

# **Lean 101**

## **Introduction to Lean and Value Stream Mapping**

Presented by

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Improvement never ends

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- Provide Valuable Education on Lean Fundamentals and Value Stream Mapping

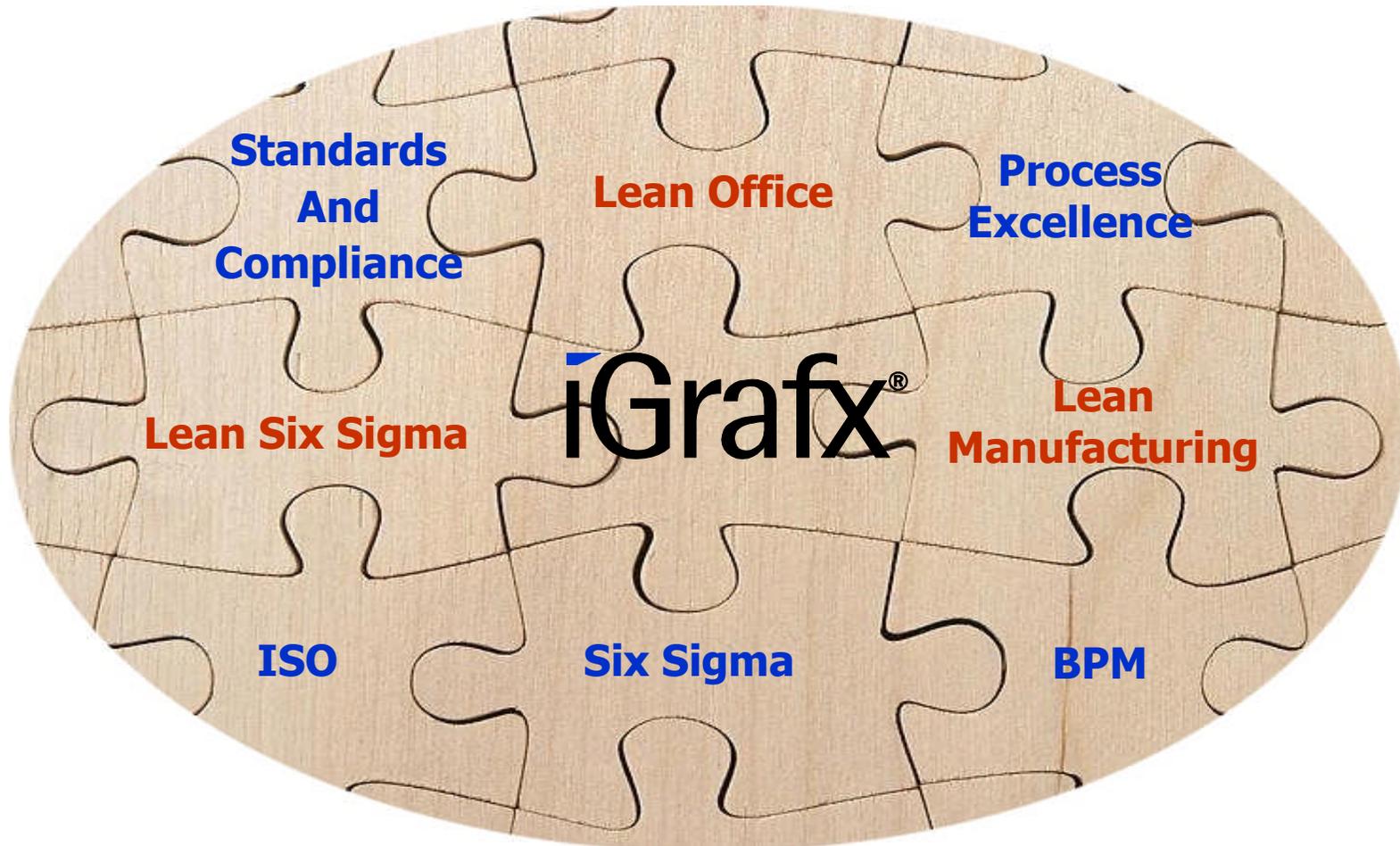
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# iGrafx Solutions Today



# Introduction to Gemba Research

- Lean Enterprise consulting firm established in 1998
- Gemba founders studied with Japanese kaizen masters from the Toyota Group for 10 years
- Gemba assists Lean implementation through training, consulting, study missions to Japan, and educational materials
- Gemba is headquartered in Mukilteo, Washington.
- Gemba also has operations in the following locations:
  - Portland, OR, Washington, D.C., Sao Paulo, Brazil, and Santiago, Chile.

# Presentation Topics

- The Fundamentals of Lean
- What is a Value Stream Map (VSM)
- Electronic Value Stream Mapping

# What is Lean?

Continuously improving towards the *ideal* through the relentless reduction of *Muda* (waste).

# What is “Ideal”

## Building a safe, profitable, enjoyable and sustainable enterprise

- Deliver exactly what the customer requests
  - One at a time
  - On demand
  - Free of defects
- Respond immediately to problems
- Increase value by focusing on reducing waste

# Lean & Lead-time Reduction

“One of the most noteworthy accomplishments in keeping the price of (our) products low is the gradual shortening of the production cycle. The longer an article is in the process of manufacture and the more it is moved about, the greater is its ultimate cost.”

