



SECTION INTRODUCTION

WHAT IS JUST-IN-TIME?

LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

What is Just-In-Time?	What is Key Component # 1 of Just-In-Time?	What is Key Component # 2 of Just-In-Time?	Characteristics of JIT System - Part 01	Characteristics of JIT System - Part 02	Characteristics of JIT System - Part 03
JIT Case Study – Toyota	Section Introduction	Section Introduction	Section Introduction	Section Introduction	Section Introduction
Section Introduction	How is “Teamwork” an Essential Element?	What is Total Quality Control?	What is Uniform Workstation Loads?	What are Quick & Economic Setups?	Flexible Facilities & Multi-Skilled Workforce
What is Just-In-Time?	How is “Discipline” an Essential Element?	What is the Concept of Immediate Customer?	What are Small Lot Sizes?	Analyze Existing Setup Procedures & Separation	Preventive Maintenance
History of Just-In-Time	How is “Supplier Involvement” an Essential Element?	Can JIT be implemented in Small Scale Operations?	What are Closer Supplier Ties?	Convert Internal Setup Activities into External	Continuous Improvement
The Concept of Just-In-Time	Section Conclusion	Activity: Key Components of JIT	How JIT helps maintain High Quality?	Section Conclusion	Activity: JIT Characteristics
Activity: JIT Introduction		Activity Solution: Key Components of JIT	Section Conclusion		Activity Solution: JIT Characteristics
Activity Solution: JIT Introduction		Section Conclusion			Section Conclusion
Section Conclusion					

7 Steps to Implement JIT in Your Organization	Advantages & Disadvantages of JIT System	How does JIT System Eliminate Waste?	How do Suppliers & Customers Work Together in JIT?	Applications of JIT in Service Industry	Course Conclusion
Section Introduction	Section Introduction	Section Introduction	Section Introduction	Section Introduction	Course Conclusion & Summary
Activity: 7 Steps to Implement JIT	Advantages of JIT System	How does JIT System Eliminates Waste? – Part 01	How does Supplier & Customer Work Together? – Part 01	Application of JIT in Service – Part 01	
Activity Solution: 7 Steps to Implement JIT	Disadvantages of JIT System	How does JIT System Eliminates Waste – Part 02	How does Supplier & Customer Work Together? – Part 02	Application of JIT in Service – Part 02	
Section Conclusion	Section Conclusion	Section Conclusion	How does Supplier & Customer Work Together? – Part 03	Section Conclusion	
		What is Active Listening?	Section Conclusion		

IN THIS SECTION, YOU WILL LEARN

WHAT IS JUST-IN-TIME?

HISTORY OF JUST-IN-TIME

THE CONCEPT OF JUST-IN-TIME

ACTIVITY & ACTIVITY SOLUTION

NEXT LECTURE

WHAT IS JUST-IN-TIME?



WHAT IS JUST-IN-TIME?

M T W T F S S

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WHAT IS JUST-IN-TIME?

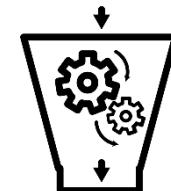
PLANNING SYSTEM FOR MANUFACTURING PROCESSES

**MINIMIZES THE AVAILABILITY OF MATERIAL INVENTORIES TO
ONLY WHAT, WHEN & HOW MUCH?**

**INTEGRATED SET OF ACTIVITIES DESIGNED TO ACHIEVE HIGH
PRODUCTION VOLUME BY USING MINIMAL:**



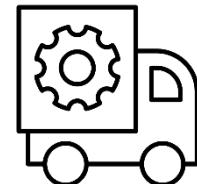
INVENTORY



RAW MATERIAL



WIP



FINISHED GOODS

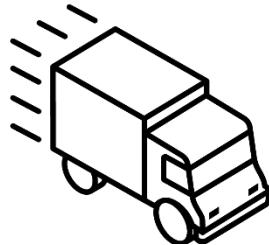


CONSUMABLES

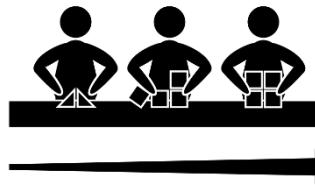
**JUST-IN-TIME IMPLEMENTATION ALSO RESULTS IN: REDUCING
INVENTORY & AVOIDING DELAYS IN EXECUTION OF OPERATIONS**

WHAT IS JUST-IN-TIME?

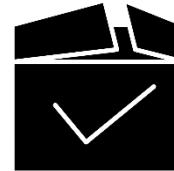
ACCORDING TO THE JIT SYSTEM:



COMPONENTS ARRIVE
JUST BEFORE THE
START OF OPERATION



ITEMS ARE FED
DIRECTLY INTO THE
PRODUCTION PROCESS



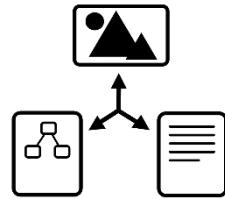
FINISHED GOODS ARE
PRODUCED ONLY WHEN
REQUIRED FOR SALE

JIT EMPHASIZES ELIMINATION OF INVENTORY, WIP & FINISHED
GOODS

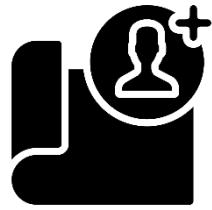
ORGANIZATIONS TARGET ELIMINATION OF WASTE BY THE TIMELY
SCHEDULING OF INVENTORY

WHAT IS JUST-IN-TIME?

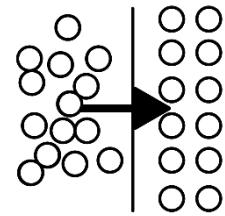
IMPLEMENTATION OF JIT REQUIRES TOTAL TRANSFORMATION OF:



METHODS OF
DESIGNING PRODUCTS
& SERVICES



ASSIGNING
RESPONSIBILITIES



ORGANIZING
WORK



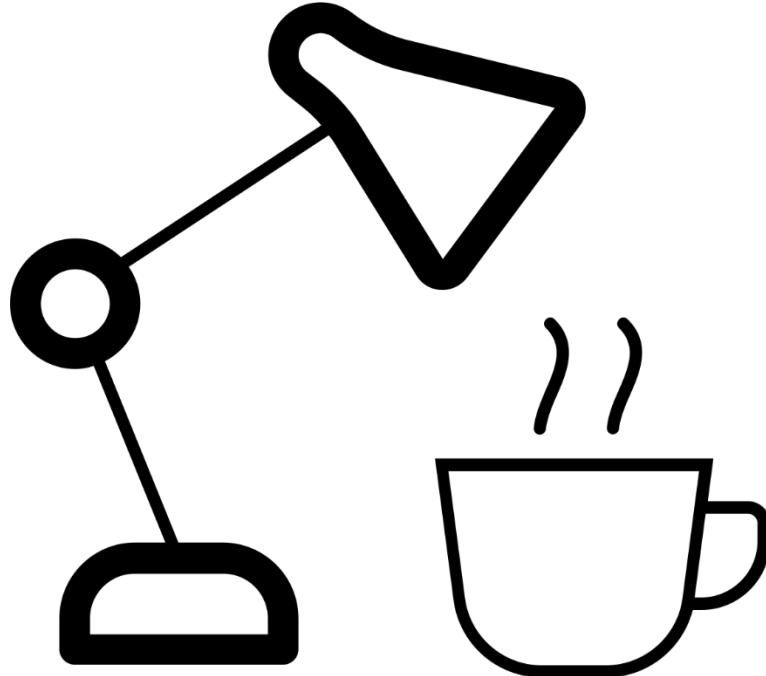


HISTORY OF JUST-IN-TIME?

