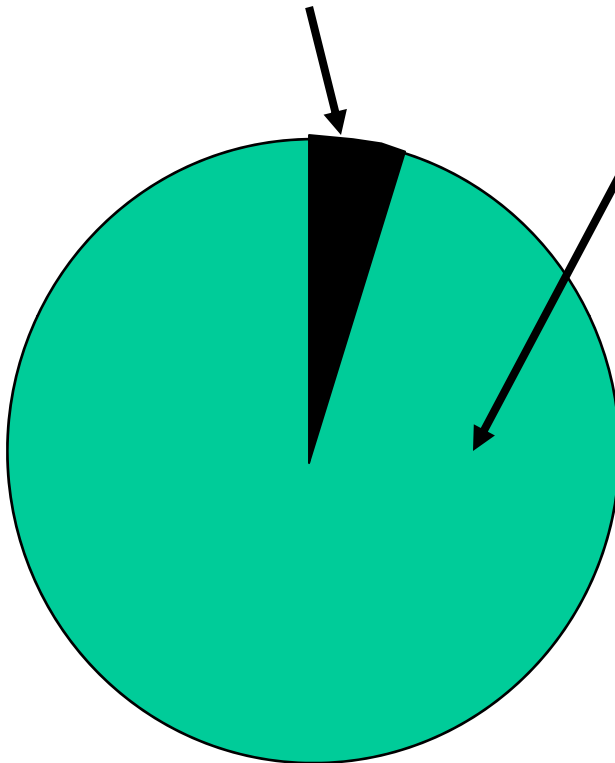


# The Lean Office Continuous Improvement Process

1. Select the Value Stream (What we will improve.)
2. Value Stream Map its Current State (Systematic Approach)
3. Identify wastes (non-value added activities – The 8 Wastes) occurring in the Current State
4. Apply Lean Tools 5S, Visual, POUS, Set-Up Reduction, Standard Work, Cellular, Pull Systems (to reduce or eliminate non-value added activities)
5. Create the Future State of the Value Stream (Create flow and customer pull)
6. Implement the improvements to achieve the Future State.
7. Update the improved Process Value Stream Map.

# Where does all of Work Effort Go?

Value Added



## Lean Enterprise 8 WASTES: Non-Value Added Activities

- **D**EFECTS
- **O**VER PRODUCTION
- **W**AITING
- **N**ON UTILIZED PERSONNEL
- **T**RANSPORTATION/TRAVEL
- **I**NVENTORY
- **M**OTION
- **E**XTRA PROCESSING

Typically **95%** of all lead time is non-value added

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Waste in the form of **Inconsistent Processes** or **Overburdened processes**



# Defects

**Definition:** Work that contains errors, rework, mistakes, or lacks something necessary

Defect waste includes the productivity losses in the office associated with disrupting a normal process to deal with reworking the defect or dealing with the consequences of the defect.

## Examples:

- Data entry error
- Pricing errors
- **Missing information**
- Missed specifications
- Lost records



## Defects (cont.)

### Causes:

- Lack of training
- Unbalanced workloads
- Information, equipment and supplies not available when needed
- No standard procedures
- Not following standard procedures

### Remedies:

- Eliminate data entry points
- Utilize visual job aids.
- Establish standard work procedures
- Standardize office forms and templates



# Overproduction

**Definition:** Any activity that generates more information and/or documents than the customer needs right now.

Overproduction consumes resources, such as materials, people, and storage faster than necessary and brings about other kinds of waste.

## Examples:

- Generating more information/documents/??? than the next customer/person/process needs
- **Doing part of a task, then waiting to complete**
- Making reports no one reads
- Making extra copies
- Email



## Overproduction (cont.)

### Causes:

- Unbalanced process work steps
- **Poor Communication of status and priorities**
- Illogical Work flow sequence
- Lack of adequate signaling device to initiate work
- Just in case logic – Staying busy

### Remedies:

- Create workplace norms and standard procedures for each process
- **Create communications that signal work to begin to prevent early processing**
- Establish work flow sequence to satisfy downstream customer



# Waiting Waste

**Definition:** Idle time of workflow. Waiting for people, paper, machines, or information. Idle Time waiting for something to happen

Waiting waste is like excess inventory in that it is a symptom of process inefficiencies. It adds no value to the work or service provided.

## Examples:

- Waiting for signature approvals
- Waiting for the system to come back up
- **Waiting for a customer response (Internal or External)**
- Waiting to use the copier, fax machine, printer
- Waiting for supplies
- Waiting for documents/files from upstream processes
- Waiting for a handed-off file to come back



## Waiting Waste (cont.)

### Causes:

- Quality issues
- Lack of training
- **Non-responsive culture and work environment**
- Unbalanced workloads
- Equipment and supplies not available when needed
- Procedures require redundant approvals/signatures

### Remedies:

- Review and standardize required signatures to eliminate unnecessary ones
- Cross-train employees to allow work to flow while someone is out or not available
- **Share knowledge and provide accessibility to it**
- Balance the workload so that people are used optimally
- Make sure equipment and supplies are available when needed.



# Transportation Waste

**Definition:** The movement of materials, documents, and information not delivered directly to the customer.

Materials and supplies are often moved several times before reaching the location of actual use.

## Examples:

- Retrieving or storing files
- Carrying documents and supplies to and from shared equipment
- Carrying documents from one location to next
- Taking files/documents to another person
- Taking documents to get approval signatures
- Not using effective remote meeting tools.