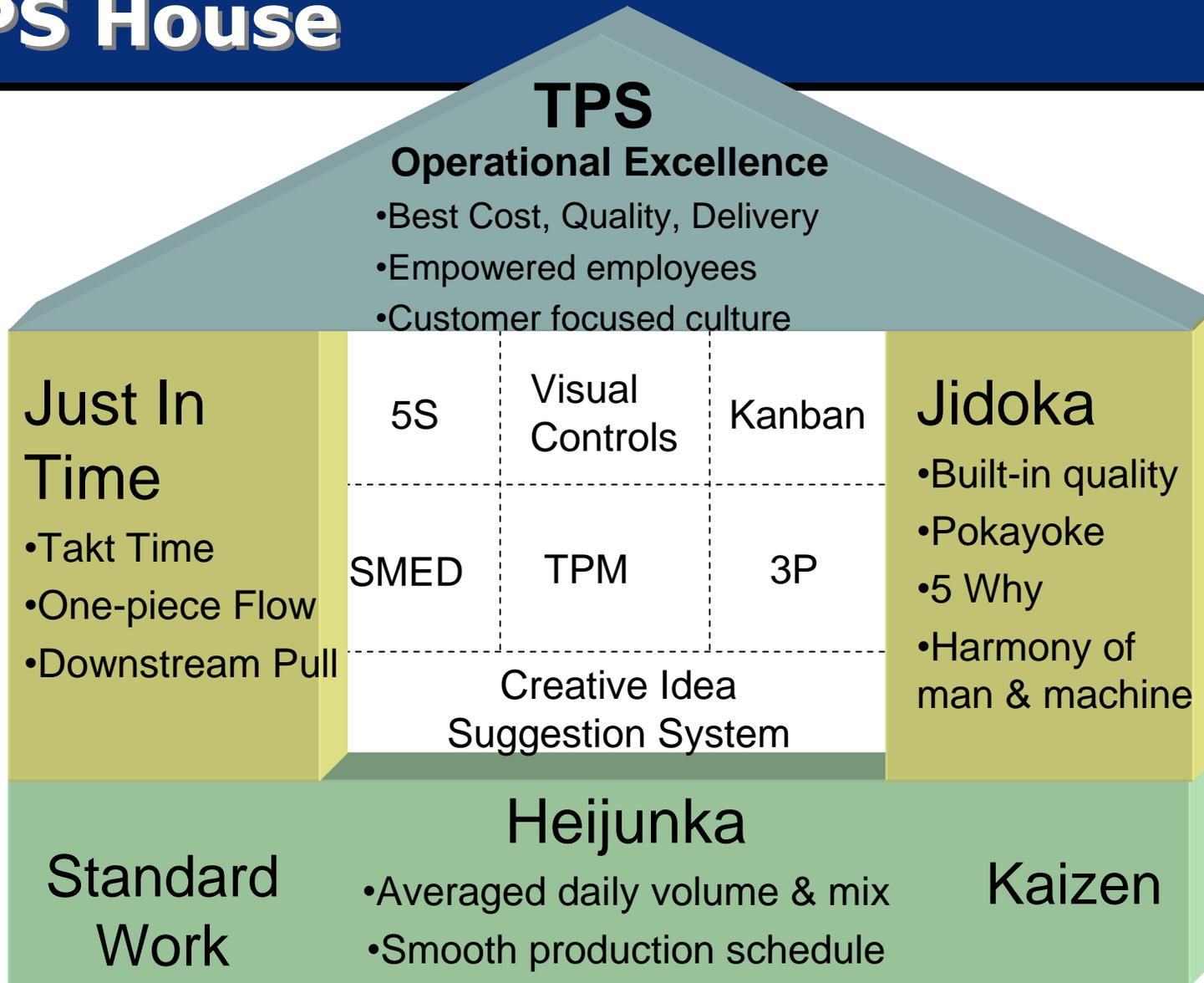
**Henry Ford**  
**1926**



# History of Lean

- Lean was Born in the U.S.A.
  - Time & Motion Studies (1900s)
  - Ford production system established (1913)
- Lean was first practiced in Japan
  - Dr. Deming's management system is studied (1950s)
  - Toyota Production System (revealed in 1973)
- Lean has spread world-wide
  - World-class Lean performers develop in the U.S.A. (1990s)
  - *Learning to See* introduces Value Stream Mapping to the world
  - Lean increasingly integrated into corporate strategies

# TPS House



# The Lean Journey

“The real voyage of discovery consists not in making new landscapes but in having new eyes.”