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HISTORY OF JUST IN TIME



Audio Only

NEXT LECTURE

THE CONCEPT OF JUST-IN-TIME



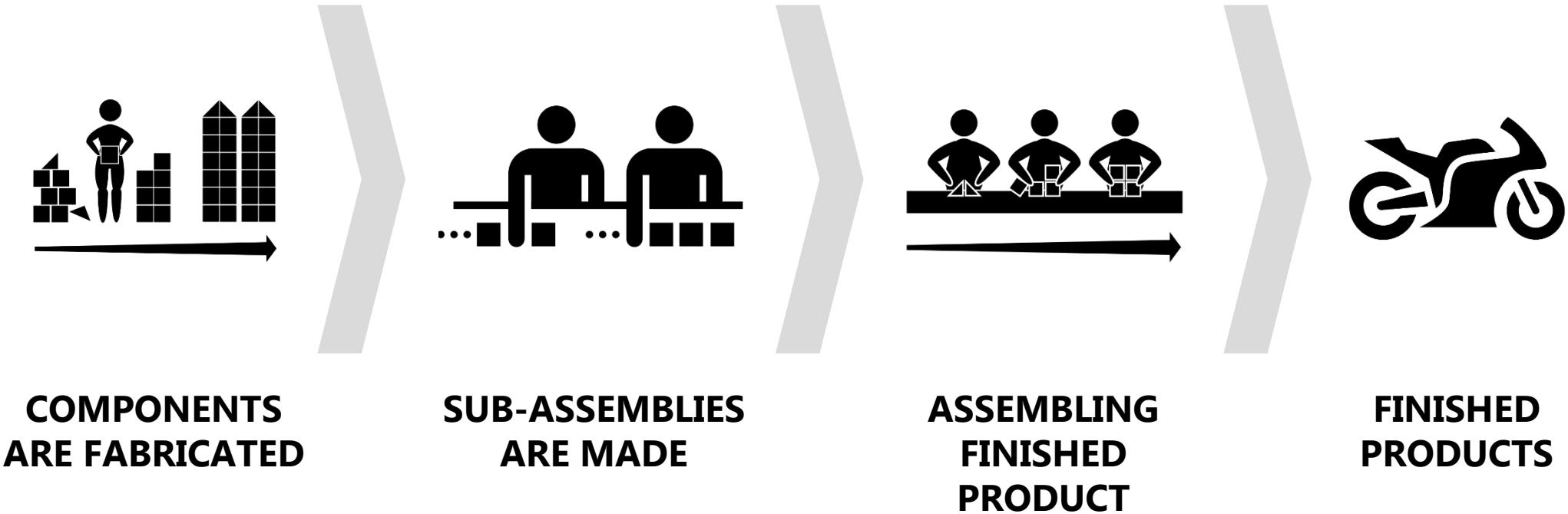
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CONCEPT OF JUST-IN-TIME

IT STATES, "NOTHING IS PRODUCED UNTIL IT IS REQUIRED"



THE SYSTEM ALWAYS KEEPS WORK-IN-PROCESS INVENTORY AS LOW AS POSSIBLE; REDUCING PRODUCTION LEAD TIMES

CONCEPT OF JUST-IN-TIME

MAINTAIN HIGH PERFORMANCE IN ALL AREAS OF OPERATIONS

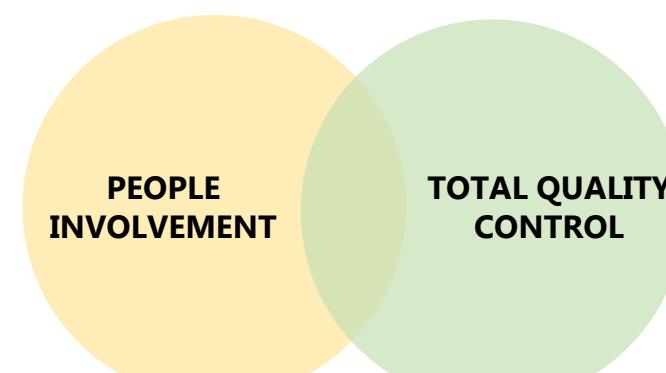
MAINTAIN CONSISTENTLY HIGH QUALITY IN PRODUCTS/PROCESSES

VARIOUS PRODUCTION PROCESSES ARE COORDINATED WELL

ACTIVE PARTICIPATION, INVOLVEMENT & COOPERATION OF ALL EMPLOYEES

BASED ON THE CONCEPT OF CONTINUOUS IMPROVEMENT

INCLUDING:



NEXT LECTURE

ACTIVITY: WHAT IS JUST-IN-TIME?



ACTIVITY: WHAT IS JUST-IN-TIME?

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ACTIVITY: WHAT IS JUST-IN-TIME?

HAVE PROVIDED THREE QUESTIONS RELATING TO THIS SECTION
YOUR JOB IS TO ANSWER THOSE QUESTIONS BASED ON THE
CHOICES PROVIDED

NEXT LECTURE

ACTIVITY SOLUTION: WHAT IS JUST-IN-TIME?



ACTIVITY SOLUTION: WHAT IS JUST-IN-TIME?

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ACTIVITY: WHAT IS JUST-IN-TIME?

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CHOICES PROVIDED

QUESTION 01

THE JUST-IN-TIME (JIT) MANUFACTURING SYSTEM IS A PLANNING SYSTEM FOR MANUFACTURING PROCESSES THAT MINIMIZES THE AVAILABILITY OF MATERIAL INVENTORIES AT THE MANUFACTURING SITE TO ONLY WHAT, WHEN & HOW MUCH IS STRICTLY NECESSARY.

- A. TRUE**
- B. FALSE**

QUESTION 01

THE JUST-IN-TIME (JIT) MANUFACTURING SYSTEM IS A PLANNING SYSTEM FOR MANUFACTURING PROCESSES THAT MINIMIZES THE AVAILABILITY OF MATERIAL INVENTORIES AT THE MANUFACTURING SITE TO ONLY WHAT, WHEN & HOW MUCH IS STRICTLY NECESSARY.

- A. TRUE**
- B. FALSE**

QUESTION 02

THE JIT SYSTEM DOES NOT INCLUDE ACTIVITIES DESIGNED TO ACHIEVE HIGH-VOLUME PRODUCTION USING MINIMAL INVENTORIES; RAW MATERIALS, WORK-IN-PROCESS, FINISHED GOODS AND OTHER CONSUMABLE GOODS.

- A. TRUE**
- B. FALSE**

QUESTION 02

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- A. TRUE**
- B. FALSE**

QUESTION 03

THE CONCEPT OF JUST-IN-TIME STATES: ' _____'

- A. NOTHING IS PRODUCED UNTIL IT IS REQUIRED
- B. EVERYTHING IS KEPT READY IN INVENTORY BECAUSE CUSTOMER DEMAND VARIES
- C. THE SYSTEM ALWAYS KEEPS WORK-IN-PROCESS INVENTORY AS HIGH AS POSSIBLE

QUESTION 03

THE CONCEPT OF JUST-IN-TIME STATES: ' _____'

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CONGRATULATIONS



IN THIS SECTION, YOU LEARNT...

THE JUST-IN-TIME CASE STUDY OF TOYOTA

WHAT IS JUST-IN-TIME?

HISTORY OF JUST-IN-TIME

THE CONCEPT OF JUST-IN-TIME

ACTIVITY & ACTIVITY SOLUTION

NEXT SECTION

WHAT IS THE KEY COMPONENT # 1 OF JUST-IN-TIME?