# Transportation Waste (cont.)

## Causes:

- Poor office layout
- Poor document flow in office
- **Poor office location in relation to other departments**
- Poor location of supplies to desks
- Batching
- Defects
- Redundant approvals
- Communication

## Remedies:

- Make movement distances as short as possible
- Eliminate temporary and secondary storage locations
- Improve office layout
- **Go cellular**



# Inventory Waste

**Definition:** Materials, documents, and resources accumulated between workstations that are not immediately needed in downstream processes.

Extra supplies means you have more to manage and can obstruct other processes as well, leading to other wastes.

## Examples:

- Files/documents waiting for information or processing or for the next step to complete
- Open, partially completed, slow-moving projects
- Unused records in database
- Extra copies
- Extra supplies



## Inventory Waste (cont.)

### Causes:

- Reward system
- Poor document flow in office
- Poor office location to other departments
- Poor location of supplies to desks
- Purchase excessive supplies
- **Unbalanced work load**
- Communication

### Remedies:

- **Produce only enough to satisfy the work requirement of the downstream customer (including buffer)**
- Standardized procedures to assure material flows to customer and does not sit waiting.



# Motion Waste

**Definition:** The movement that does not add value to the successful completion of an office operation.

All unnecessary work movements such as walking, bending, and reaching are a form of motion waste.

## Examples:

- Forms out of reach of employee
- Extra key strokes
- Clearing away files on desk
- **Handling unorganized paperwork**
- Searching for files
- Constantly bending and reaching for items
- Papers/documents not filed



## Motion Waste (cont.)

### Causes:

- Workstation Layout
- Not following standard procedure
- Files and/or documents not having a designated file location
- **Disorganized desk**

### Remedies:

- Standardize folders, drawers, shelves.
- **Color code and clearly identify as much as possible**
- Organize work areas for ease of reference and accessibility of needed materials
- Improve office layout
- **Minimize sharing of less expensive equipment and supplies to eliminate multiple trips across the office**



# Processing Waste

**Definition:.** Efforts associated with creating work that adds no value from the customers viewpoint

The redundant and non-value added activities that the customer is not willing to pay for.

## Examples:

- **Checking someone else's work**
- Incorrect translation of information and missing or unnecessary information
- Obtaining multiple signatures and approvals
- Creating unneeded reports
- Repeated entry of data
- Use of outdated standard forms
- Use of inappropriate software
- **Unnecessary Emails**



## Processing Waste (cont.)

### Causes:

- Lack of training
- Redundant approvals
- Equipment and supplies not available when needed
- No standard procedures
- **Not following standard procedures**

### Remedies:

- **Minimize the need of multiple signatures and approvals where possible**
- Eliminate steps where possible
- Quality at the source
- Streamline, standardize, and follow procedures



# Underutilized People

**Definition:** The waste of not using people's mental, creative, and physical skills.

The redundant and non-value added activities that the customer is not willing to pay for.

## Examples:

- Limiting people to functional responsibilities
- Designating only certain people to perform certain jobs
- **Limiting employees in exercising personal judgment**
- Workforce focused on very defined tasks that require a narrow range of skills



## Underutilized People (cont.)

### Causes:

- Lack of training and cross-training
- Corporate culture
- Lack of teams
- Poor communications between assistants and Managers
- No job rotation
- Problem solving not encouraged

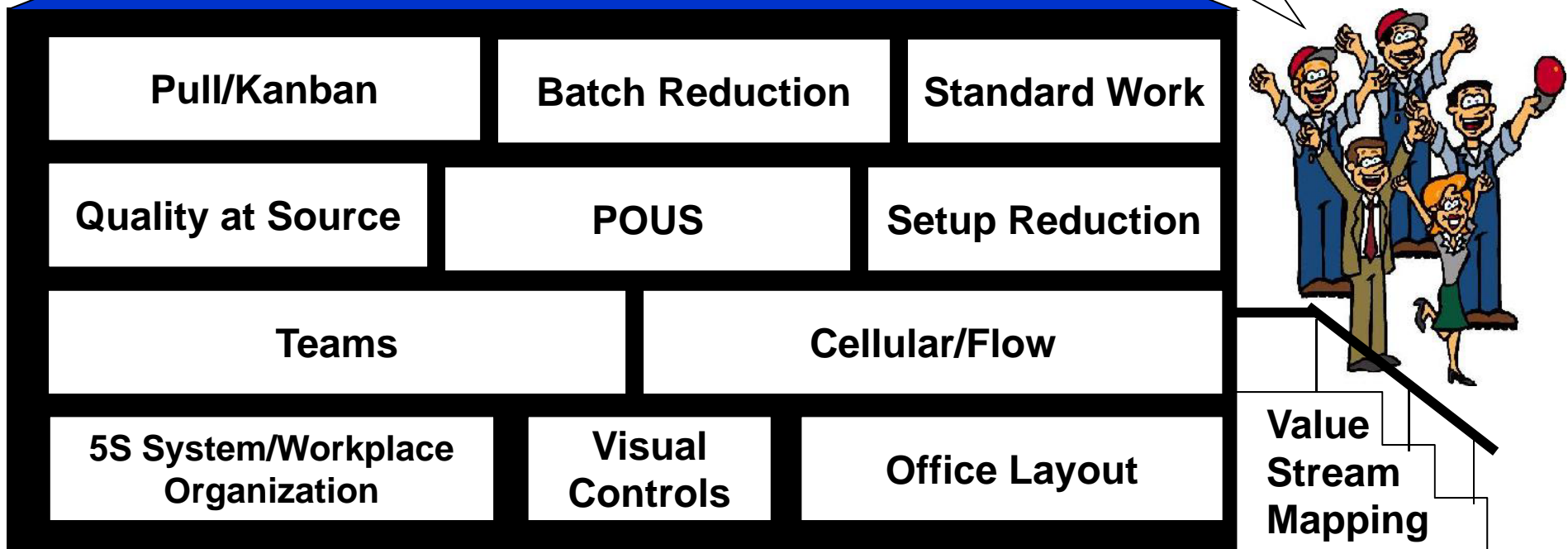
### Remedies:

- Employee empowerment and teamwork
- Proper Training and cross training
- Investing in a culture of continuous improvement

# Lean Building Blocks for Office Improvements

These are some of the tools we use to eliminate the Wastes !

## Continuous Improvement





## Lean Tools Reduce & Eliminate Waste

- Value Stream Mapping
  - Lean Sigma Diagnostic Tool
- 5S Work Place Organization
  - Sort – Straighten – Shine – Standardize – Sustain
- Visual Systems
  - Make the workplace talk to you about current activities, priorities, and performance
- Office Layout
  - Efficient workplace arrangement





## Lean Tools Reduce & Eliminate Waste

- Standard Work
  - The agreed upon one best way to perform tasks, complete with cross training
- Point of Use Storage POUS
  - Data, information, supplies, and tools at hand for tasks performed
- Set up Reduction
  - Planned task to task transitions, continuous flow
- Batch Reduction
  - Activities directed to serving customers' (internal and external) needs at the pull of the customer










## Lean Tools Reduce & Eliminate Waste

- Teams
  - Using the power of teamwork to fulfill process needs and to continuously improve
- Cellular Flow
  - Combining value stream activities organized to increase the speed of processes
- Pull Kanban
  - Signaling value stream activity to the actual needs of customers (internal and external)





# 5S Workplace Organization

-  **Sort** - Sort through the workplace, keeping only what is necessary and discarding the rest. Move questionable items to a central holding area for later disposition. Red tag all unneeded items.
-  **Straighten** - Straighten and organize what remains. Supplies, equipment, storage areas, incoming/outgoing work in process should be identified, and its locations set and marked. Missing supplies should be replaced.
-  **Scrub** - Thoroughly clean the entire workplace, including supplies and office equipment. When office machines are kept clean, problems are more easily detected for immediate correction.
-  **Standardize** - Review work procedures and document the "correct" method with pictures and written instructions. Make them easily available at the workstation.
-  **Sustain** - Develop the discipline to sustain these practices and spread them to all areas of the office.

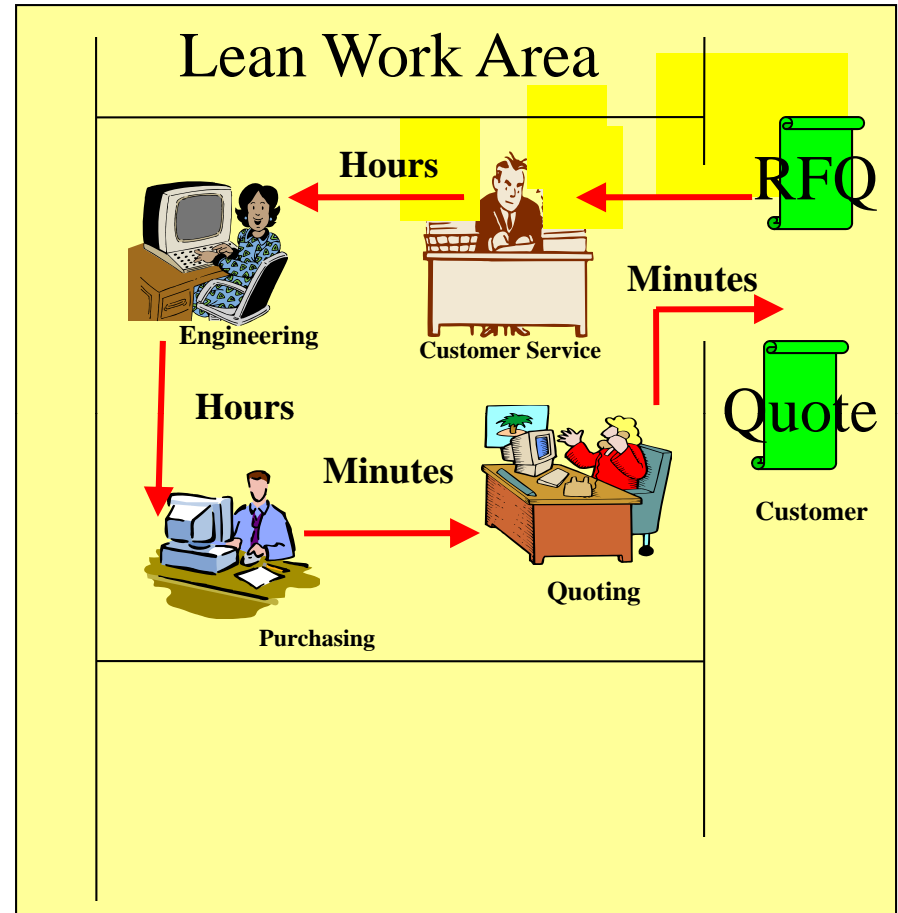
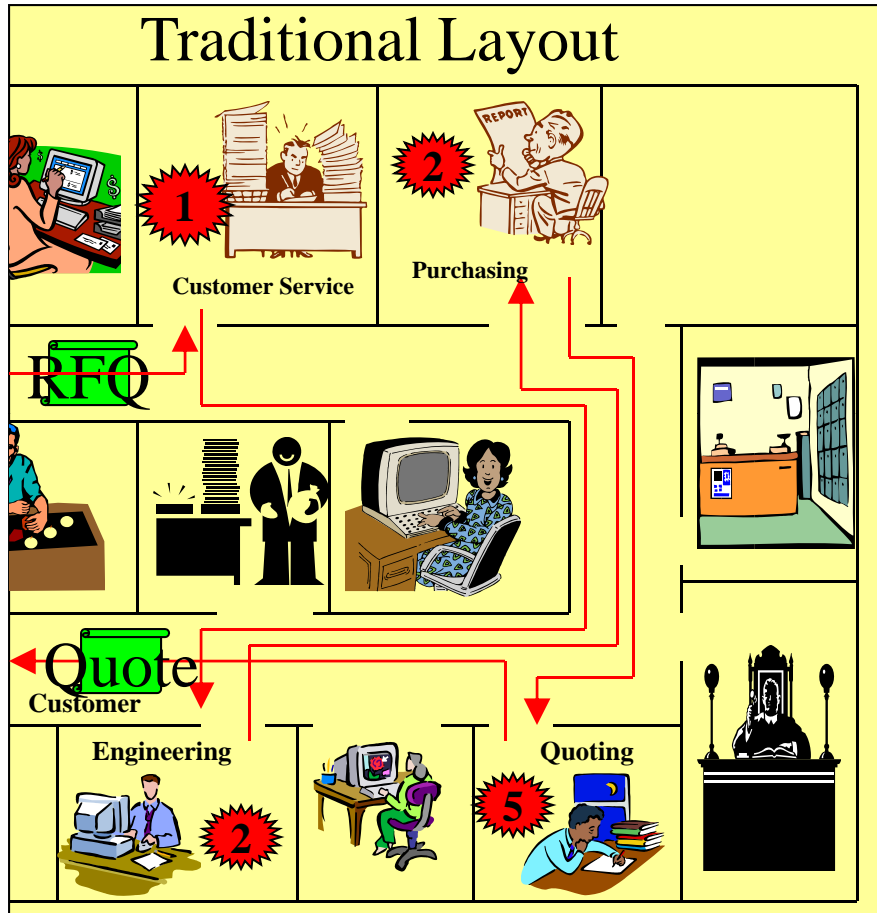
# Traditional Office




