Stop the waste! Lean Principles to Improve Productivity and Quality Outcomes

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Topics for today

- *Contributions/History behind Lean*
- *Focus on the Customer/Customer Value*
- *General Overview Tools/Resources in Lean*
- *Interactive Games on Lean Principles*
- *Lessons from Amazon*
- *Staff Engagement with Lean*

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My first job

$$\text{Value} = \frac{\text{Quality + Service}}{\text{Cost}}$$

5 Ways Small Businesses Can Compete With Big-Box Stores

Date: February 15, 2017

Study proves it: Walmart super-stores kill off local small businesses

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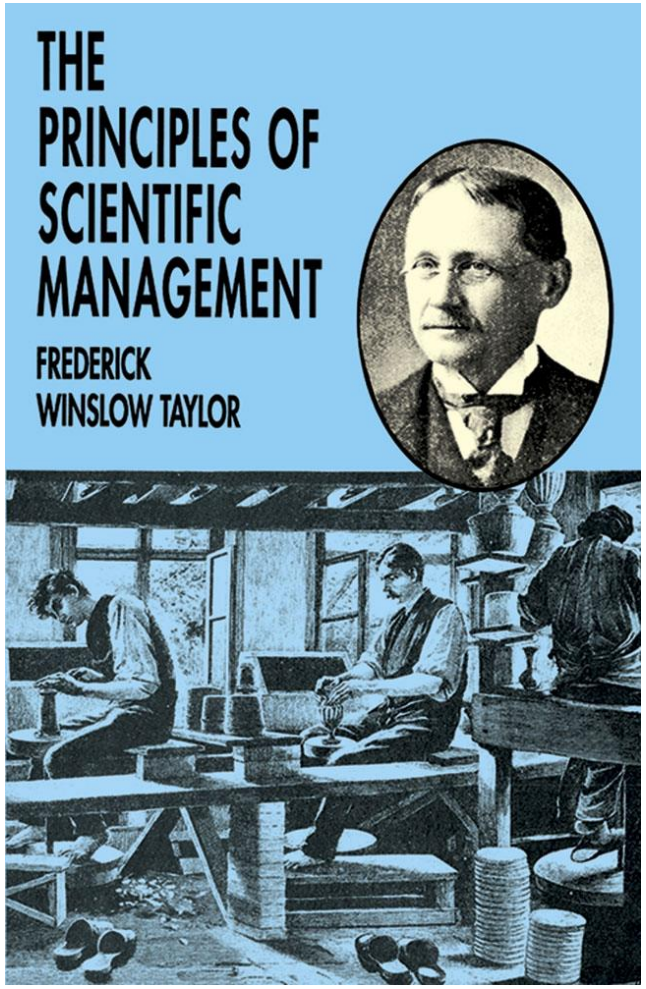
Contributions to Lean



The Principles of Scientific Management (1911)

By: Frederick Winslow Taylor

- Standard Work
- “Greatest loss is through inefficiencies in our daily acts”
- Focus on training and development of workforce
- Ideas of “best practice”

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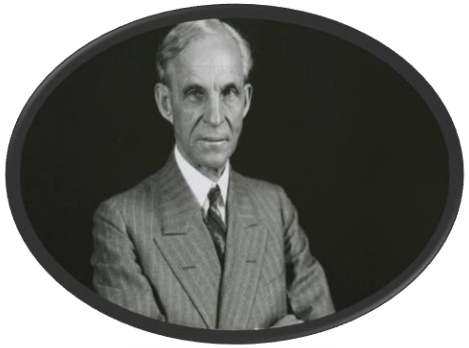

Contributions to Lean

- Increasing production speeds
- Reduce waste
- Process flow
  - Interchangeable Parts
  - Assembly lines
  - Place tools in sequence
  - “Drop” parts in same place

Ford
THE UNIVERSAL CAR

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Contributions to Lean

"Any customer can have a car painted any color that he wants so long as it is black." –Henry Ford

- Customers wanted variety (Different models/colors)
- Added production complexity
- Mass production—Large batch sizes
- Resulted in overproduction– Excess inventory- Product without customer demand-- WASTE