SECTION INTRODUCTION

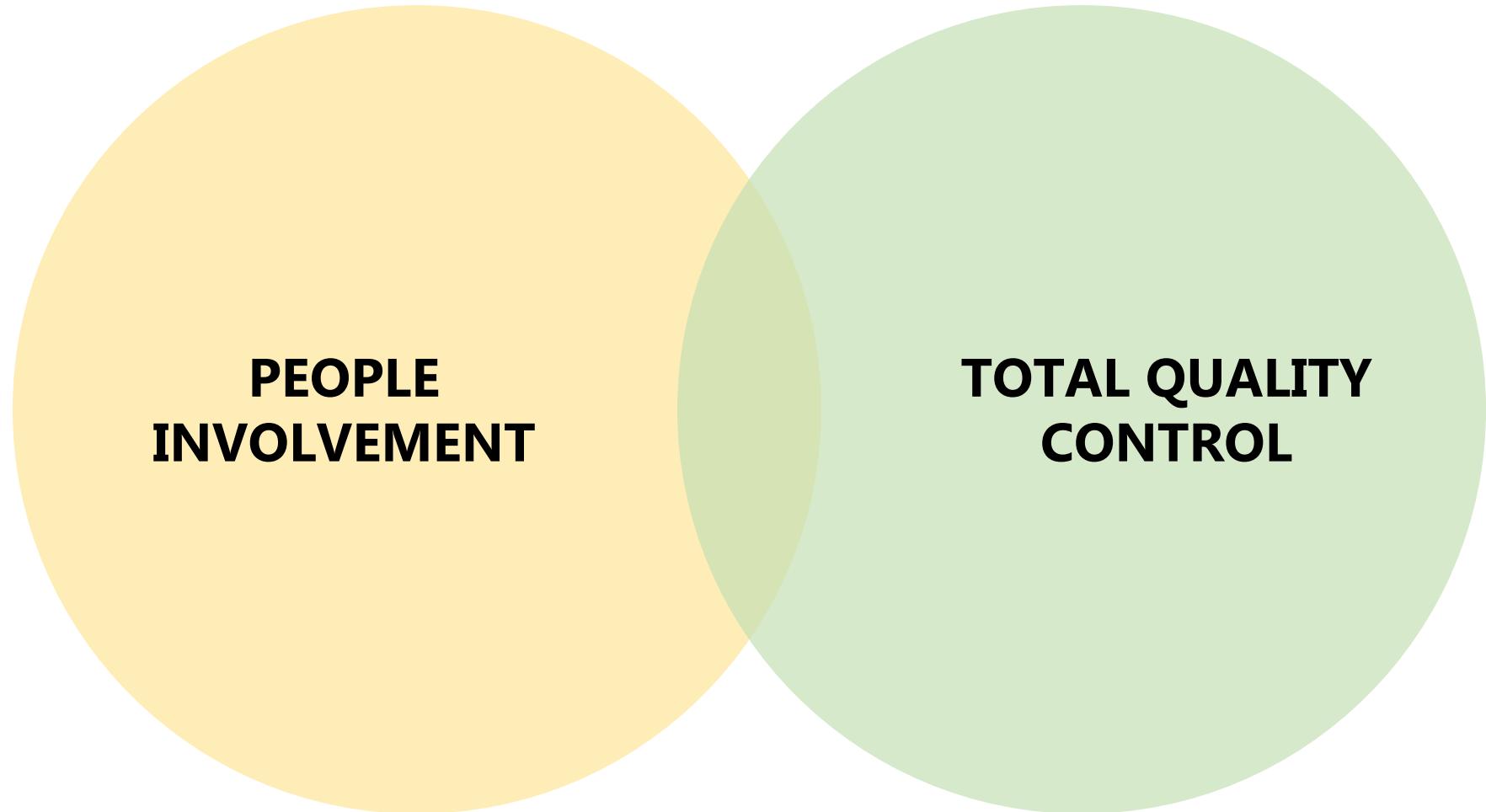
WHAT IS THE KEY COMPONENT # 1

LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

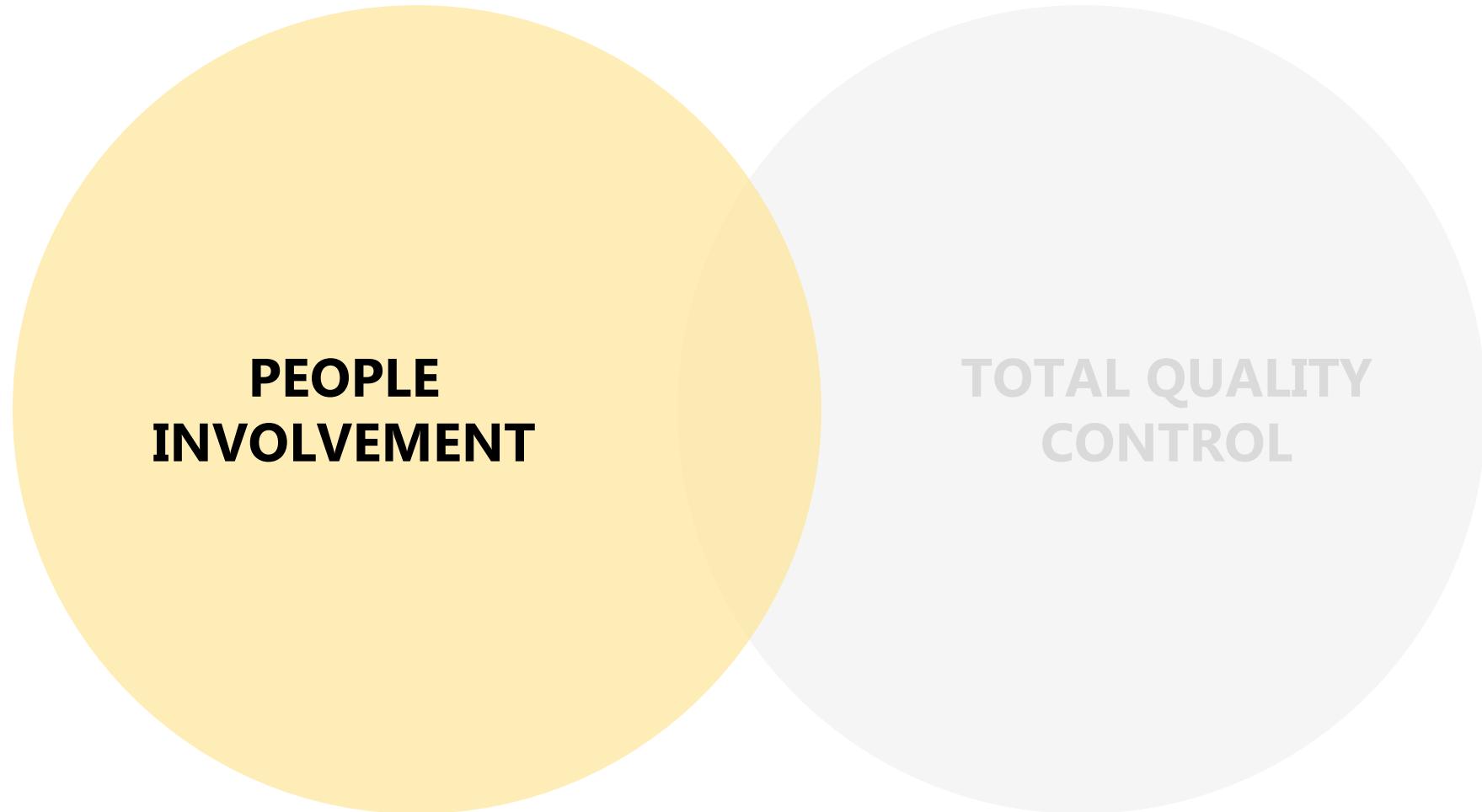
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TWO COMPONENTS OF JUST-IN-TIME