# Same Office After 5S



# Cellular Work Areas



 = Queue time (Days)

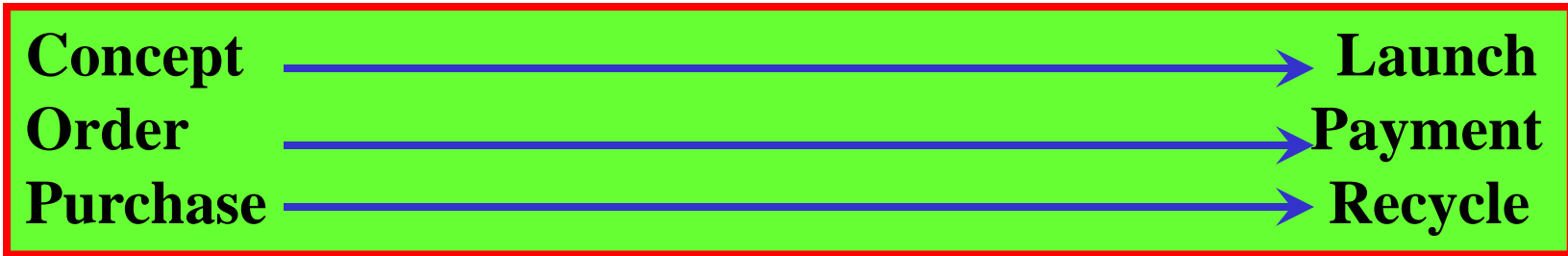
 = Request for quote



# Value Stream Mapping: Creating Our Current State

- ◆ Use Value Stream Mapping Tools
  - Identify and map the processes
  - Specify cycle times, changeover requirements, quality levels in current state
- ◆ Walk the process flow
  - Find and quantify “Inventory” in our system
  - Get user input
  - Consider distance, skills, availability, information, priorities
- ◆ Map the information flow
- ◆ Determine current value added time and current process lead time