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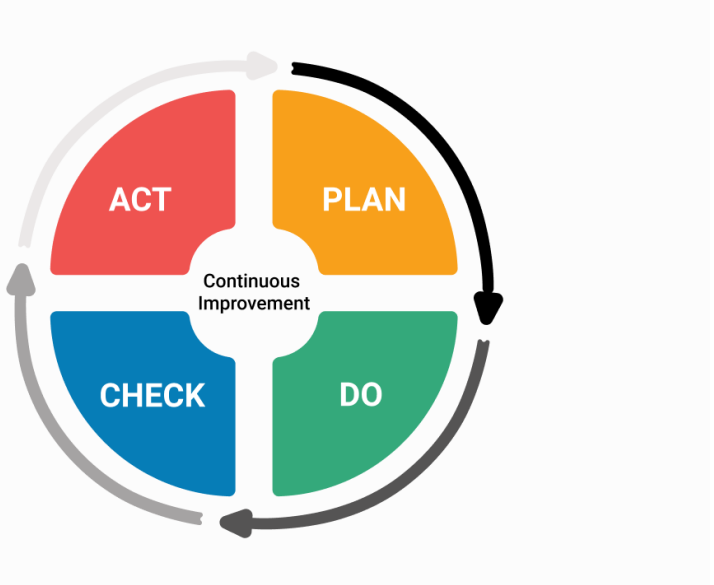
Contributions to Lean

W. Edwards Deming

- PDCA
- Walter Shewhart--- Statistical Process Control
- Focus on errors & variation
- Continuous Improvement
- “Kaizen”



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Contributions to Lean

Taiichi Ohno & Eiji Toyoda: Toyota Production System (1948- 1975)

"Muda"= Waste

- Waste of overproduction (largest waste)
- Waste of time on hand (waiting)
- Waste of transportation
- Waste of processing itself
- Waste of stock at hand
- Waste of movement
- Waste of making defective products
- Waste of underutilized workers

- Pull Replenishment
- Error proofing
- Process Flow
- Standard Work
- Value of Customer

Just-in-time: "Making only what is needed, only when it is needed, and only in the amount that is needed"

Jidoka (Autonomation): "Automation with a human touch"

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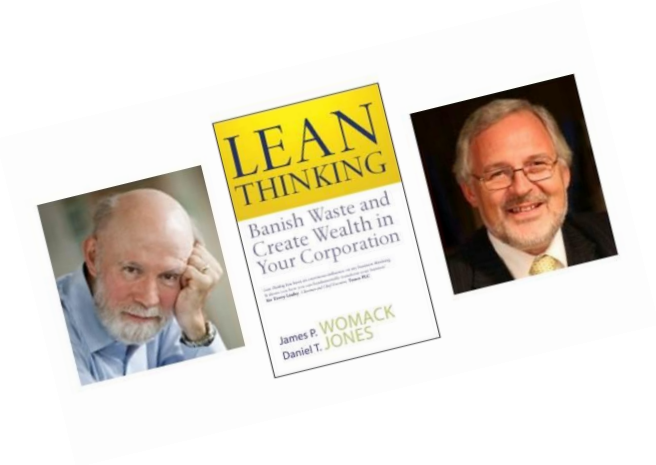
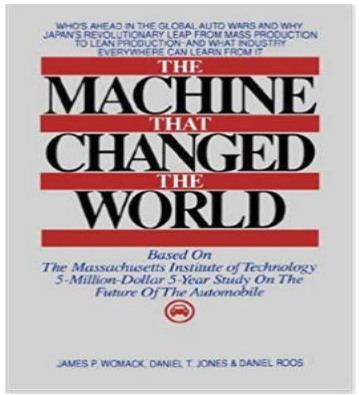
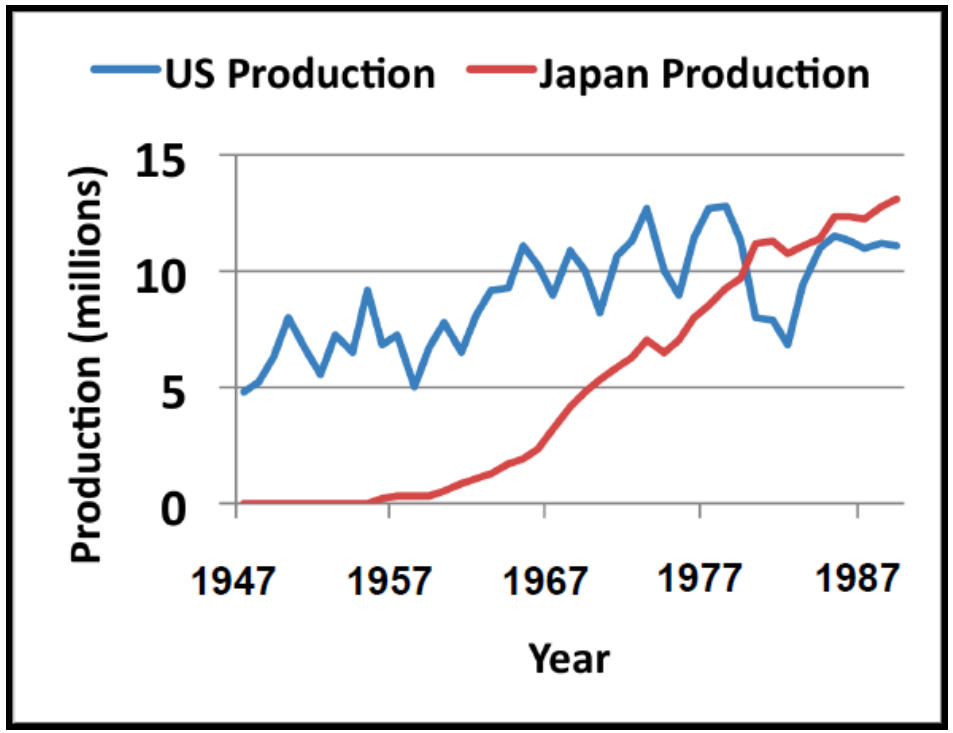
Contributions to Lean