TWO COMPONENTS OF JUST-IN-TIME

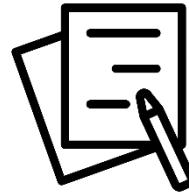


SECTION INTRODUCTION

**JIT REQUIRES A STRONG HUMAN RESOURCE COMPONENT
YOUR ORGANIZATION SHOULD IMPART:**



**TRAINING ON
JIT PHILOSOPHY**



**ASSIGNING
APPROPRIATE
RESPONSIBILITIES**



**COORDINATING
GOAL-DIRECTED
EFFORTS**



**MOTIVATING
EMPLOYEES**

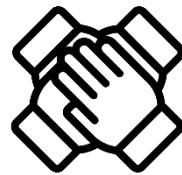
**AIMS AT CONTINUOUS IMPROVEMENT OF OPERATIONS
MINIMIZATION OF WASTAGE OF HUMAN CAPITAL**

SECTION INTRODUCTION

JIT ENCOURAGES YOUR EMPLOYEES & SUPPLIERS TO:

- BE INNOVATIVE
- MAKE USE OF THEIR CREATIVE TALENTS

YOUR ORGANIZATION SHOULD FOLLOW 3 ESSENTIAL ELEMENTS:



TEAMWORK



DISCIPLINE



SUPPLIER
INVOLVEMENT

NEXT LECTURE

HOW IS “TEAMWORK” AN ESSENTIAL ELEMENT OF JUST-IN-TIME?

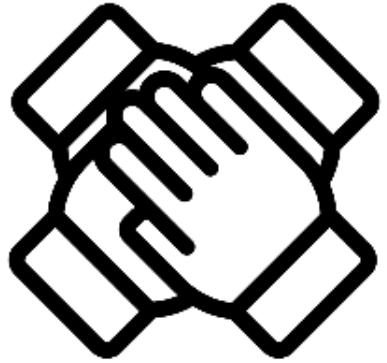


HOW IS TEAMWORK AN ESSENTIAL ELEMENT OF JIT?

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HOW IS TEAMWORK AN ESSENTIAL ELEMENT OF JIT?



TEAMWORK



DISCIPLINE



**SUPPLIER
INVOLVEMENT**

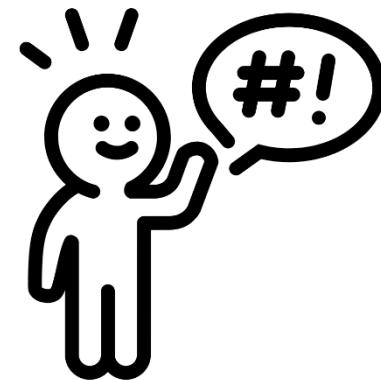
HOW IS TEAMWORK AN ESSENTIAL ELEMENT OF JIT?

EFFECTIVE INVOLVEMENT OF PEOPLE CAN ARISE THROUGH A SPIRIT OF TEAMWORK

EMPLOYEES SHOULD INTERACT WITH EACH OTHER TO IDENTIFY, DEFINE & SOLVE PROBLEMS

ACTIVITIES TO INVOLVE PEOPLE INCLUDE:

EMPLOYEES ARE
ENCOURAGED TO MAKE
SUGGESTIONS TO
IMPROVE A PROCESS



SUGGESTIONS
PROGRAM



QUALITY
CIRCLES

EMPLOYEES MEET &
DISCUSS WAYS OF
IMPROVING THE QUALITY
OF THEIR PROCESSES

HOW IS TEAMWORK AN ESSENTIAL ELEMENT OF JIT?

PROJECT TEAMS THAT WORK ON AD-HOC BASIS CAN FOCUS ON ACHIEVEMENT OF SPECIFIC IMPROVEMENT TARGETS

IMPERATIVE TO HAVE AN OPEN MANAGEMENT STYLE & AN ORGANIZATION-WIDE ATTITUDE OF TEAMWORK

EACH EMPLOYEE WORKS TO IMPROVE THE PERFORMANCE BY SUGGESTING IMPROVEMENTS TO EXISTING METHODS

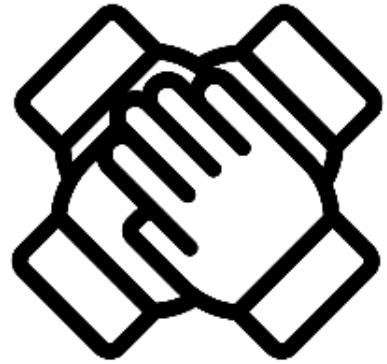


HOW IS DISCIPLINE AN ESSENTIAL ELEMENT OF JIT?

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HOW IS DISCIPLINE AN ESSENTIAL ELEMENT OF JIT?



TEAMWORK



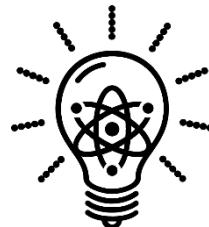
DISCIPLINE



**SUPPLIER
INVOLVEMENT**

HOW IS DISCIPLINE AN ESSENTIAL ELEMENT OF JIT?

IMPROVEMENT DRIVEN WORK CULTURE DOES NOT IMPLY THAT WORKERS ARE FREE TO IMPLEMENT WHATEVER THEY LIKE
EXISTING PROCEDURES SHOULD CONTINUE UNTIL A BETTER WAY IS SUGGESTED, TESTED & APPROVED



SUGGESTIONS
ARE COLLECTED
& EVALUATED



SELECTED
SUGGESTIONS
ARE TESTED



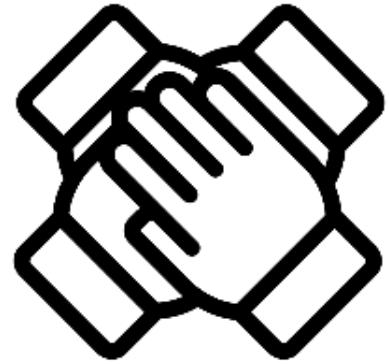
IF SUGGESTION
IS BETTER,
MANAGEMENT
APPROVES IT

WITH JIT, YOUR ORGANIZATION USES CREATIVITY OF WORKERS IN CONJUNCTION WITH THEIR TEAMWORK & DISCIPLINE



HOW IS SUPPLIER INVOLVEMENT AN ESSENTIAL ELEMENT OF JIT?

HOW IS SUPPLIER INVOLVEMENT AN ESSENTIAL ELEMENT?



TEAMWORK



DISCIPLINE



**SUPPLIER
INVOLVEMENT**

HOW IS SUPPLIER INVOLVEMENT AN ESSENTIAL ELEMENT?

JIT REQUIRES RELIABLE SUPPLIERS WHO CAN SUPPLY HIGH QUALITY COMPONENTS & MATERIALS IN REQUIRED QUANTITIES

JIT ORGANIZATIONS:

- **MAINTAIN LONG-TERM BUSINESS RELATIONSHIPS WITH A FEW SELECTED SUPPLIERS**
- **INVITE SUPPLIER'S REPRESENTATIVES IN DESIGN REVIEWS TO SUGGEST IMPROVEMENTS IN DESIGN & METHODS**
- **HAVE CONTRACTS WITH SUPPLIERS TO PROVIDE SUPPLIES OF REQUIRED QUALITY SPECIFICATIONS & TARGET PRICES**

THE CONTRACT SHOULD BE REASONABLY PROFITABLE TO BOTH – THE SUPPLIER & YOUR ORGANIZATION

HOW IS SUPPLIER INVOLVEMENT AN ESSENTIAL ELEMENT?

SUPPLIER SHOULD ABIDE BY RULES OF THE CONTRACT & SUPPLY MATERIALS WITHIN THE TIME SPECIFIED

YOUR ORGANIZATION CAN:

- PROVIDE ASSISTANCE TO IMPROVE SUPPLIER PRODUCTIVITY & PRODUCT QUALITY**
- SHARE ITS PRODUCTION PLANS & SCHEDULES WITH YOUR SUPPLIERS**

HOW IS SUPPLIER INVOLVEMENT AN ESSENTIAL ELEMENT?