– Marcel Proust (1871-1922), Novelist

# Value Stream Focus & Lead-times

*Total lead-time through Value Stream* →

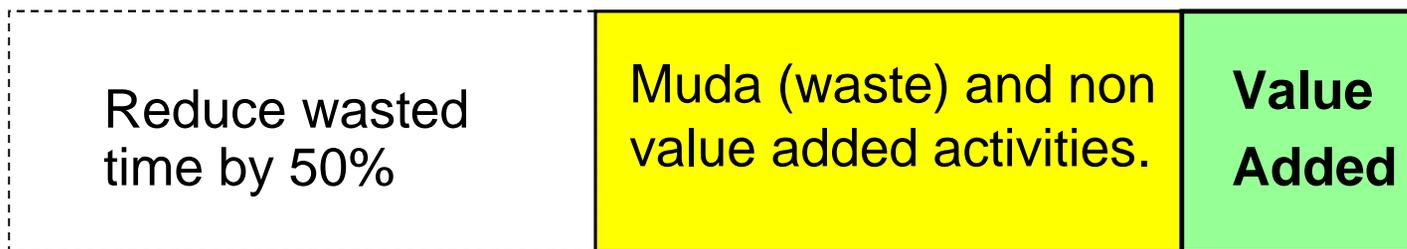


*Traditional improvement focus*

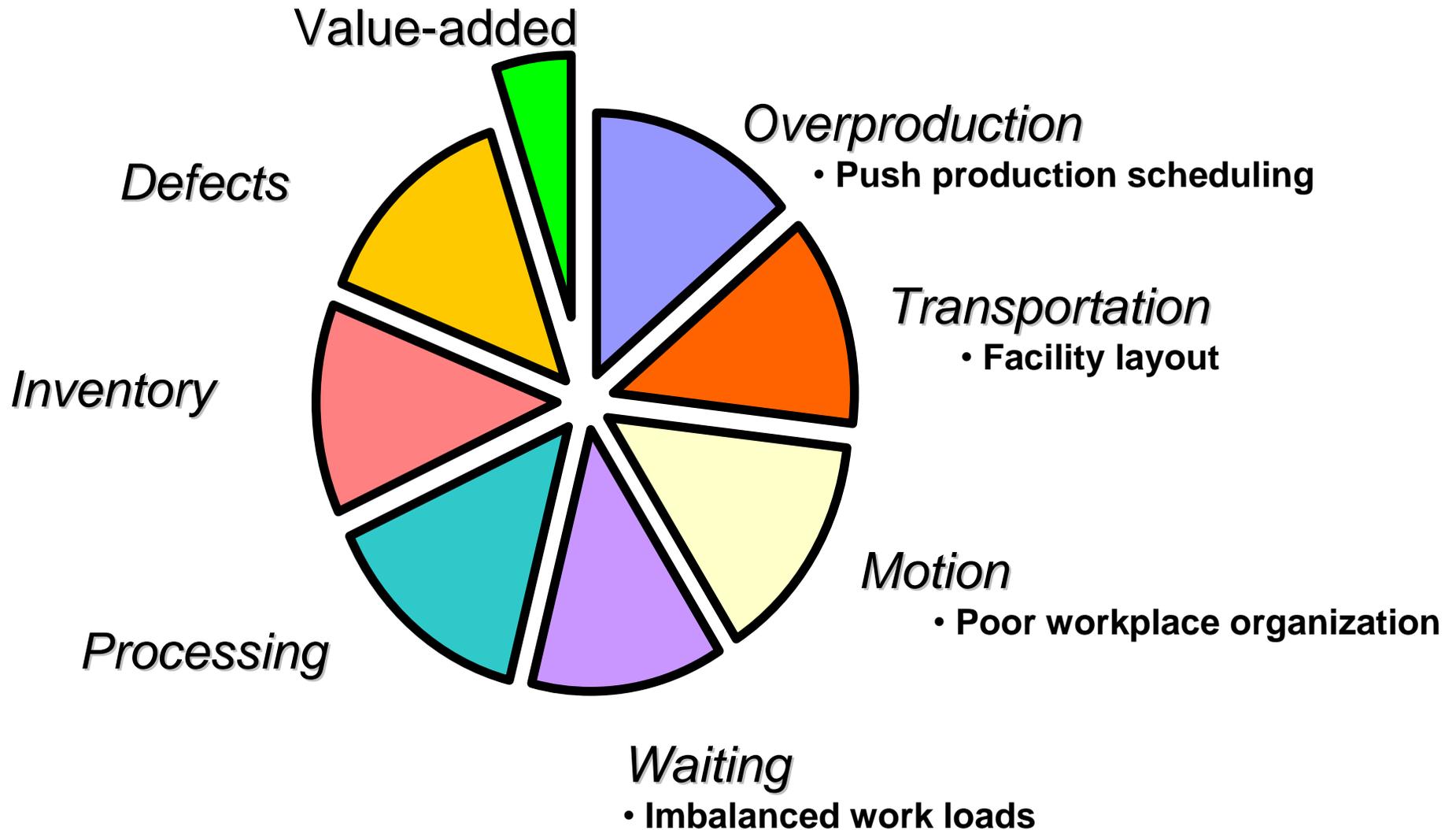


Make value added work twice as fast

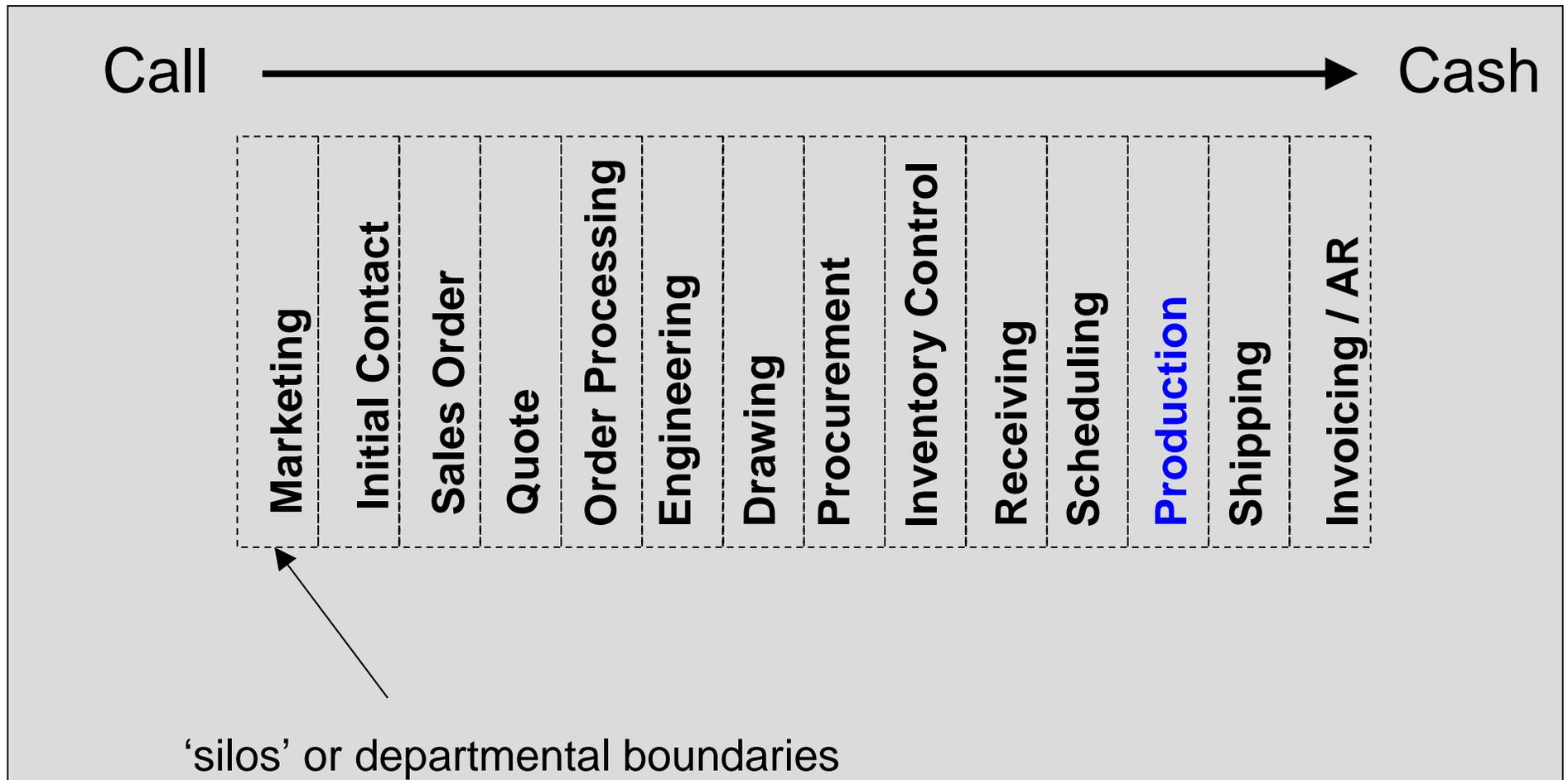
*Waste elimination focus*