James Womack & Daniel Jones (Early 1990s)

- Lean Thinking
- The Machine that Changed the World



Selected Metrics for US & Japan Automobile Manufacturers		
Product Development (mid 1980s)		
	Japanese Producers	American Producers
Avg. Engineering Hrs per New Car (millions)	1.7	3.1
Avg. Development Time per New Car (months)	46.2	60.4
Employees in Project Team	485	903
Supplier Share of Engineering	51%	14%
Ratio of Delayed Projects	1 in 6	1 in 2
Summary of Assembly Plant Characteristics for Volume Producers, 1989		
	Japanese in Japan	American in N Am
Productivity (hrs/veh)	16.8	25.1
Quality (defects/100 veh)	60	82.3
Inventory (days for 8 sample parts)	0.2	2.9
Work Force on Teams	69.3%	17.3%
Suggestions per employee	61.6	0.4
Number of Job Classifications	11.9	67.1
Training Hrs of New Production Workers	380.3	46.4

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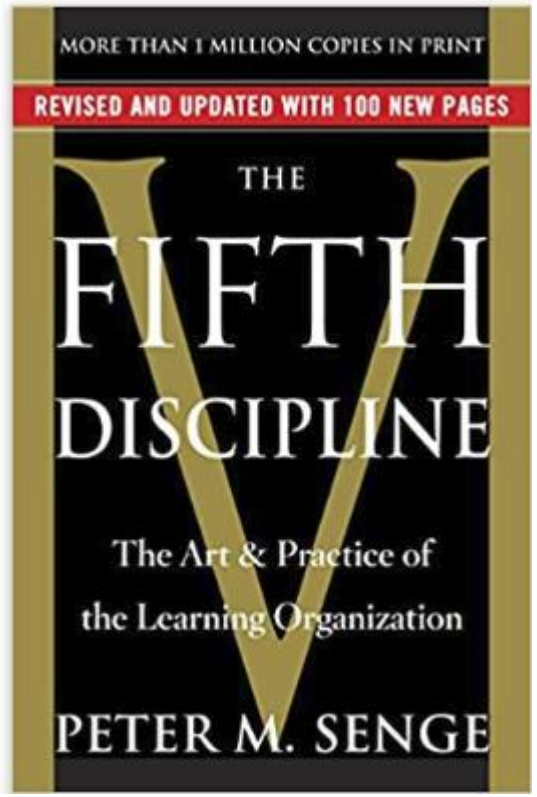
Contributions to Lean



Peter Senge (Early 1990s)

- **The Art & Practice of a Learning Organization**
  - Systems Thinking
  - Team Learning
  - Innovation
  - Focus on Customer

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TOOLS & RESOURCES

- **5s** (Sort, Set in order, shine, standardize, sustain)
- **Andon Cord:** Visual Feedback system empowers staff to stop and fix problem instantly
- **Poka-Yoke (Error Proofing):** Error detection and prevention. Theory that waiting longer to correct defects gets more expensive in later stages of production.
- **Bottleneck Analysis**: Analyzing weakest link (often what is slowing it down) and strengthening that link
- **Gemba walk:** Managers & leaders observe actual work process, engage with employees
- **Just-in-time:** Parts are pulled through production based on customer demand
- **Takt Time:** Calculation to align pace of production to customer demand
- **Value-Stream Mapping:** Tool used to visualize flow and prioritize processes to contribute to customer value.
- **Kanban (Pull System):** Method to regulate flow of good with outside suppliers & customer. Signal cards to standardize when more goods are needed.
- **PDCA:** Plan Do Check Act—Continuous Improvement

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5s Game

Worksheets represent the current state of our work place

- Your job is to use a pen to strike out the numbers 1 to 49 in correct sequence (Example: ~~1 2 3~~, etc.)
- You will have 30 seconds to complete each round
- Circle the highest number you crossed out and share with your table
- The lowest score at the table is your team's score
- We will do 4 rounds
- Highest total team score wins!