# Value Stream for the Office



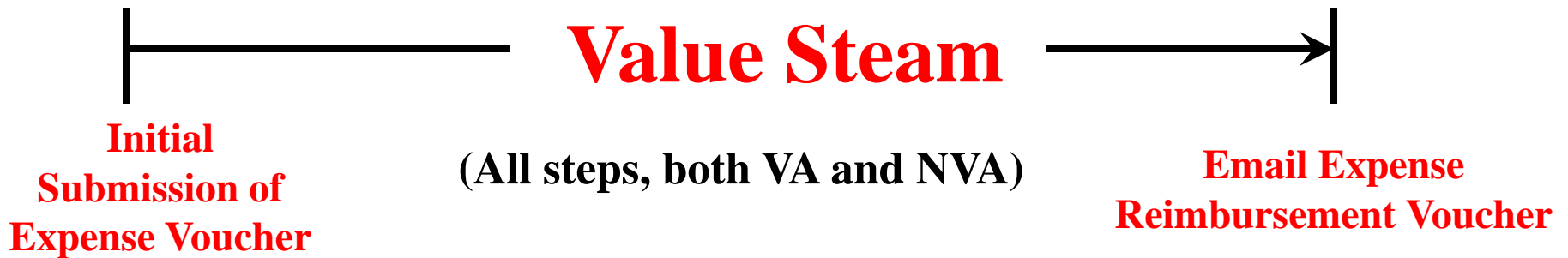
Process



Process



Process





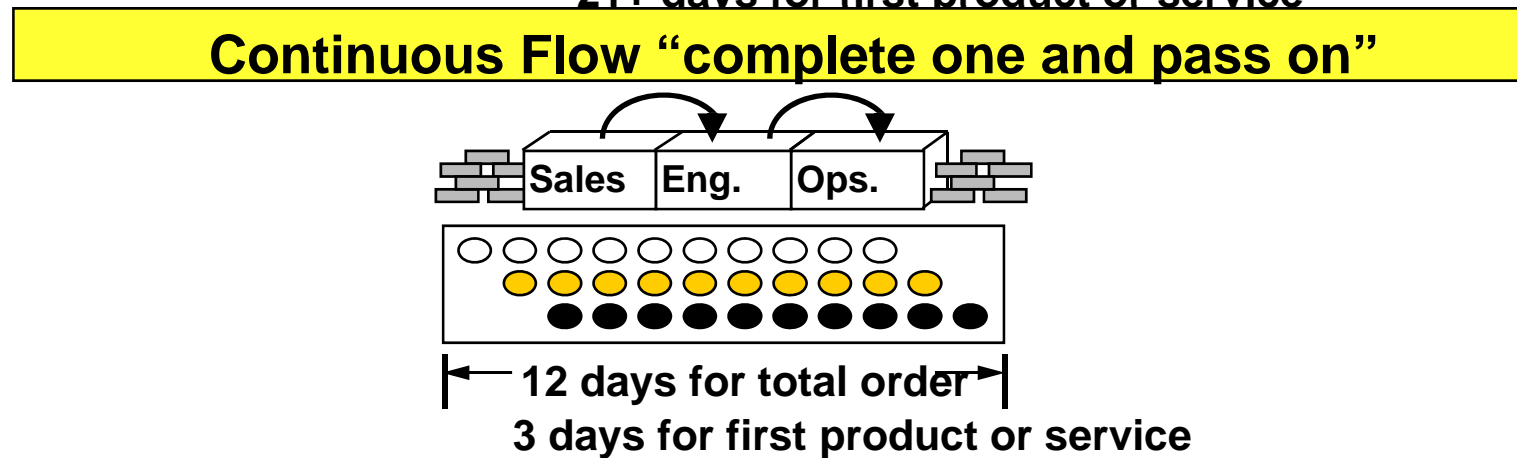
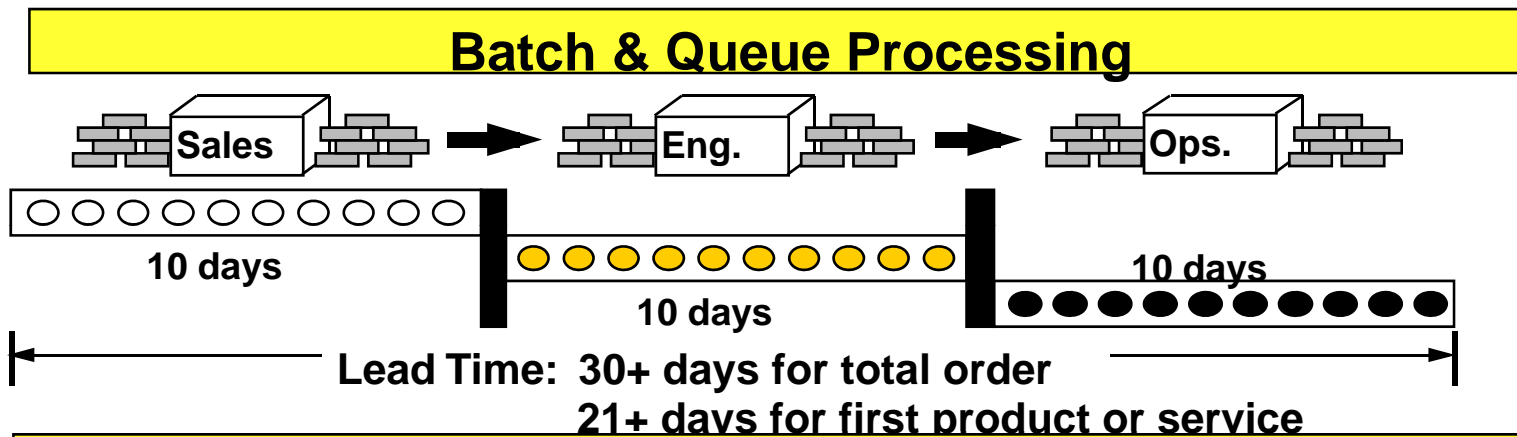
# On Time Concept

- Don't initiate work until all information is at hand to complete the work required. (Create Customer Pull)
- Eliminate Start and Stops (Create Flow)
- Group Like-Jobs, Separate Problem Children
  - Focus on Same and Similar
  - Deal with different