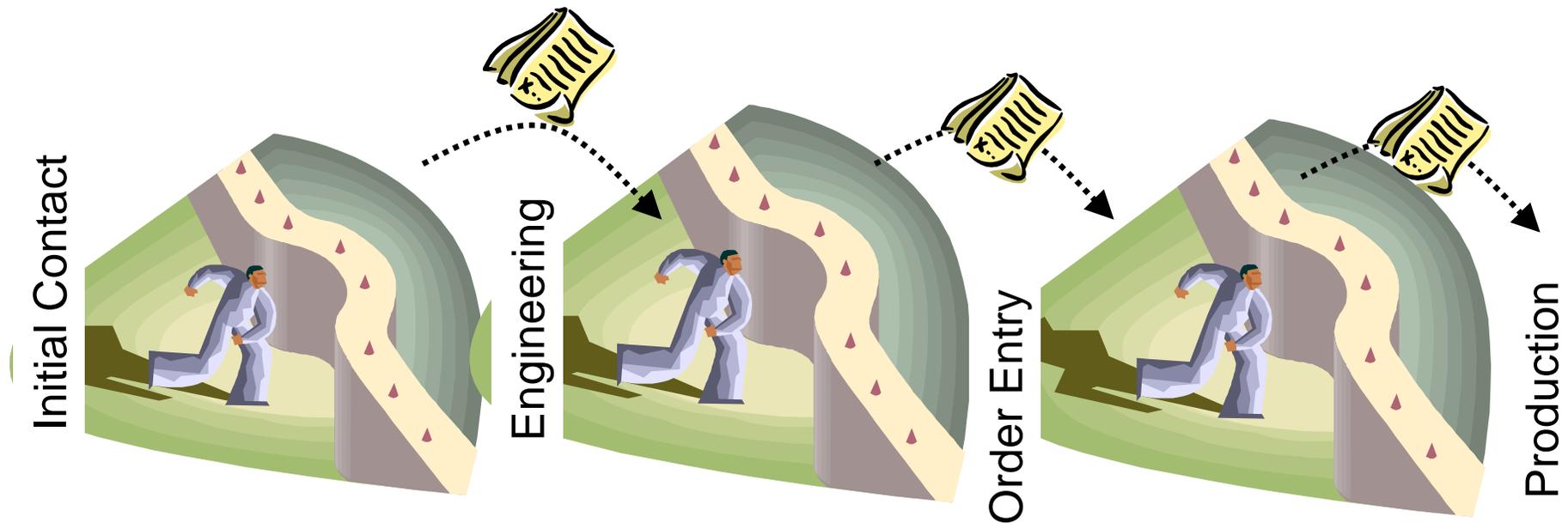
# The 7 Wastes of Production



# Taking a Value Stream View

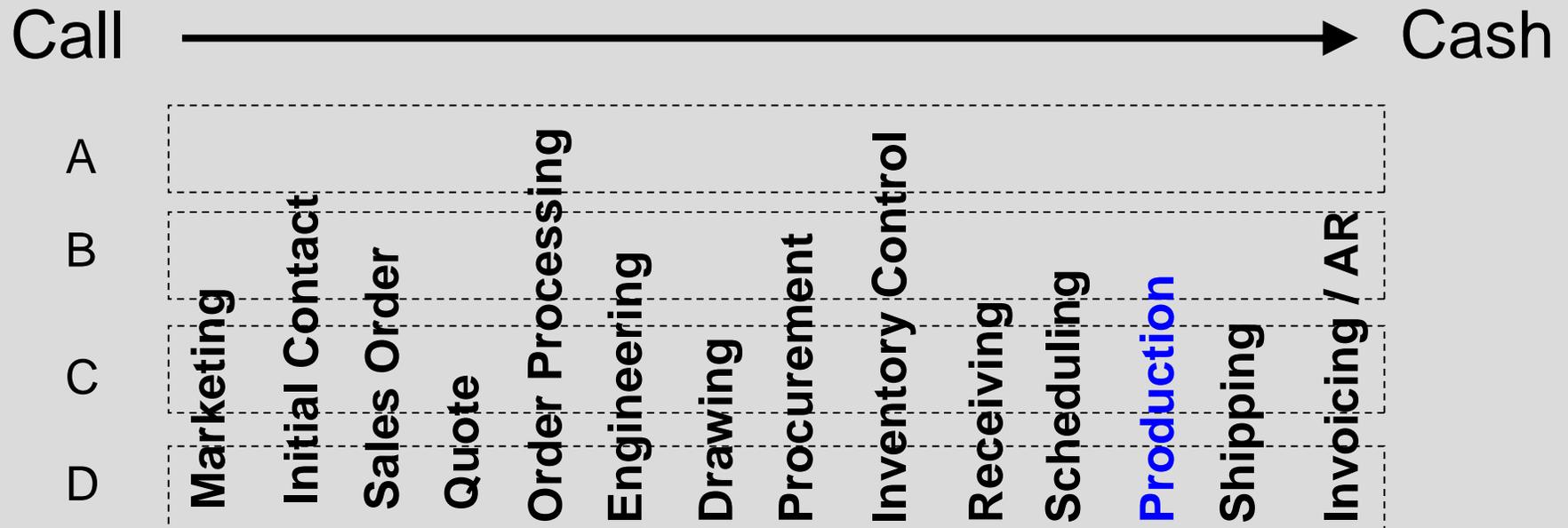


# Functional Departments



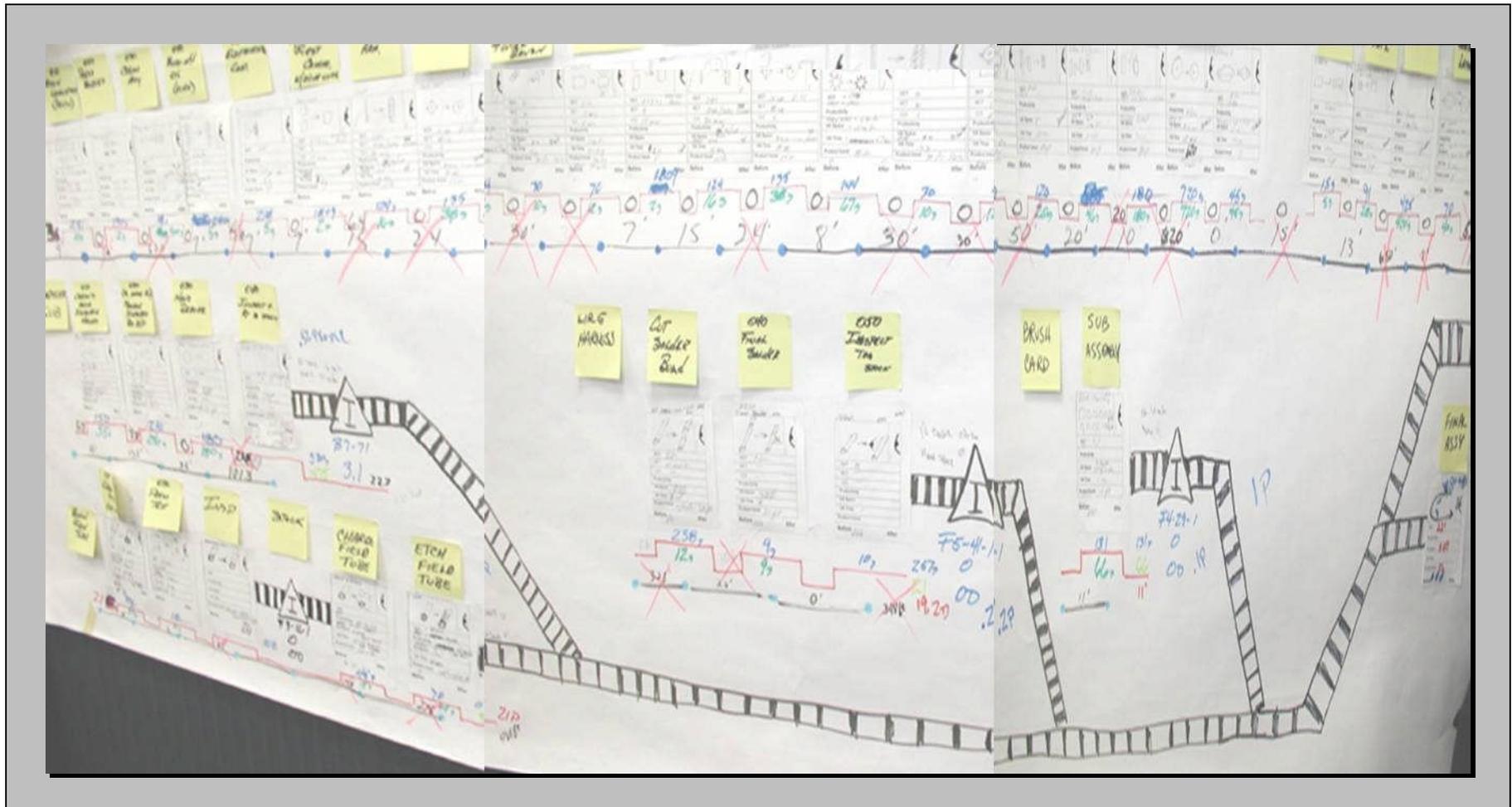
- Functional departments work independently
- Little inter-departmental communication
- Work sits in queue
- Information is batch processed