IN JIT, PRESENCE OF TRUST & COMMITMENT BETWEEN SUPPLIER & YOUR ORGANIZATION IS VERY IMPORTANT

THIS HELPS BOTH ACHIEVE HIGHER PRODUCTIVITY LEVELS

THE ATTITUDE OF EACH PARTY SHOULD BE FAIR

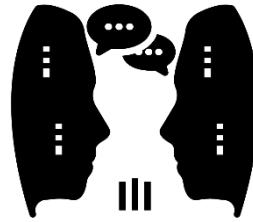
LONG-TERM CONTRACTS PROVIDE SECURITY TO YOUR SUPPLIERS AS LONG AS THEY ARE COMPETITIVE & COMMITTED

HOW IS SUPPLIER INVOLVEMENT AN ESSENTIAL ELEMENT?

BUILDING EFFECTIVE PARTNERSHIPS DEPENDS ON:



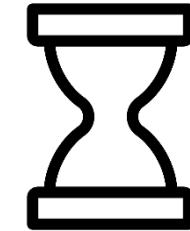
TRUST



COMMUNICATION



LINEARITY OF
PRODUCTION



TIME TO
MAKE CHANGES



**SUPPLIER SHOULD TRUST HIS CUSTOMER
HAVE CONFIDENCE THAT YOUR
ORGANIZATION WILL:**

- PROVIDE THEM WITH MORE BUSINESS**
- MAKE TIMELY PAYMENTS**

...IF REQUIREMENTS ARE MET

**THIS MAKES BOTH FIRMS WORK MORE
CLOSELY**

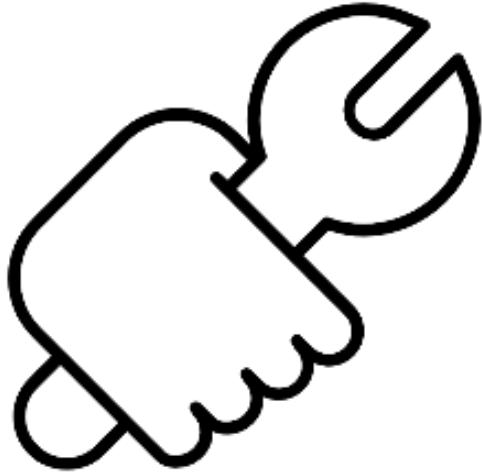
COMMUNICATION



**PLAYS AN IMPORTANT ROLE
ESTABLISH A BUYER-QUALITY ENGINEER TEAM
SUPPLIERS SHOULD:**

- INFORM ABOUT NEW PROGRAMS TO IMPROVE QUALITY**
- ENSURE TIMELY DELIVERY OF SUPPLIES**

LINEAR PRODUCTION SCHEDULES

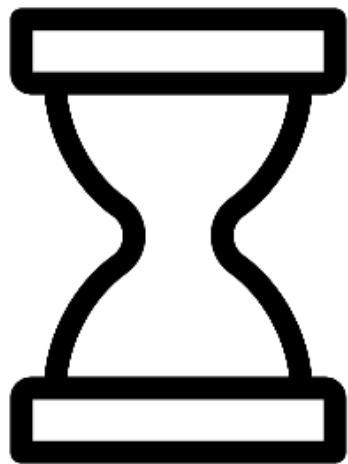


**RELATES TO PRODUCTION SCHEDULES
DEVELOPMENT WITH UNIFORM
WORKLOADS**

**SUPPLIERS SHOULD TAILOR THEIR
SCHEDULE TO YOUR ORG NEEDS**

**REQUIRES: ELIMINATION OF PRODUCTION
BOTTLENECKS, BALANCE IN PROD
SYSTEMS & REDUCTION IN SETUP TIME**

TIME TO MAKE CHANGES



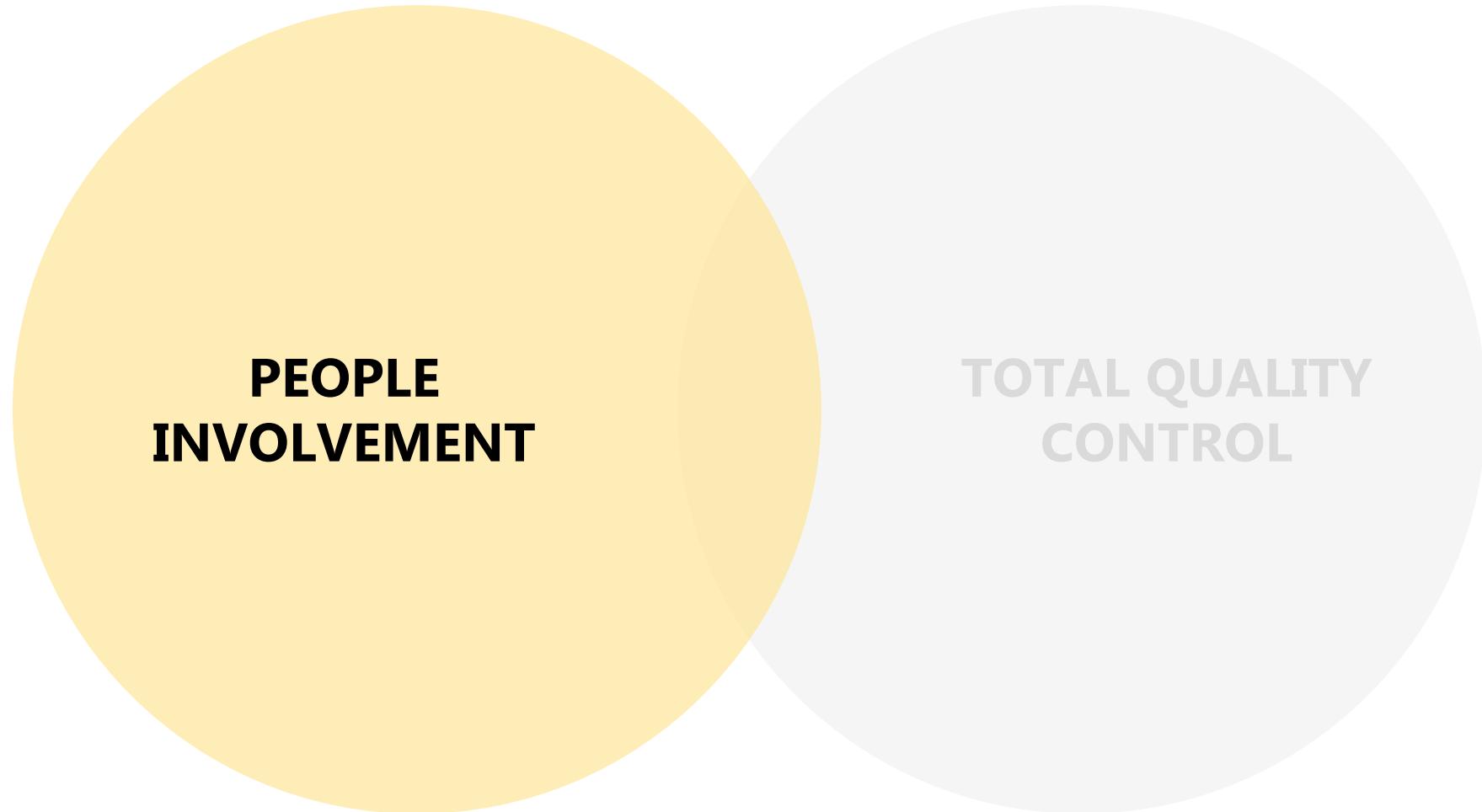
**YOUR ORGANIZATIONS SHOULD PROVIDE
ENOUGH TIME TO SUPPLIERS TO RESPOND
TO CHANGES IN DEMAND**

**SUPPLIERS MAY HAVE TO PURCHASE NEW
MATERIALS, ADD MORE MACHINERY, HIRE
& TRAIN LABOR, ETC**

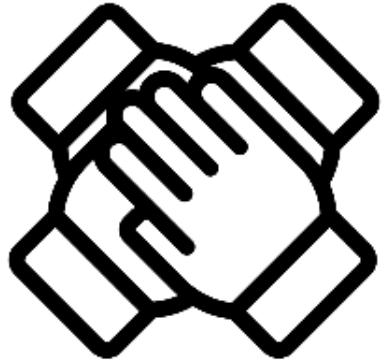
CONGRATULATIONS



KEY COMPONENT # 1 OF JUST-IN-TIME



3 ESSENTIAL ELEMENTS OF PEOPLE INVOLVEMENT



TEAMWORK



DISCIPLINE



**SUPPLIER
INVOLVEMENT**

NEXT SECTION

WHAT IS THE KEY COMPONENT # 2 OF JUST-IN-TIME?