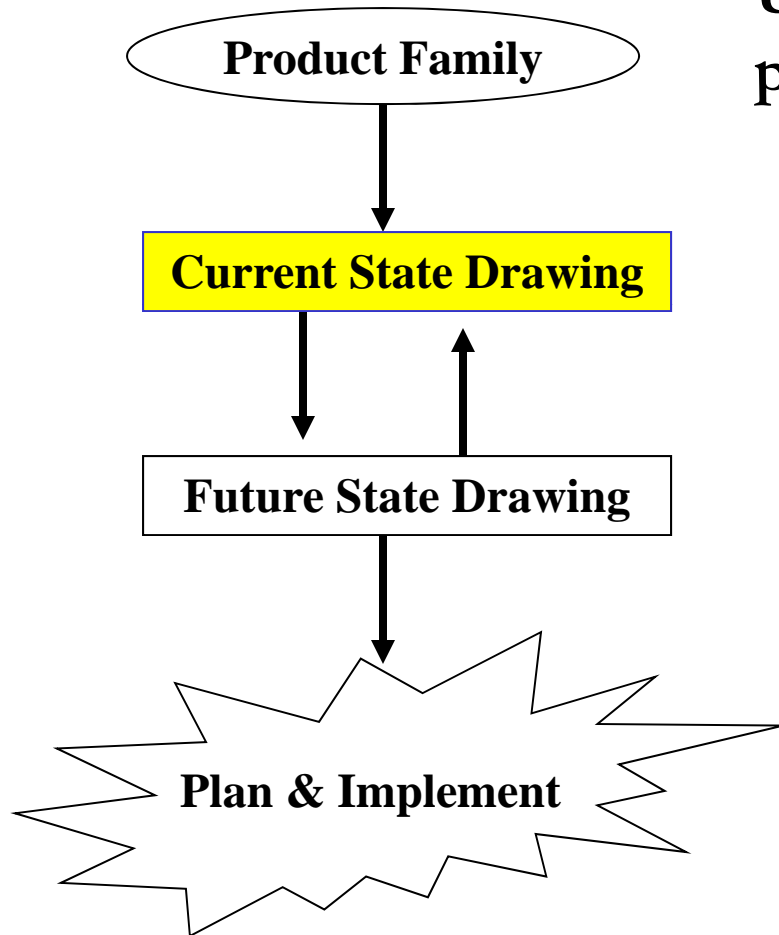


# Impact of Batch Size Reduction

Product should move (flow) from operation to operation, only when it is needed, in the smallest increment