# How to be a "Flow Thinker"



‘Value Stream Organizations’ or cross-departmental process flows

# Start the Journey with a Map

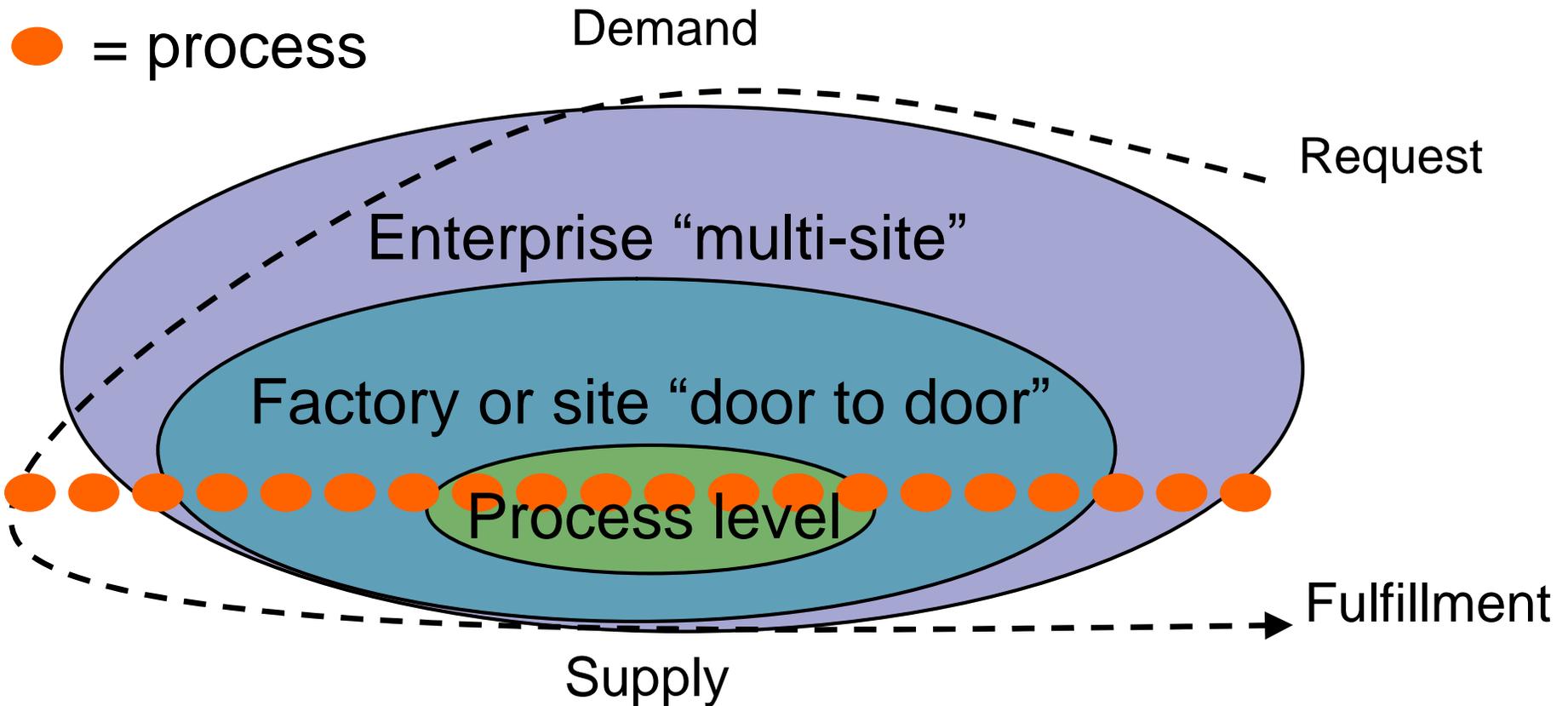


# Value Stream Mapping Definitions

- A **Value Stream** is the flow of all of the activity, value added and otherwise, needed to fulfill a request.
- **Value Stream Maps** are drawings that makes the flow of material and information visible.
- **Value Stream Mapping** (VSM) is the name used to describe the activity of creating these drawings.
- **Current State Maps** describe the process as it is today.
- **Future State Maps** describe the ideal state based on applying Lean principles.

# The Levels of Mapping

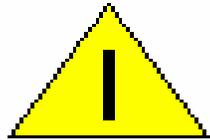
Value Stream Mapping (VSM) can be used any time there is a request for a good or a service.



# VSM Team Activity

1. Understand executive level strategic need for flow
2. ***Identify primary Value Streams***
3. ***Draw Current State Map***
4. ***Draw Future State Map***
5. *Create detailed implementation plans*
6. Appoint Value Stream Managers to implement
7. Communicate learning to entire organization
8. Map all Value Streams, and repeat steps 3 to 7