https://www.youtube.com/watch?v=4rs_17FMgY4

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Whose using it today?

https://www.youtube.com/watch?v=GltlJO56S1g&t=304s

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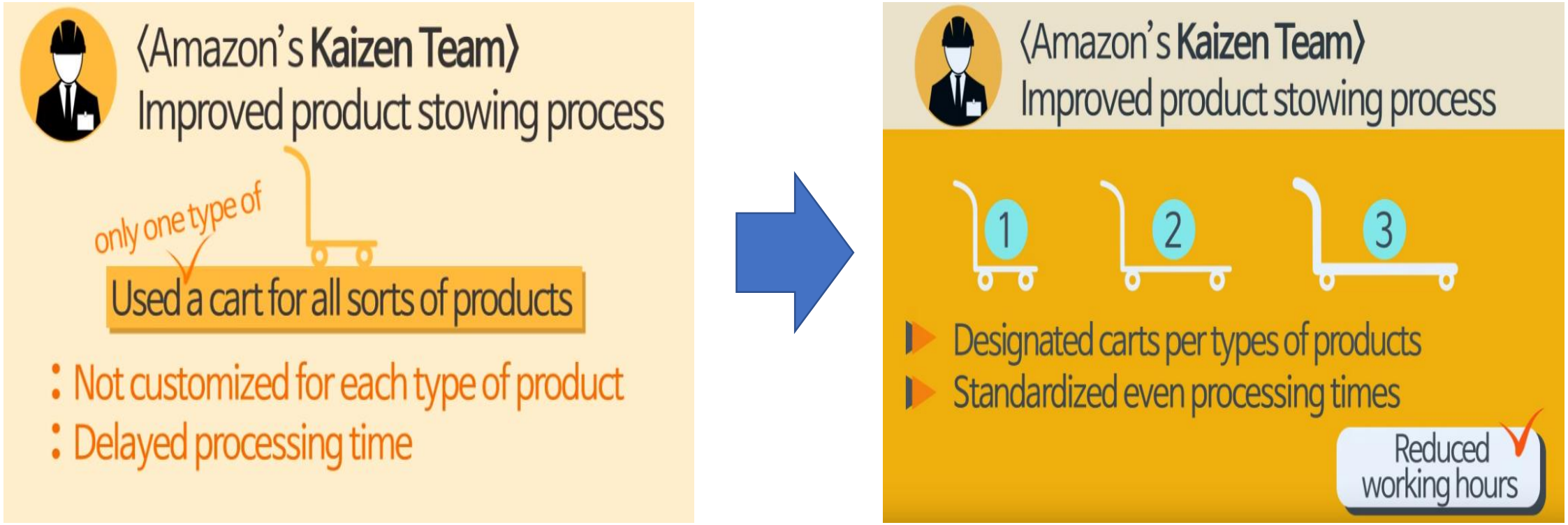
Whose using it today?



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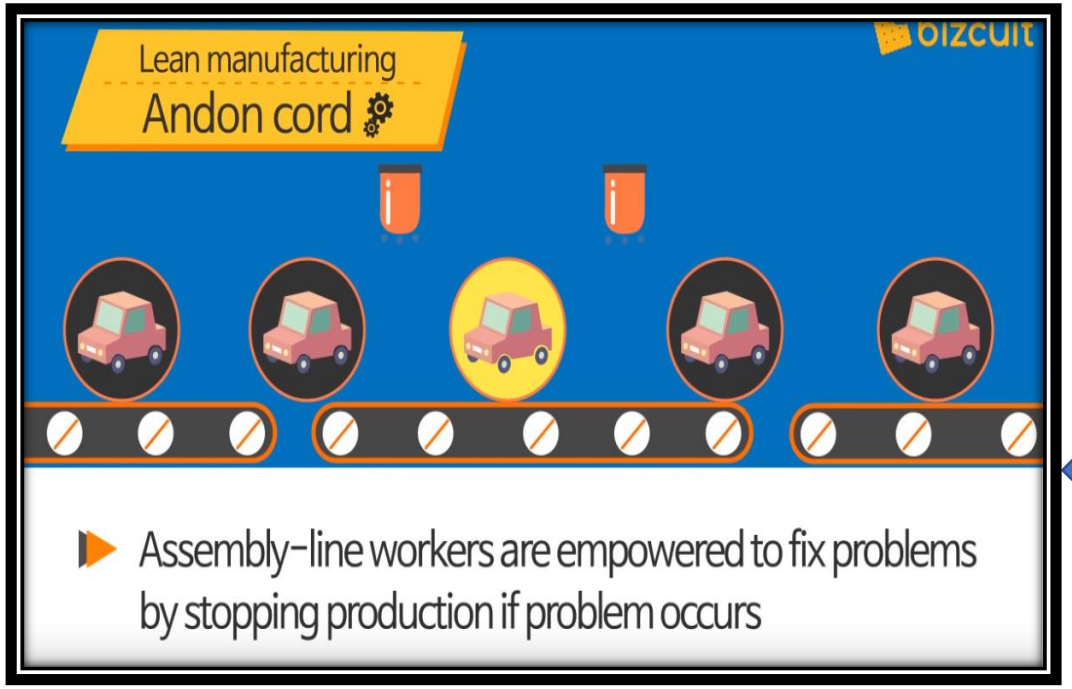

