Entrepreneur & Family
BUSINESS COUNCIL

A PRACTICAL APPROACH TO

Operations Management & Process Improvement

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Presenter Intro

Co-Owner and Director of Operations for Plant Marvel Laboratories, Inc. a family manufacturing company.

Previously Director of Safety for Empire Airlines.

MBA, 2014 from University of Idaho

What is Operations Management?

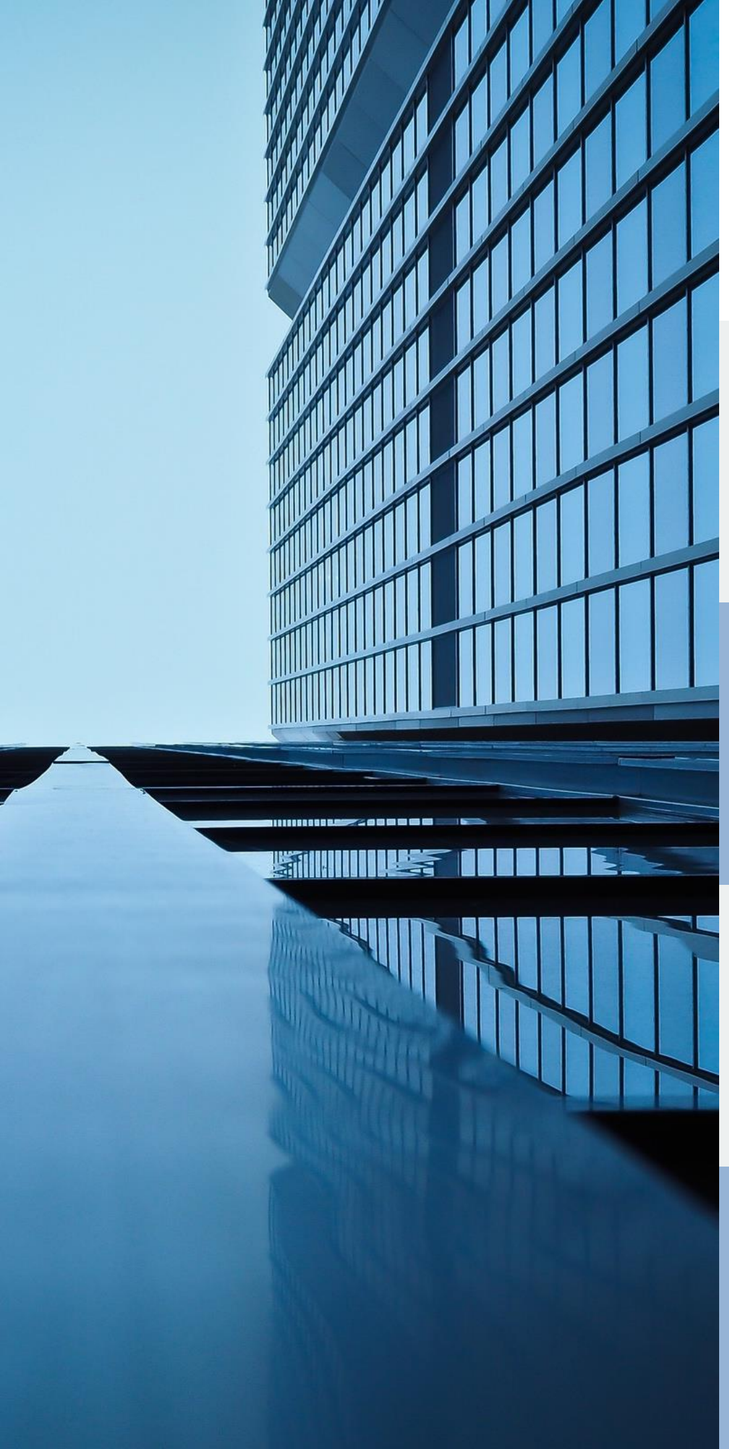
Textbook Definition

The **design**, **optimization**, and **performance** of processes that convert inputs (raw materials, human resources, and energy) into products and services that a business sells (output).

What is Operations Management Really?

A Practical Approach

Effectively running and improving the processes your business uses to deliver goods and/or services to your customers.



Components of Operations Management

SUPPLY CHAIN	The flow of products from supplier to customer. Supplier relations, logistics, planning, and financing.
FORECASTING & PLANNING	Ensuring you have the resources necessary to meet future customer demand.
MANUFACTURING OR SERVICE DELIVERY	All the processes used to create value for your customers.
MANAGEMENT, TRAINING & QUALITY ASSURANCE	Measuring outcomes and improving processes to produce better outcomes.