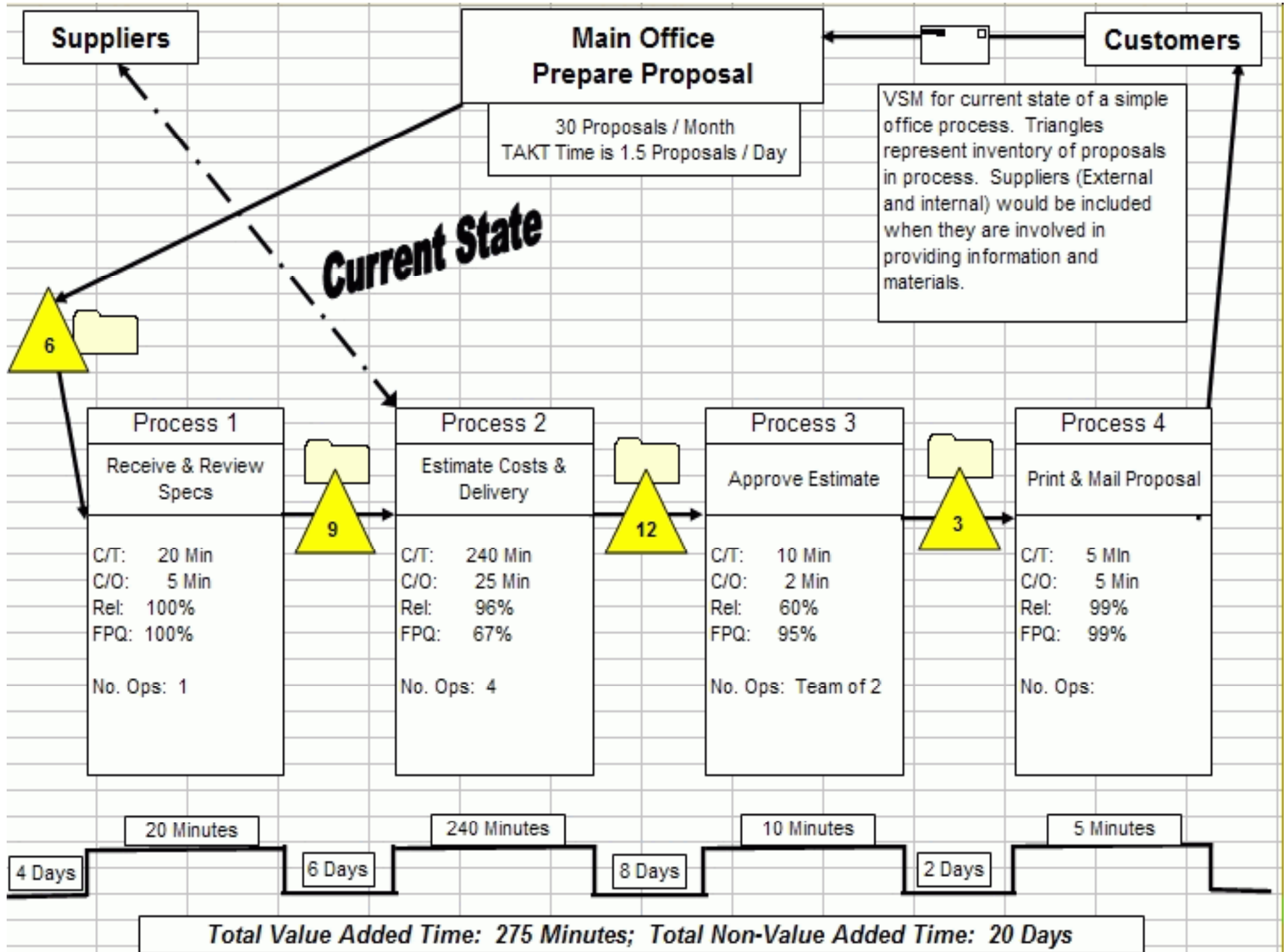


# Current State Drawing



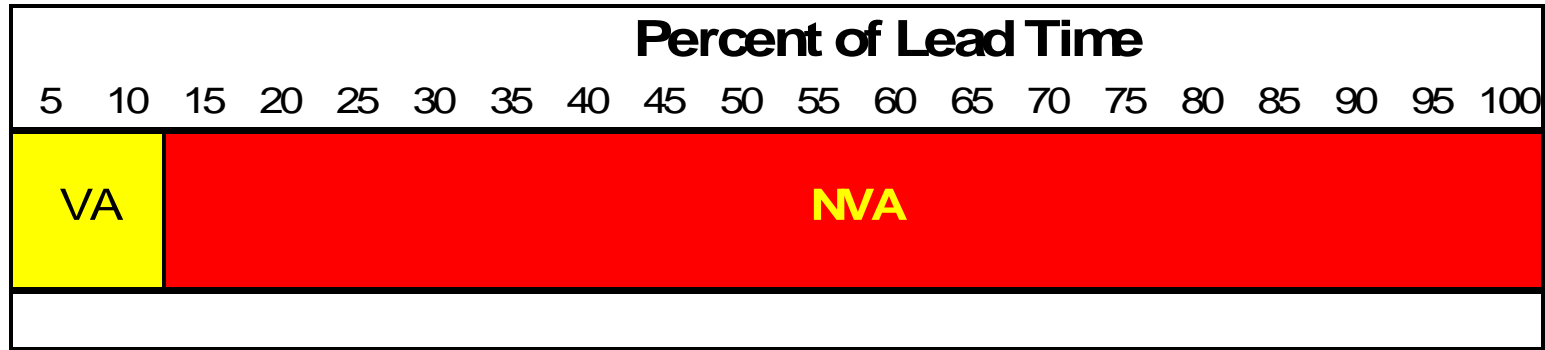
Understanding how the office processes *currently* operates.

- ✓ Material *and* information flows
- ✓ Draw using icons
- ✓ Start with the “door to door” flow.
- ✓ Walk the Office floor and get actuals
  - ✗ Use actual times
  - ✗ Draw by hand, in pencil
- ✓ Foundation for future state





## Two Approaches for Improvement



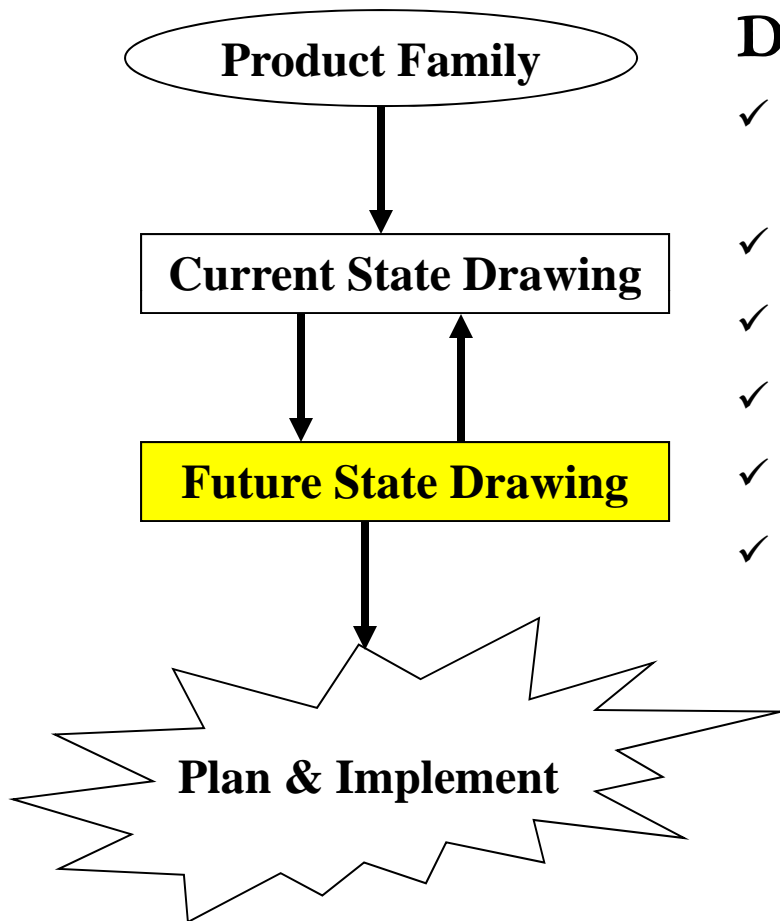
Improve Value Added Time



Eliminate Non-Value Added Time



# Future State Drawing



## Designing a Lean Flow

- ✓ The power behind Value Stream Mapping is you always need a future state.
- ✓ 70% & keep updating. Use Pencil
- ✓ Paperwork and information flows.
- ✓ Basis for your work plan.
- ✓ Begin By drawing on current state
- ✓ 1<sup>st</sup> iteration assumes existing office equipment & processes.  
Can move office equipment, combine steps, make minor purchases etc.