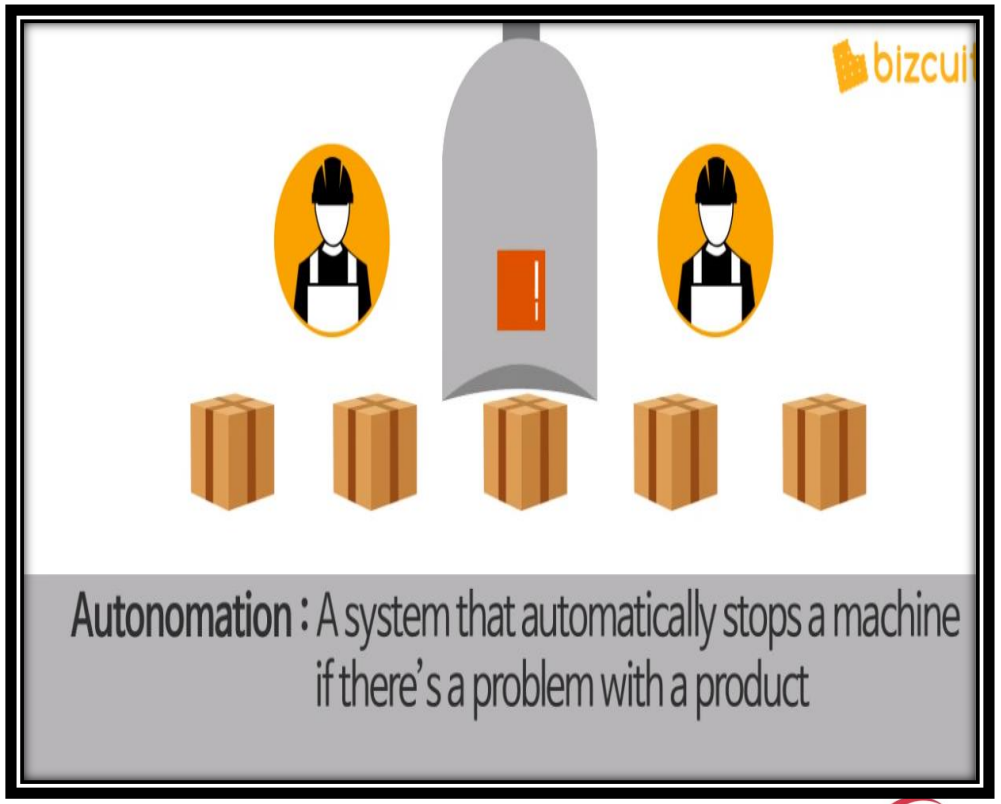

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Amazon enters healthcare

HAVEN

Disruption is Healthcare's New Normal

Amazon acquisition of online pharmacy startup PillPack sends health-care stocks into a nose dive

Published: July 1, 2018 10:22 a.m. ET

THE DAWN OF CONSUMERISM: KEY TRENDS AND STRATEGIES FOR HEALTHCARE CONSUMERISM

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$$\frac{\text{Time Available}}{\text{Demand}} = \text{Takt Time}$$

Example: Shift Report in Hospitals

- Total Time 30 minutes
- 5 incoming nurses, 5 outgoing
- Need to discuss 6 patients each
- Takt Time of 5 minutes