SECTION INTRODUCTION

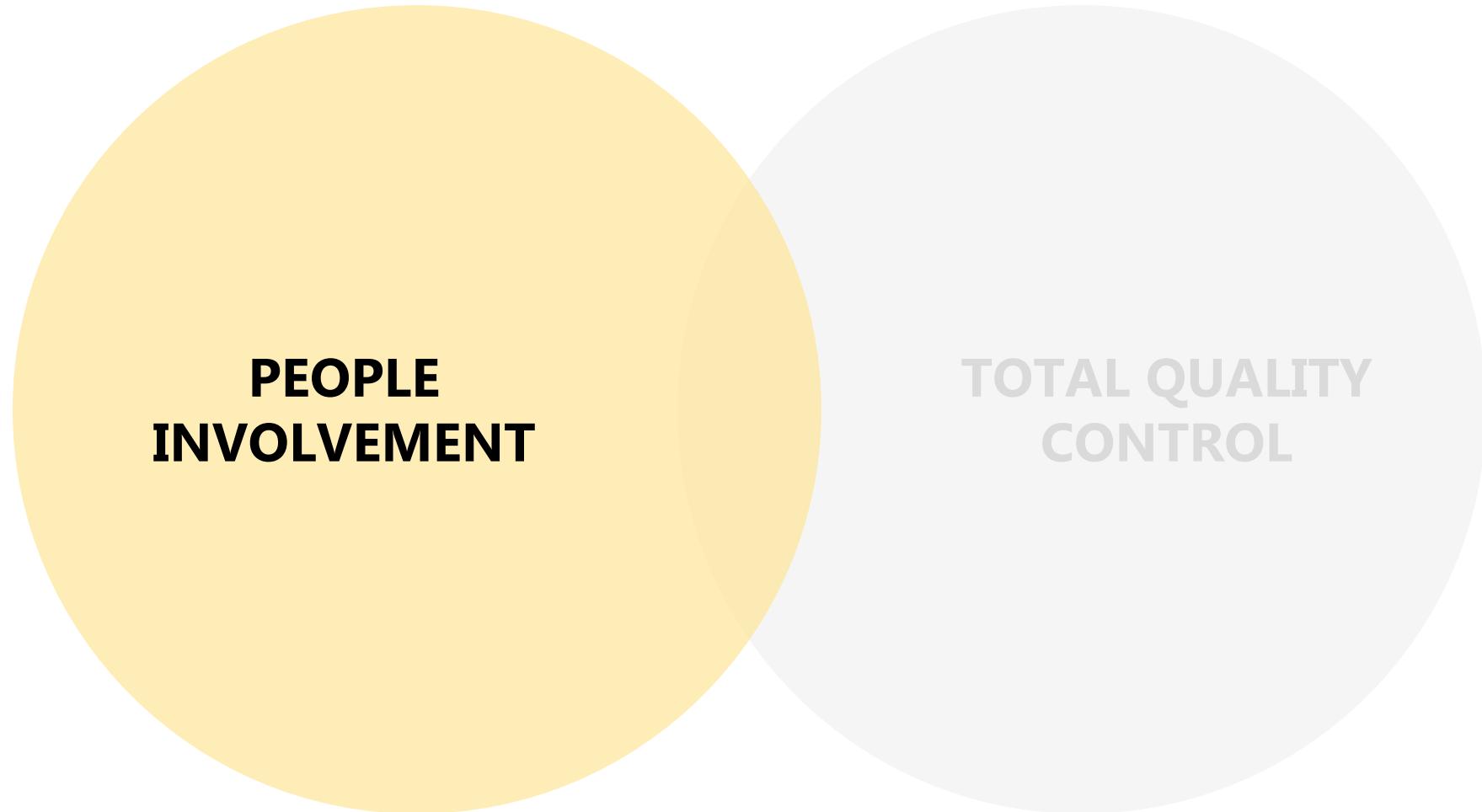
WHAT IS THE KEY COMPONENT # 2

LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

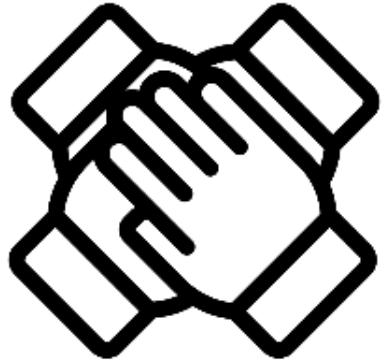
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TWO COMPONENTS OF JUST-IN-TIME