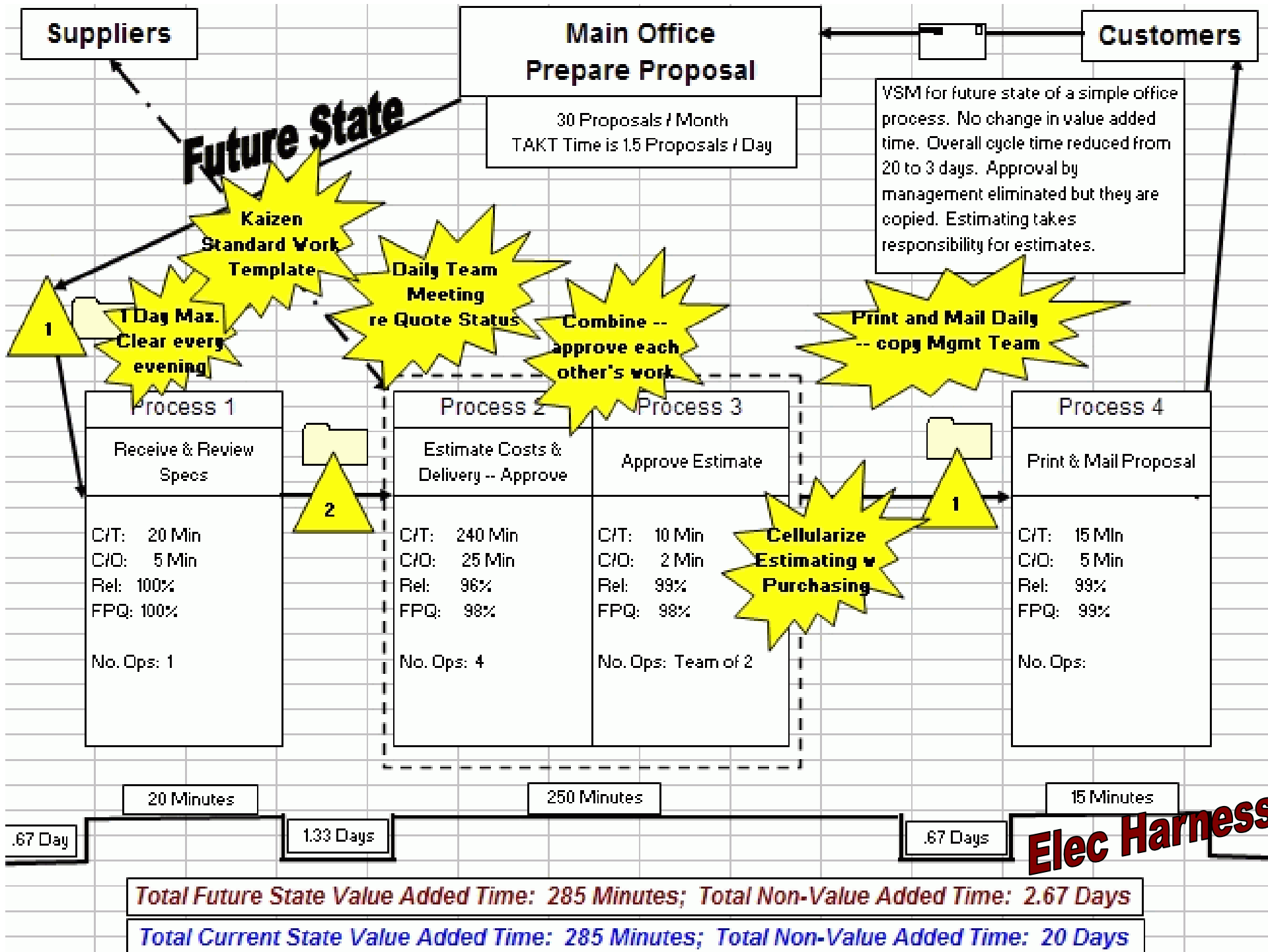
# Future State Questions

- What is the TAKT time?
- Will we work to a finished quote or to a supermarket of ready quotes in process?
- Where can we use continuous flow?
- Where do we have to use supermarket pull systems?
- At what single point in the quotation system do we trigger action?
- What is the pacemaker process and how do we level control activity at the pacemaker process?
- What increment of work will we release and take away from the pacemaker process? ( Leveling the volume)

## Supporting Improvements

- What process improvements will be necessary?
  - Pacemaker activity
  - Knowledge Availability
  - Training







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# Conclusion

## Lean

- **Simple and Visual**
- **Demand Driven**
- **Inventory as Needed**
- **Reduce Non-Value Added**
- **Small Lot Size**
- **Minimal Lead Time**
- **Quality Built**
- **Value Stream Managers**

## Traditional

- **Complex**
- **Forecast Driven**
- **Excessive Inventory**
- **Speed Up Value Added Work**
- **Batch Production**
- **Long Lead Time**
- **Quality Inspected-in**
- **Functional Departments**



Questions?