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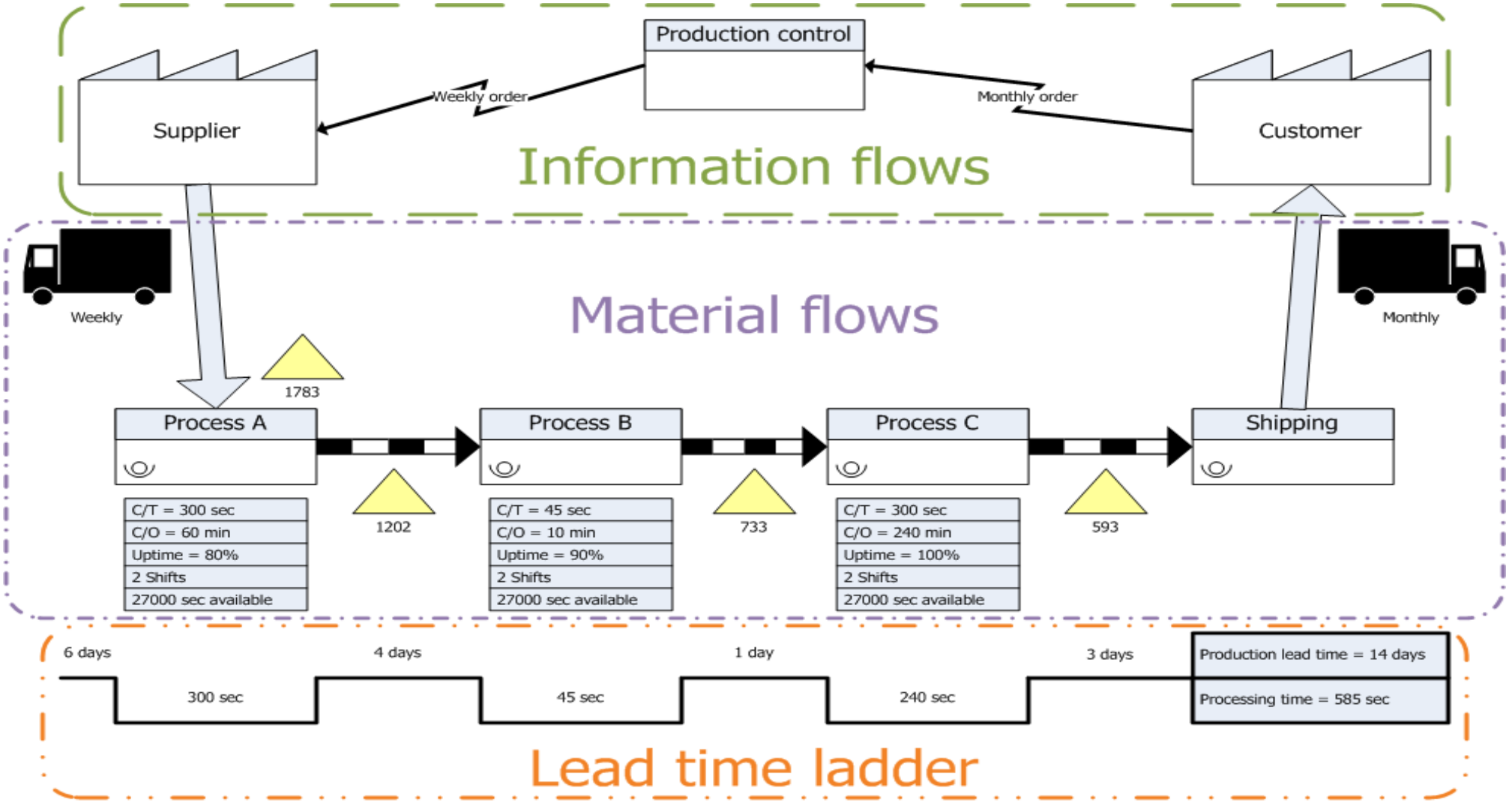
Value Stream Mapping

Technique used to document, analyze and improve the flow of information or materials required to produce a product or service for a customer