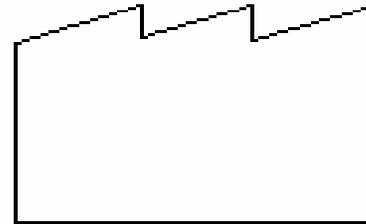
# Value Stream Mapping Symbols



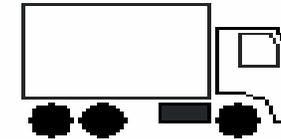
Inventory



Queue



Customer or Supplier



Truck



Operator



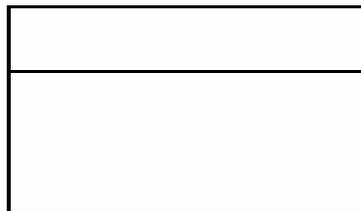
Withdrawal Kanban



Production Kanban



Signal Kanban



Process



FIFO (First In First Out) Lane

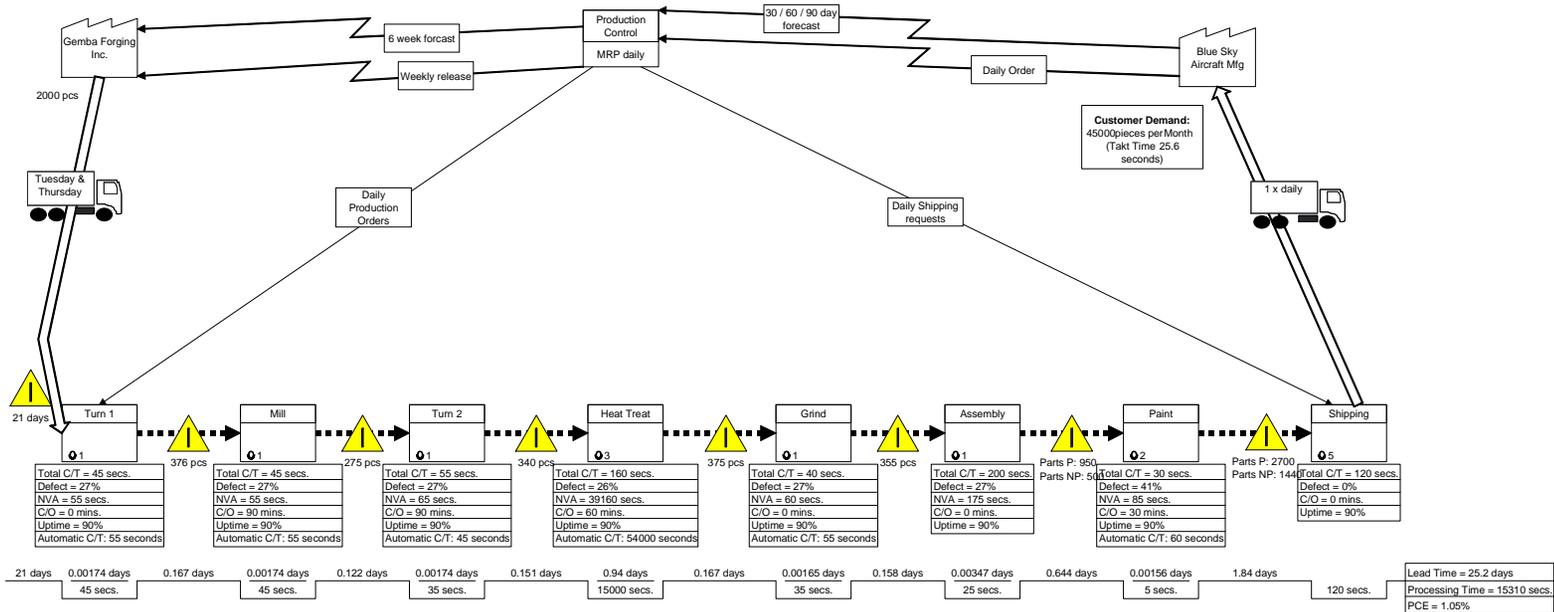


Kaizen Burst

# Current State Map

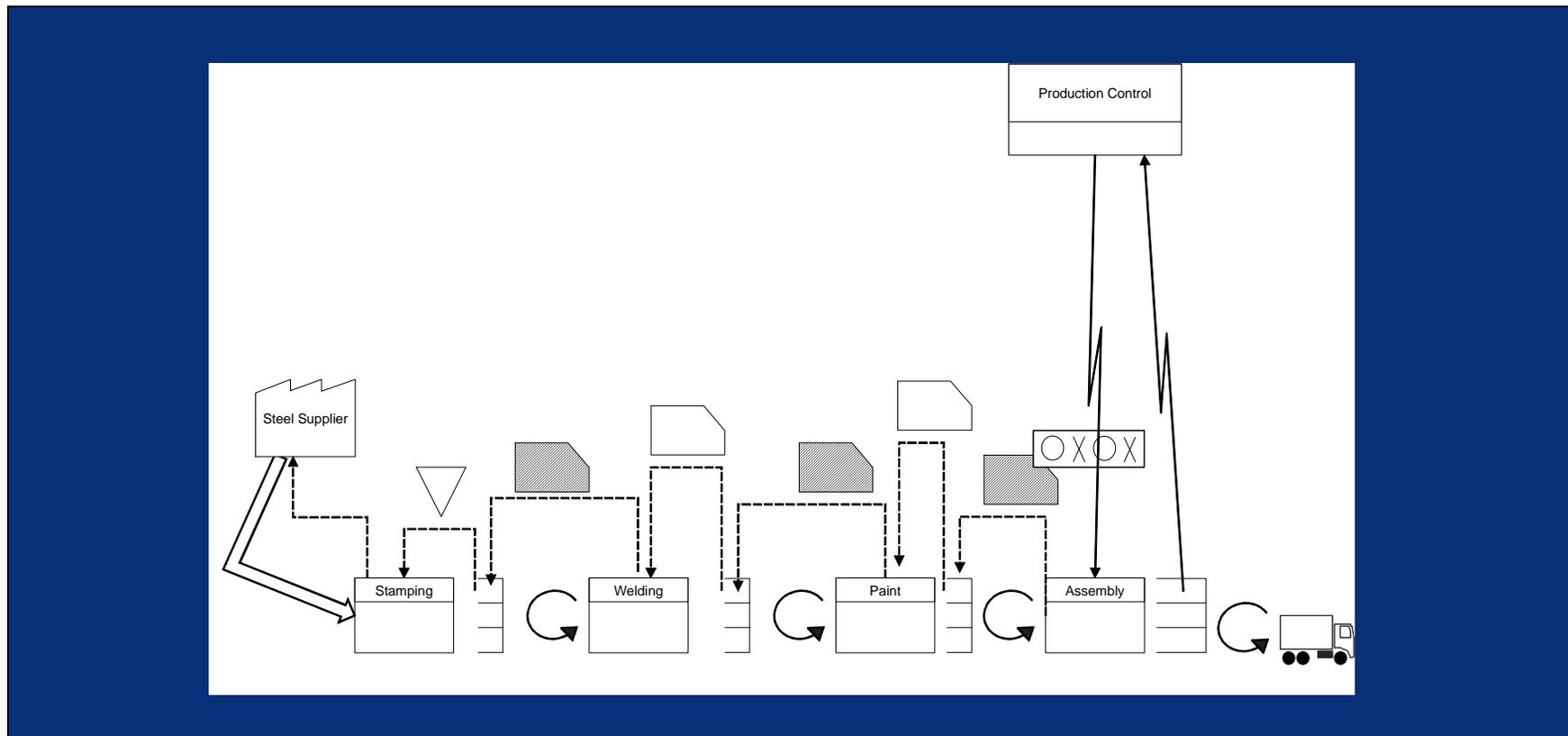
The Current State Map represents the “as is” condition of the Value Stream observed today.