Ops Management Soup

TOTAL QUALITY MANAGEMENT

GOOD MANUFACTURING PRACTICES

LEAN

TOYOTA PRODUCTION SYSTEM

SCRUM

SIX SIGMA

THEORY OF CONSTRAINTS

ISO 9000

JUST IN TIME

AGILE

KAIZEN

Entire Organization

Committed Leadership, Change from the bottom-up.

Process Focus

A System of Documented Processes

Continuous Improvement

Measure KPIs, Incremental Changes, Repeat

Two Process Tools

Process Mapping

Defining the who, what, and when of each step in a process as the foundation for training and improvement.

Process Improvement

A five-step method for systematically changing processes and obtaining better results.

Process Mapping

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Why Document Processes?

Lessons from the Underpants Gnomes of South Park

Step 1	Step 2	Step 3
Collect Underpants	?	Profit

Process Mapping

Clearly define and understand the processes that make your business run.

IDENTIFY

Identify core processes that are important to your business. Break up larger processes.

DEFINE

Define the process. How does it start? When is it complete? Who owns it?

DOCUMENT

Map how the process is actually done by the people who actually do it.

REFINE

Refine and simplify the process map until it is clear and complete. For every step, “who”, “what”, and “when” are identified.

PUBLISH

Publish the process map so that it is useful to others and can be reviewed and updated.

Process Components

Who?	What?	When?
Authority & Responsibility	**Procedures & Tasks**	**Interfaces**
Who performs steps in the process? What decisions can they make? (Authority) Who owns the outcome? (Responsibility)	Clear description of the steps to be completed. Enough detail for clarity. Simple enough to understand and use.	What triggers/starts the process or task? What comes next? What is affected by the process or task?

Plant Marvel’s Basic Order Fulfillment Process

Who?
Customer Service Rep

What?
Enter the customer order.

When?
When customer sends in the order.

Who?
Production Team

What?
Manufacture products to fill the order.

When?
ASAP

Who?
Dock Team

What?
Loads the shipment on the truck.

When?
When truck arrives.

Plant Marvel’s Basic Order Fulfillment Process

Who?
Customer Service Rep

What?
Customer order is entered into the ERP software and verification sent to customer and salesperson.

When?
Within 3 hours of receipt of customer order via e-mail, phone, or fax.

Who?
Production Team

What?
Ingredients for order are weighed, blended, and packaged into pre-labeled bags. Bags stacked on pallets.

When?
On the day work orders are scheduled for completion.

Who?
Operations Specialist & Dock Team

What?
Ops Specialist arranges shipping and dock team loads the shipment on the truck.

When?
When order is ready for shipment.

Plant Marvel’s Basic Order Fulfillment Process

Sales Order Entry

Who?
Customer Service Rep

What?
Customer order is entered into the ERP software and verification sent to customer and salesperson.

When?
Within 3 hours of receipt of customer order via e-mail, phone, or fax.

Production Planning

Who?
Production Supervisor

What?
Work Orders are reviewed for material availability and scheduled for production.

When?
When order documents are selected for production during daily production meeting.

Manufacturing

Who?
Production Team

What?
Ingredients for order are weighed, blended, and packaged into pre-labeled bags. Bags stacked on pallets. QA sample tested.

When?
On the day work orders are scheduled for completion.

Shipping

Who?
Operations Specialist & Dock Team

What?
Ops Specialist arranges shipping and dock team loads the shipment on the truck.

When?
When order is ready for shipment.

Plant Marvel's Basic Order Fulfillment Process

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When?
On the day work orders are scheduled for completion.

Order Prep

Who?
Shipping Clerk

What?
Weigh, shrink wrap, and label each pallet for shipment. Verify accuracy against picking ticket.

When?
As each individual pallet is brought from manufacturing.

Shipping

Who?
Operations Specialist & Dock Team

What?
Ops Specialist arranges shipping and dock team loads the shipment on the truck.

When?
Truck Arranged when order is ready. Truck is loaded when it arrives.

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Process Improvement

A five-step method for systematically changing processes and obtaining better results.

Process Improvement Tools

Process Measures	Training & Communication	Process Controls
Outcome Metrics	**Connect People to Process**	**Guardrails**
Metrics help determine if the process is working and identify issues before they become serious problems. Looks like: • KPIs • Customer Feedback Scores • Sales Trends • Quality or Technical Metrics	Helping ensure everyone on the team follows the process correctly and consistently. Looks Like: • Formal Classroom Training • On-the-Job Training • Job Aids and Visual Tools • Modeled Behaviors • Feedback (Formal & Informal)	Tools to ensure the process works as intended. Looks Like: • Written Procedures • Checklists • Signage • Supervision • Manager Approval • Audits & Inspections

Measure vs. Control

Examples from a Fertilizer Manufacturer

Process Measure

Solubility of Product

- Important to customer
- Measured during QA testing
- Pass/Fail Criteria

Process Control

Ensuring Product Solubility

- Separate incompatible blends on different assembly lines
- Clean equipment and containers on a schedule
- Ingredients to enhance solubility

Scenario #1: Improving the Process

Production Planning Timing

Problem: Customers complained about excessive turn around time on some orders.