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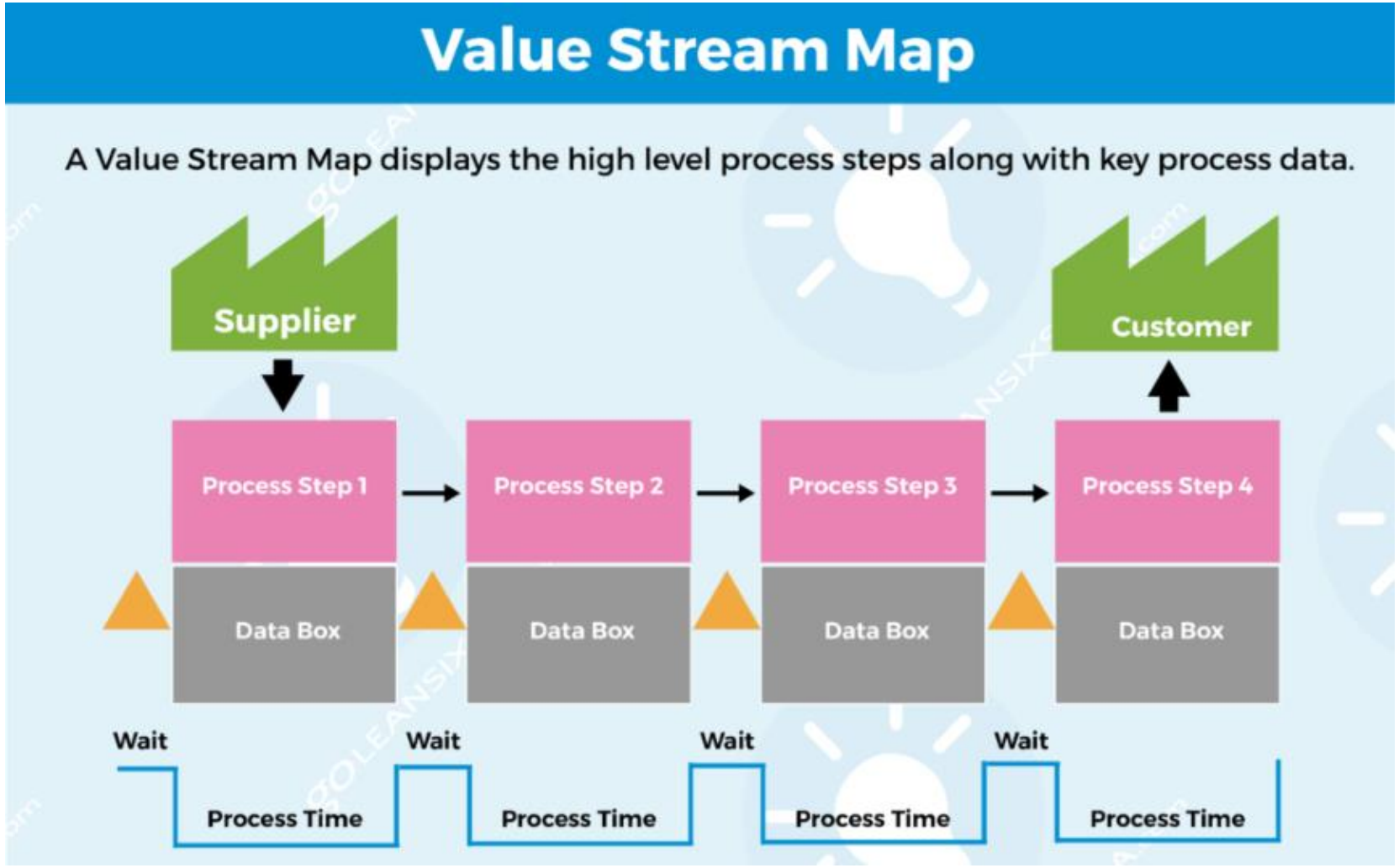

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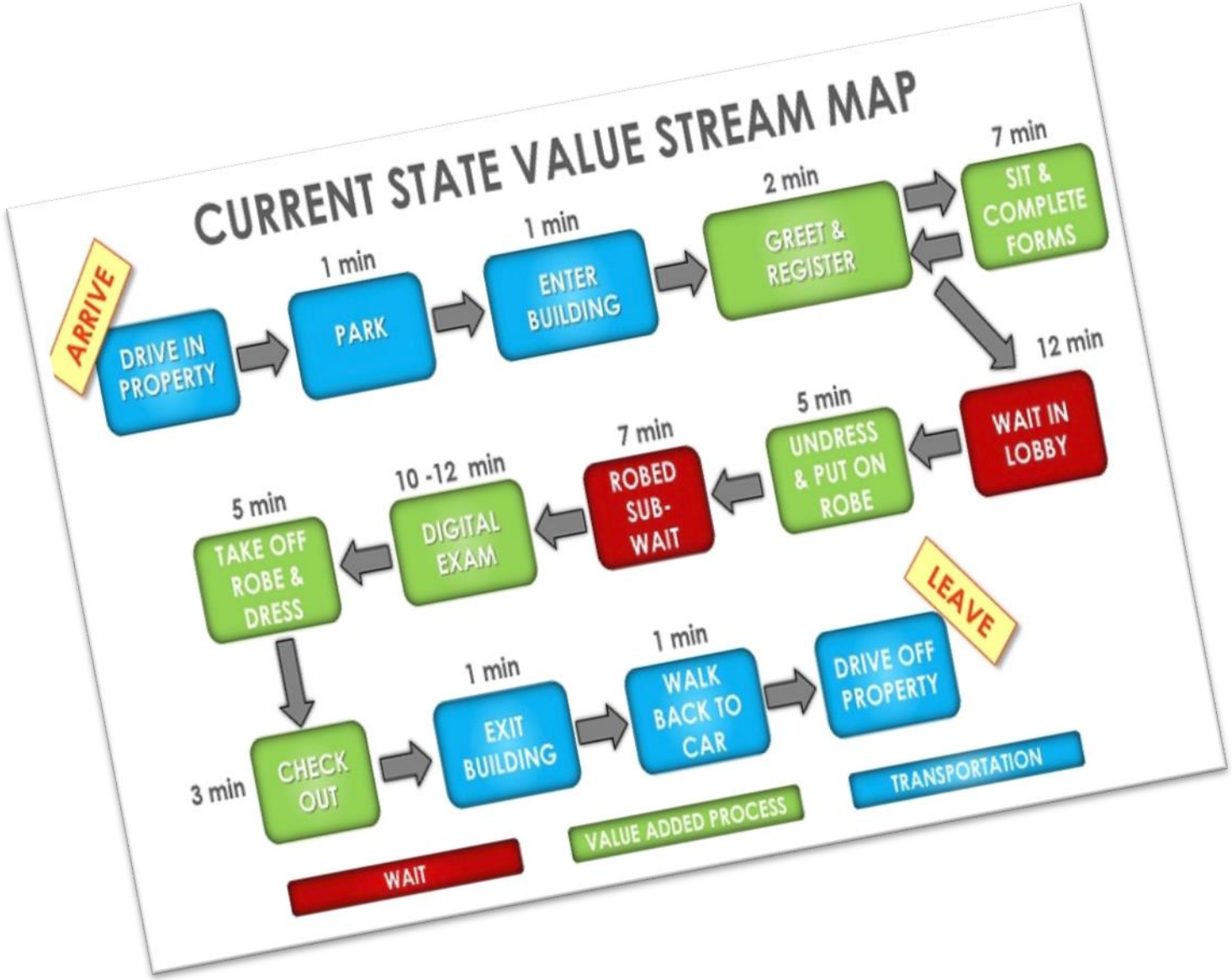