- Start with the customer (request)
- Define the data boxes (processes)
- Draw material flow (push, pull)
- Draw information flow (triggers)

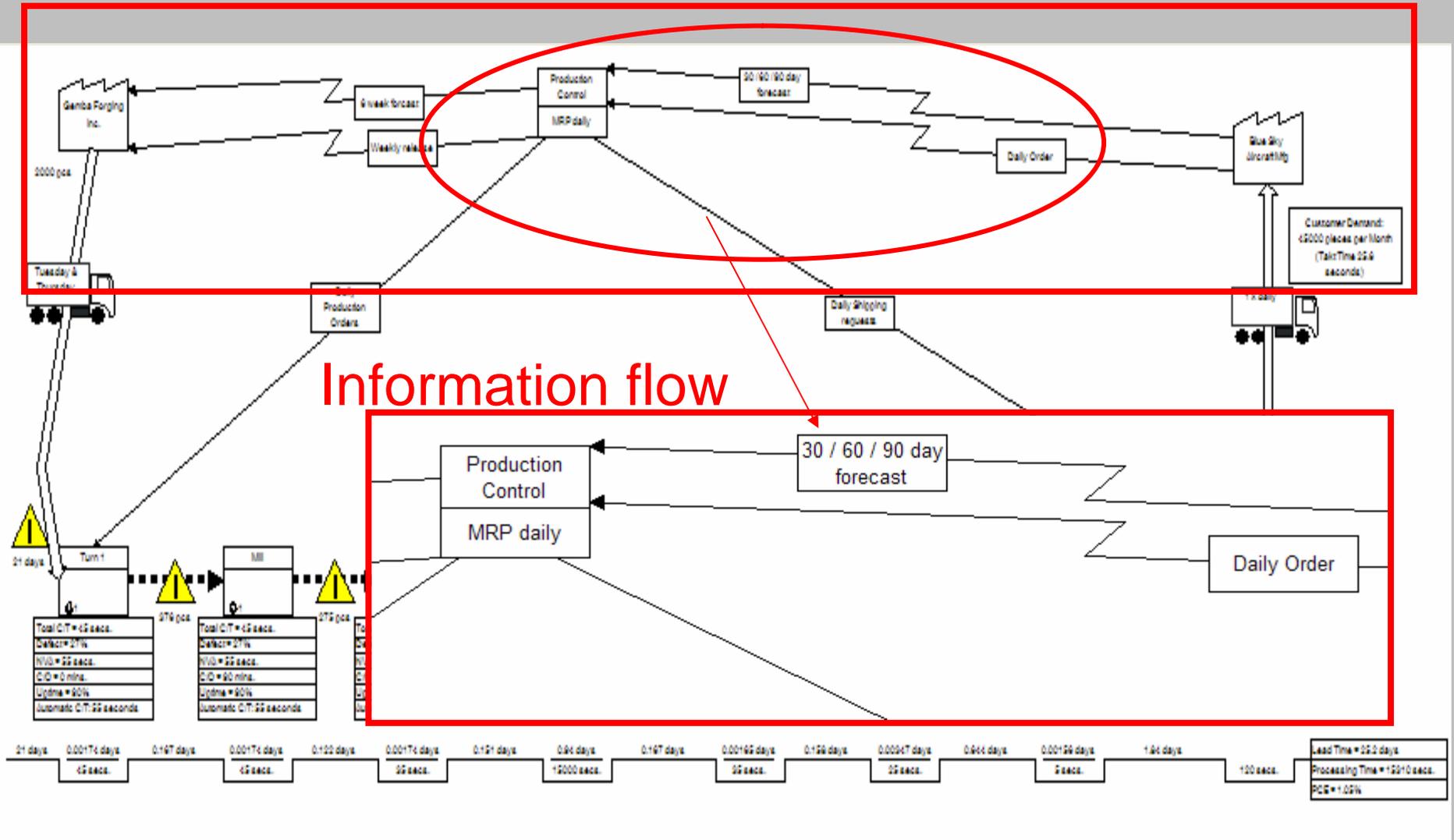


# Future State Maps

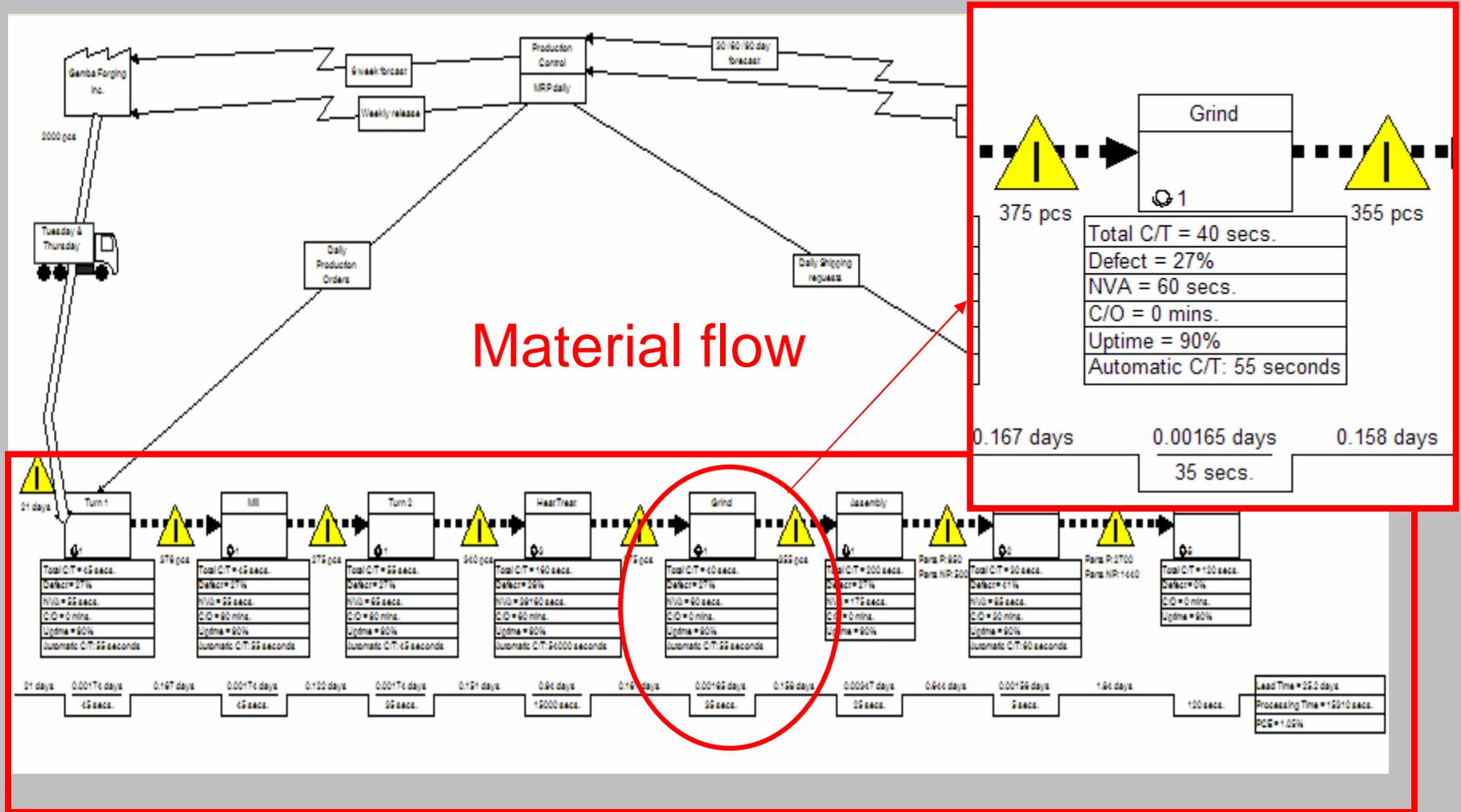
The Future State Map represents the “ideal” condition which will be achieved in 2 to 3 months.