Cause: Orders were selected for production arbitrarily, and raw material requirements were not evaluated in advance.

Solution: Review order scheduling and materials requirements at weekly planning meeting. Schedule orders based on customer need.

Process Improvement

Systematically Improve Your Business through incremental changes

MEASURE

Identify a metric to improve. What do we want to do better?

DECIDE

Set a Goal. What is the desired outcome?

CHANGE

Update the Process. What do we need to do differently to achieve the goal?

COMMUNICATE

Implement the new process. Who needs to receive training, documentation, and communication?

EVALUATE

Re-measure the key metric. Did the change achieve the goal? Why or why not?

Measure:
Identify a metric to improve.
What do we want to do better?

Step 1: Measure

Production Planning Timing

Problem: Customers complained about excessive turn around time on some orders.

What to Measure: The maximum sales order turn time from order placement to shipping date.

Decide:
Set a Goal. What is the desired outcome?

Step 2: Decide

Production Planning Timing

Problem: Customers complained about excessive turn around time on some orders.

Selected Goal: The maximum sales order turn time will be within 3 days of the average turn time for the quarter for orders of similar size.

Change:
Update the Process. What do we need to do differently to achieve the goal?

Step 3: Change

Production Planning Timing

Problem: Customers complained about excessive turn around time on some orders.

Cause #1: Orders were selected for production arbitrarily with the loudest voices getting priority.

Cause #2: Raw material requirements were not evaluated in advance. Some orders wait for raw materials to arrive.

Process Change: The production manager brings all open work orders to production planning meeting to address aging orders and special raw material requirements.

Communicate:
Implement the new process. Who needs to receive training, documentation, and communication?

Step 4: Communicate

Production Planning Timing

Process Change: The production manager brings all open work orders to production planning meeting to address aging orders and special raw material requirements.

Training:

- Production Manager
- Attendees of planning meeting

Documentation:

- Process Diagram Update
- Production Planning Manual

Other Communication: Planning Meeting Agenda

Evaluate:
Re-measure the key metric.
Did the change achieve the goal?
Why or why not?

Step 5: Evaluate

Production Planning Timing

Assess Process Change and Effect on Selected Metric

Process Change: Is the change in process being adhered to?
Is the team executing the process as intended?

Original Metric: Did the change in process have the intended effect?

Unintended Effects: Did the change in process create any new, unforeseen issues?

Process Improvement

Systematically Improve Your Business through incremental changes

MEASURE

Identify a metric to improve. What do we want to do better?

DECIDE

Set a Goal. What is the desired outcome?

CHANGE

Update the Process. What do we need to do differently to achieve the goal?

COMMUNICATE

Implement the new process. Who needs to receive training, documentation, and communication?

EVALUATE

Re-measure the key metric. Did the change achieve the goal? Why or why not?

Scenario #2: Improving the Process

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

What might be some possible causes?

Scenario #2: Improving the Process

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

Cause: Shipping was being scheduled as soon as orders were ready – even if QA testing wasn’t complete.

Scenario #2: Improving the Process

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

Cause: Shipping was being scheduled as soon as orders were ready – even if QA testing wasn't complete.

What might be a possible solution?

Scenario #2: Improving the Process

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

Cause: Shipping was being scheduled as soon as orders were ready – even if QA testing wasn't complete.

Solution: Require entire order to pass before shipping is arranged.

Measure:
Identify a metric to improve.
What do we want to do better?

Step 1: Measure

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

What to Measure: Some orders shipped with products that failed QA tests.

Decide:
Set a Goal. What is the desired outcome?

Step 2: Decide

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

Selected Goal:

What might be the selected goal?

Decide:
Set a Goal. What is the desired outcome?

Step 2: Decide

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

Selected Goal: ZERO

Change:
Update the Process. What do we need to do differently to achieve the goal?

Step 3: Change

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

Cause 1: Shipping was being scheduled as soon as orders were ready, even if QA testing wasn't complete.

Process Change:

What might be a necessary process change?

Change:
Update the Process. What do we need to do differently to achieve the goal?

Step 3: Change

Quality Assurance Release

Problem: Some orders shipped with products that failed QA tests.

Cause 1: Shipping was being scheduled as soon as orders were ready, even if QA testing wasn't complete.

Process Change: The QA tech will provide a release to the operations specialist for orders that pass QA. Trucks may not be scheduled without the release.