GoLeanSixSigma.com

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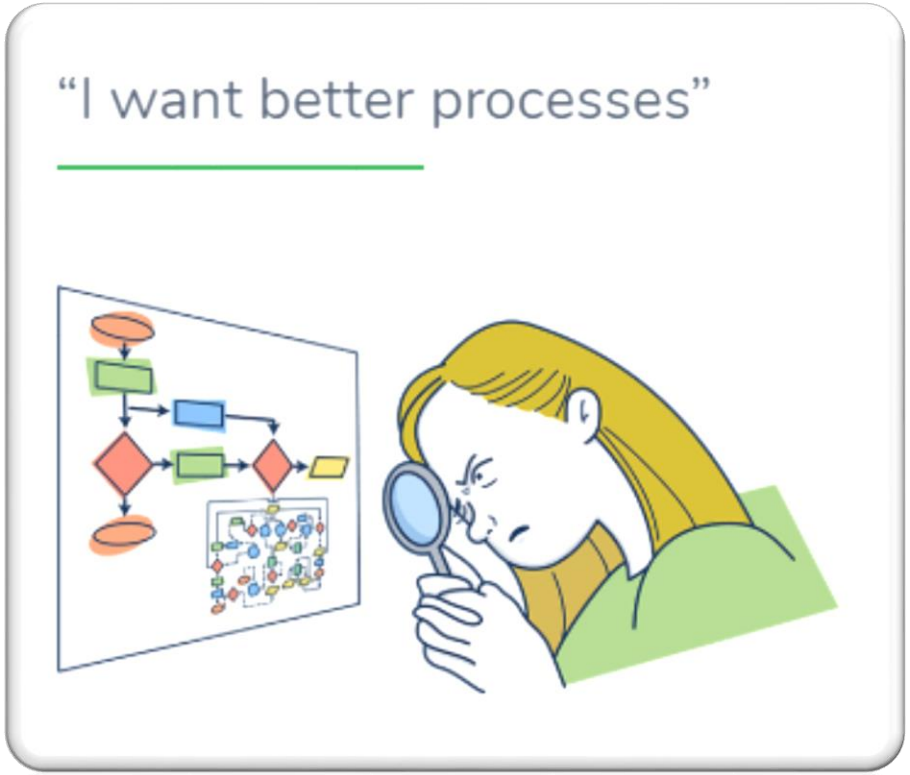
Value Stream Mapping

Goal is to identify:

- Inefficiencies
- Delays
- Restraints
- Excess



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Coin Game

Instructions at the table

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Summary of Lean Principles

- Identify value (from customer's perspective)
- Map Value Stream (Steps in process)
- Create Flow
- Establish Pull (right amount pulled at the right time)
- Seek Perfection (eliminate waste & errors)

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Lessons for Staff Engagement

- Gemba Walks—Leadership Rounding
- Workflow issues---Staff Satisfaction
- Positive Intent
- Make it FUN
- **Staff are customers**

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Questions or Comments???

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