THREE ESSENTIAL ELEMENTS OF PEOPLE INVOLVEMENT



TEAMWORK

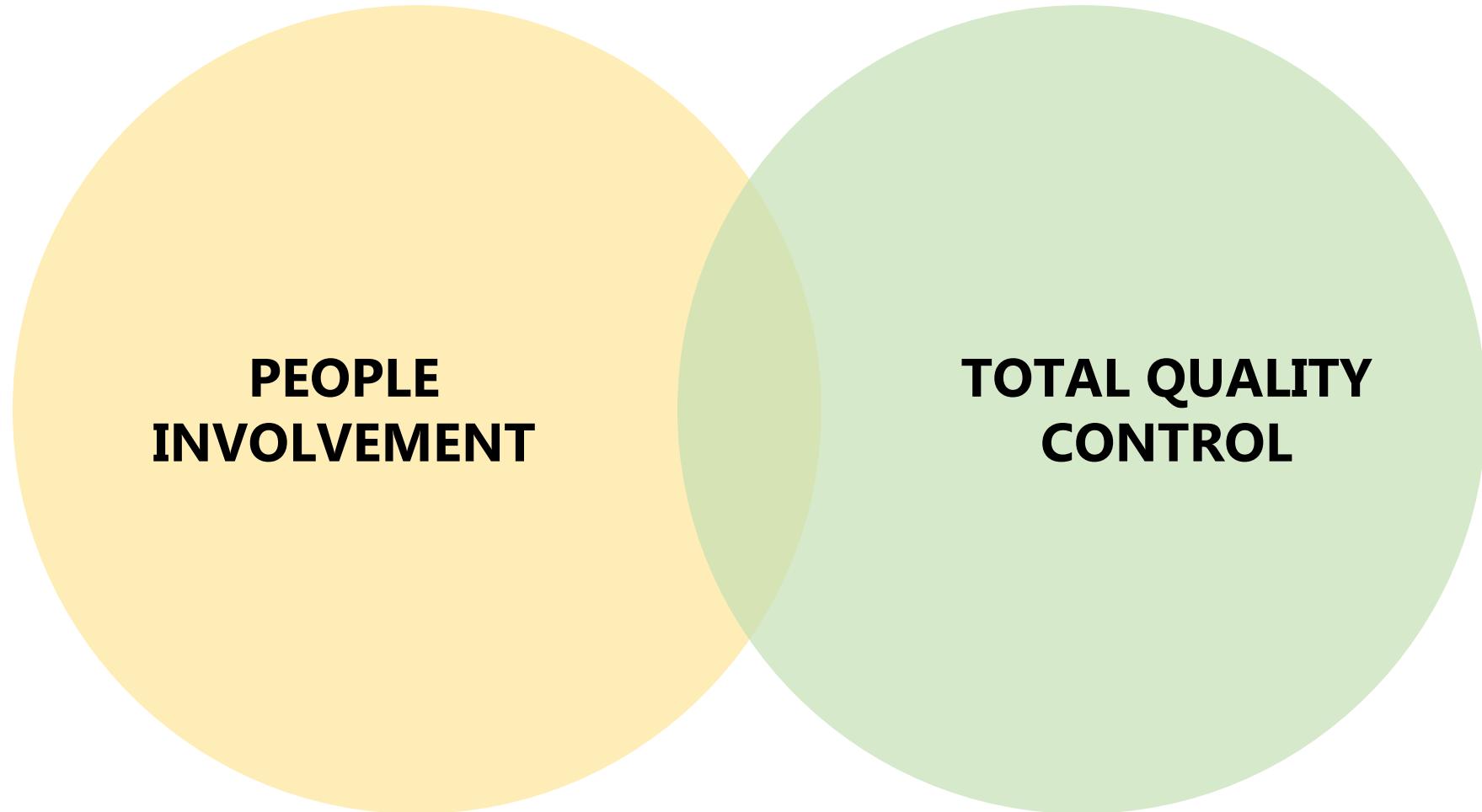


DISCIPLINE



**SUPPLIER
INVOLVEMENT**

TWO COMPONENTS OF JUST-IN-TIME





WHAT IS TOTAL QUALITY CONTROL?

WHAT IS TOTAL QUALITY CONTROL?

THE QUALITY OF A PRODUCT IS ITS ABILITY TO SERVE & SATISFY THE NEEDS OF ITS CUSTOMERS

TO PRODUCE HIGH QUALITY PRODUCTS, YOU CAN CONDUCT SURVEYS TO UNDERSTAND CUSTOMER NEEDS & REQUIREMENTS

THIS HELPS TO DESIGN FEATURES OF THE PRODUCTS THAT FULFIL CUSTOMER NEEDS

HIGH QUALITY CAN BE ATTAINED THROUGH COLLECTIVE & COORDINATED EFFORTS OF ALL DEPARTMENTS

THE CONCEPT OF 'IMMEDIATE CUSTOMER' HELPS YOU ACHIEVE THE REQUIRED LEVELS OF QUALITY

NEXT LECTURE

WHAT IS THE CONCEPT OF IMMEDIATE CUSTOMER?



WHAT IS THE CONCEPT OF AN IMMEDIATE CUSTOMER?

WHAT IS THE CONCEPT OF IMMEDIATE CUSTOMER?

DEFINITION OF A CUSTOMER FOR NON-JIT FIRMS:

"A PERSON OUTSIDE THE FIRM WHO BUYS ITS PRODUCTS FOR HIS USE OR CONSUMPTION"

JUST-IN-TIME ORGANIZATIONS USE THE CONCEPT OF 'IMMEDIATE CUSTOMER'

WHAT IS 'IMMEDIATE CUSTOMER'?

EACH WORKER IN THE ORGANIZATION CONSIDERS THE NEXT WORKER AS A CUSTOMER

RESPONSIBILITIES OF A WORKER IN JIT ORGANIZATIONS

ENSURE THE PRODUCT IS PROCESSED TO MEET SPECIFICATIONS & QUALITY REQUIREMENTS BEFORE PASSING IT TO THE NEXT CUSTOMER

EACH WORKER IS TRAINED IN QUALITY PRINCIPLES AND TESTING PROCEDURES

WORKERS ARE MADE FULLY RESPONSIBLE FOR THE WORK THEY CARRY OUT AT THEIR WORKSTATION

THEY ARE ENTRUSTED WITH THE JOB OF INSPECTING THEIR OWN WORK

ONLY ITEMS OF ACCEPTABLE QUALITY ARE DELIVERED TO THE IMMEDIATE CUSTOMER

WHAT IS THE CONCEPT OF IMMEDIATE CUSTOMER?

JIT ORGANIZATIONS DO NOT MAINTAIN SEPARATE DEPARTMENTS TO CORRECT DEFECTS

EACH EMPLOYEE HAS TO IDENTIFY AND CORRECT HIS OR HER OWN MISTAKES

EACH WORKER ANALYSES THE TYPES AND SOURCES OF ERRORS AND THEN DEVELOPS METHODS TO PREVENT THEM

IN CASE OF A DEFECT, THE WORKER WHO IDENTIFIES THE DEFECT IS AUTHORIZED TO STOP THE PROCESS & TAKE ACTIONS



CAN JIT BE IMPLEMENTED IN SMALL SCALE ORGANIZATIONS TOO?

CAN JUST-IN-TIME BE IMPLEMENTED IN SMALL SCALE ORGANIZATIONS TOO?

CASE STUDY

MANY MANUFACTURING CONCEPTS CAN ALSO BENEFIT SMALL SCALE OPERATIONS

JIT CAN LEAD TO SIGNIFICANT SAVINGS IN INVENTORY COSTS EVEN FOR SMALL SCALE OPERATIONS

Gamblin



Cadmium Green



Cobalt Green



Permanent Green Light



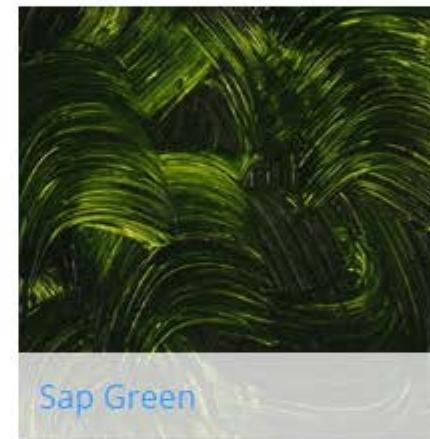
Emerald Green



Phthalo Green



Phthalo Emerald



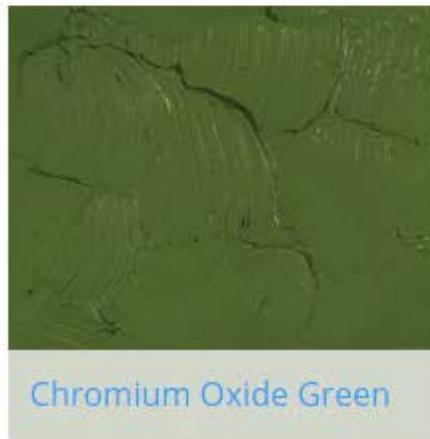
Sap Green



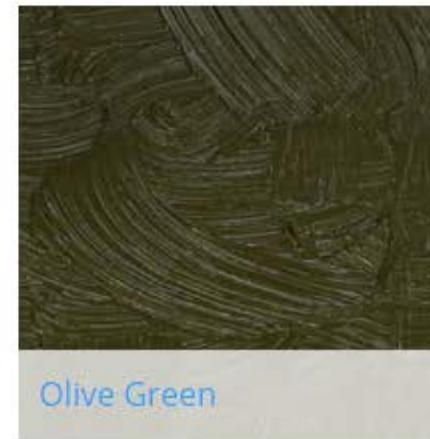
Terre Verte



Viridian



Chromium Oxide Green



Olive Green



Green Gold

CASE STUDY – GAMBLIN ARTIST'S OIL COLORS

TO HANDLE THE REQUIREMENTS OF INCREASED PRODUCTION, THE COMPANY HIRED A MANUFACTURING CONSULTANT

HE ADVISED THE COMPANY TO USE THE JUST-IN-TIME MODEL

BEFORE

- MANUFACTURED IN BATCHES OF 1200 TUBES OF PAINT
- THESE BATCHES WOULD END UP ON THE INVENTORY LIST FOR A PERIOD OF THREE TO SIX MONTHS