# Electronic Value Stream Map



# Electronic Value Stream Map



# VSM: Pencil vs. Computer?

The screenshot displays the iGrafx Process 2005 software interface. The main window shows a Value Stream Map (VSM) for a production process. The map is titled "iGrafx Process 2005 for Six Sigma - [SAMPLE-1 - Map1]". It features a grid with columns numbered 1 to 21 and rows numbered 1 to 7. The map includes several key elements:

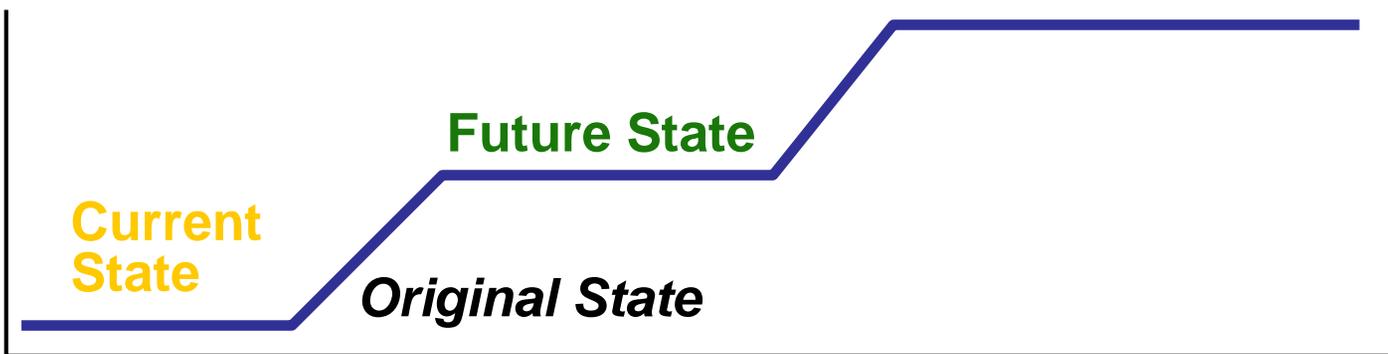
- Production Control:** A central box labeled "Production Control" with "MRP daily" below it.
- Forecasting:** A box labeled "20 / 20 / 20 day forecast" with arrows pointing to the Production Control box.
- Inventory Buffers:** A box labeled "5 Week forecast" and another labeled "Weekly release" with arrows pointing to the Production Control box.
- Customer Demand:** A box labeled "Customer Demand: 40000 pieces per Month (Lead Time 22.8 seconds)" with an arrow pointing to the Production Control box.
- Production Flow:** A box labeled "Daily Production Orders" with arrows pointing to the Production Control box.
- Shipping:** A box labeled "Daily Shipping" with an arrow pointing to the Production Control box.
- Inventory Buffers:** A box labeled "21 days" with a yellow triangle warning icon.
- Process Steps:** Three process steps are shown, each with a yellow triangle warning icon. Each step has a data box with the following information:
  - Total CT = 45 secs
  - Defect = 21%
  - UPA = 55 secs
  - ED = 2 mins
  - Volume = 20%
  - Automatic CT = 55 seconds

## Benefits of iGrafx for Lean practitioners:

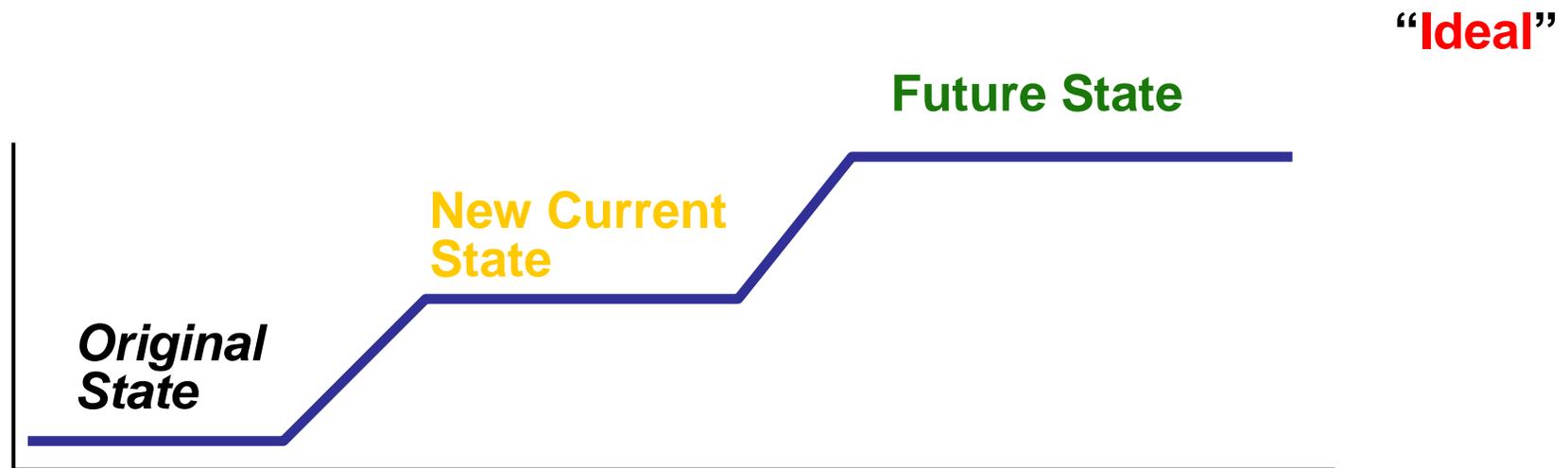
- Saves hours re-drawing and editing Maps
- Interactive data box fields do the math for you
- Quickly identify process steps that are not aligned with takt time
- Easily store and share your VS Maps
  - Publish to the web and to presentations

# Improving Towards the Ideal

“Ideal”



# Improving Towards the Ideal



# Summary

## Value Stream Maps and direct process observation will show you:

- The overall work flow from request to fulfillment
- Linkages between material and information flow
- The 7 wastes and system-level causes of waste
- High impact improvement areas
- All of the facts about a value stream in one place

# Summary

## Electronic VSM speeds up improvement towards ideal because:

- You spend more time on improvement activity
- You can quickly document, share, and update VS Maps
- Helps you analyze the data

# Next Steps

- Download today's presentation and other materials online at <http://www.gemba.com/tool-kit.cfm?id=149>
- Join us for a Demo of iGrafx VSM capabilities tomorrow
  - See iGrafx VSM in action
  - Friday, Feb 25<sup>th</sup> at 11:00 am PST
  - Register online at <http://www.igrafx.com/events/webSeminars.html>

# Want to Learn More?

- Sign up for a 2 day VSM course offered by Gemba Research
  - Join Gemba onsite at iGrafx near Portland, OR
  - Get 2 days training on Value Stream Mapping, with iGrafx software included.
  - Get all the details at [www.gemba.com](http://www.gemba.com)
- Join us for Lean 201 in April
  - Watch for your invite coming soon