Communicate:
Implement the new process. Who needs to receive training, documentation, and communication?

Step 4: Communicate

Quality Assurance Release

Process Change: The QA tech will provide a release to the operations specialist for orders that pass QA. Trucks may not be scheduled without the release.

Training:

- Operations Specialist
- QA Technicians
- Production Manager

Documentation:

- Process Diagram Update
- QA Manual
- Shipping Manual

Other Communication: QA Release Form (new)

Evaluate:
Re-measure the key metric.
Did the change achieve the goal?
Why or why not?

Step 5: Evaluate

Quality Assurance Release

Assess Process Change and Effect on Selected Metric

Process Change: Is the change in process being adhered to?
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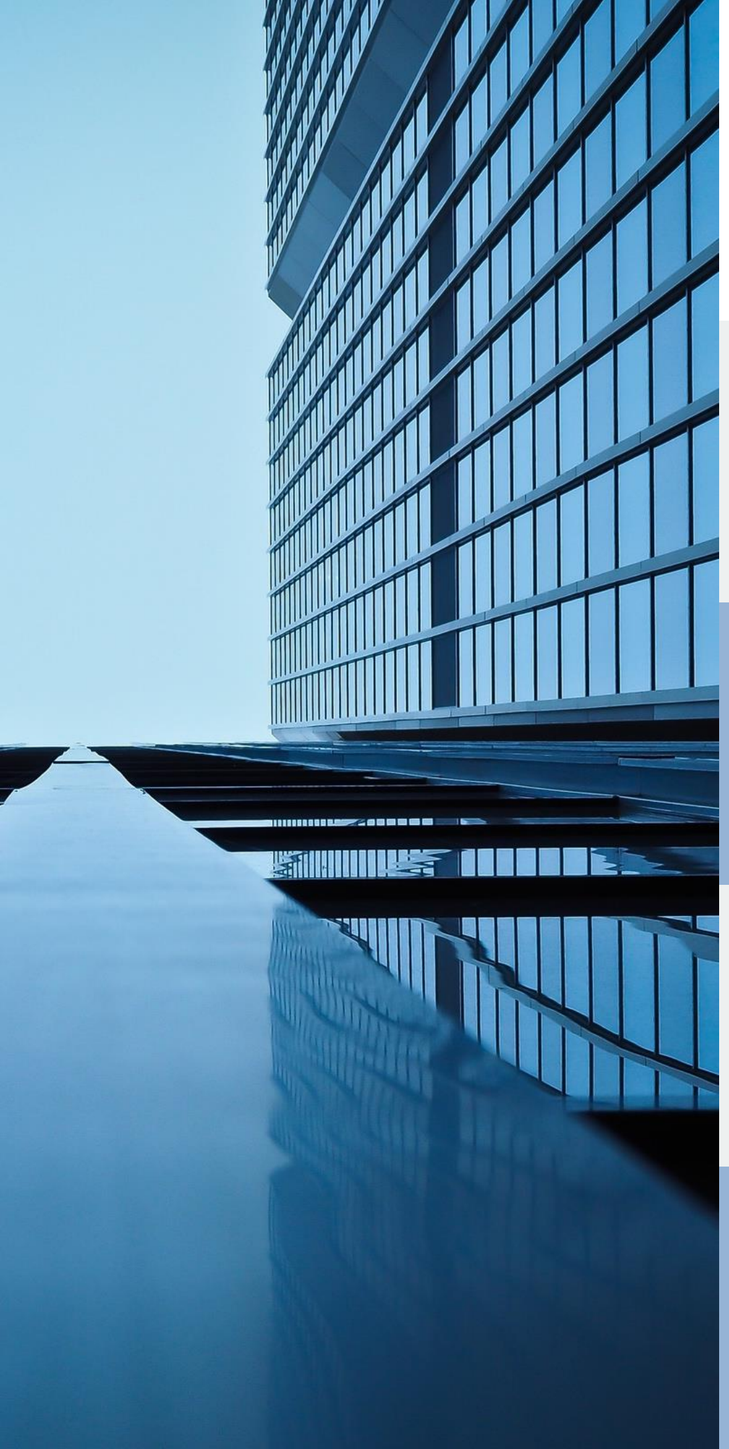

Key Takeaways

BUSINESSES ARE A SYSTEM OF PROCESSES	Consistently and reliably achieve better business results through systematic process improvement.
PROCESS MAPPING	Defining the who, what, and when of each step in a process as the foundation for training, and improvement.
PROCESS IMPROVEMENT	A five-step method for systematically changing processes and obtaining better results.
COMMUNICATION IS KEY	High performing businesses diligently connect people to process through communication, training, and culture.

Presenter Contact Info

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