AFTER

- MANUFACTURED SMALLER BATCHES OF 500 TUBES; PRODUCED A SINGLE COLOR AT A TIME
- PRODUCTION FIGURES DOUBLED
- FINISHED GOODS INVENTORY TURNOVER CAME DOWN FROM THREE MONTHS TO SIX DAYS
- QUALITY CONTROL PROCESS ALSO IMPROVED

HELPED GAMBLIN REDUCE INVENTORY SIGNIFICANTLY AND FREE UP CAPITAL AMOUNTING TO \$200,000



ACTIVITY: KEY COMPONENTS OF JUST-IN-TIME

M T W T F S S

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	
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ACTIVITY: KEY COMPONENTS OF JUST-IN-TIME

HAVE PROVIDED A FEW QUESTIONS RELATING TO THE LAST TWO SECTIONS

YOUR JOB IS TO ANSWER THOSE QUESTIONS BASED ON THE CHOICES PROVIDED

QUESTION 01

WHICH OF THE FOLLOWING ARE THE THREE ESSENTIAL ELEMENTS OF PEOPLE INVOLVEMENT FOR SUCCESSFUL IMPLEMENTATION OF JUST-IN-TIME? SELECT ALL THAT APPLY.

- A. TEAMWORK**
- B. DISCIPLINE**
- C. SUPPLIER INVOLVEMENT**
- D. SHORT-TERM SUPPLIER CONTRACTS**

QUESTION 02

A NON-JUST-IN-TIME FIRM CONSIDERS A CUSTOMER AS A PERSON OUTSIDE THE FIRM WHO BUYS ITS PRODUCTS FOR HIS USE OR CONSUMPTION.

- A. TRUE**
- B. FALSE**

QUESTION 03

BUILDING EFFECTIVE PARTNERSHIPS DEPENDS ON FOUR ELEMENTS: _____, COMMUNICATION, LINEARITY OF PRODUCTION, AND TIME TO MAKE CHANGES. FILL IN THE BLANKS BASED ON THE GIVEN CHOICES.

- A. TRUST**
- B. SKEPTICISM**
- C. FRIENDLINESS**
- D. NONE OF THE ABOVE**

QUESTION 04

WHICH OF THE FOLLOWING IS A TRUE STATEMENT OF THE CONCEPT OF IMMEDIATE CUSTOMER?

- A. EACH WORKER IN THE FIRM CONSIDERS THE FINAL CUSTOMER WHO USES THE PRODUCT OR SERVICES AS THE IMMEDIATE CUSTOMER**
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- C. EACH WORKER IN THE FIRM CONSIDERS THE NEXT WORKER (WHO CONTINUES THE PROCESS OF PRODUCTION) AS THE CUSTOMER**
- D. NONE OF THE ABOVE**

NEXT LECTURE

ACTIVITY SOLUTION: KEY COMPONENTS OF JUST-IN-TIME



ACTIVITY SOLUTION: KEY COMPONENTS OF JUST-IN-TIME

ACTIVITY: KEY COMPONENTS OF JUST-IN-TIME

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QUESTION 04

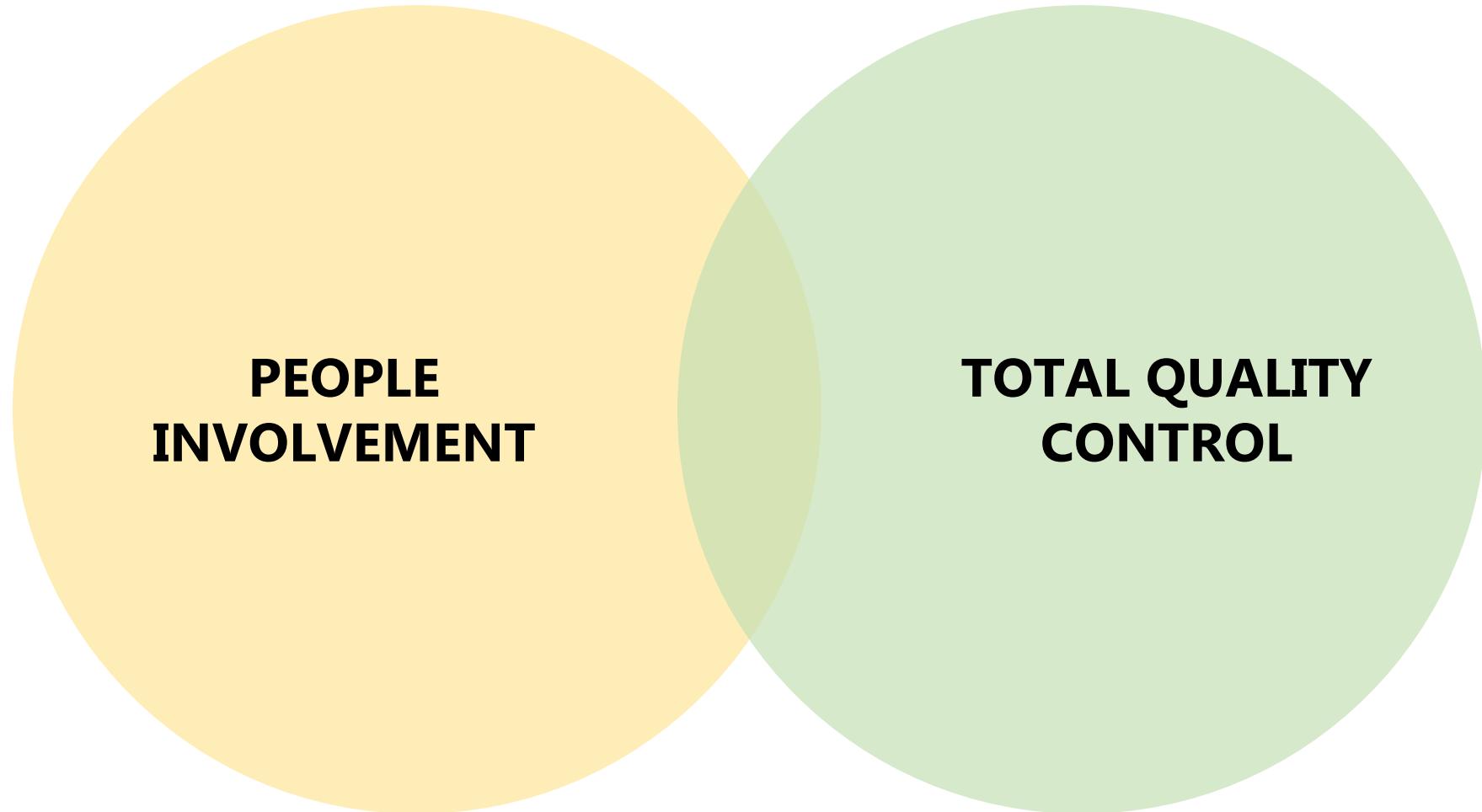
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- D. NONE OF THE ABOVE

CONGRATULATIONS



KEY COMPONENT # 2 OF JUST-IN-TIME



IN THIS SECTION, YOU LEARNT

THE CONCEPT OF IMMEDIATE CUSTOMER

**EACH WORKER IN YOUR ORGANIZATION CONSIDERS THE NEXT
WORKER AS A CUSTOMER**

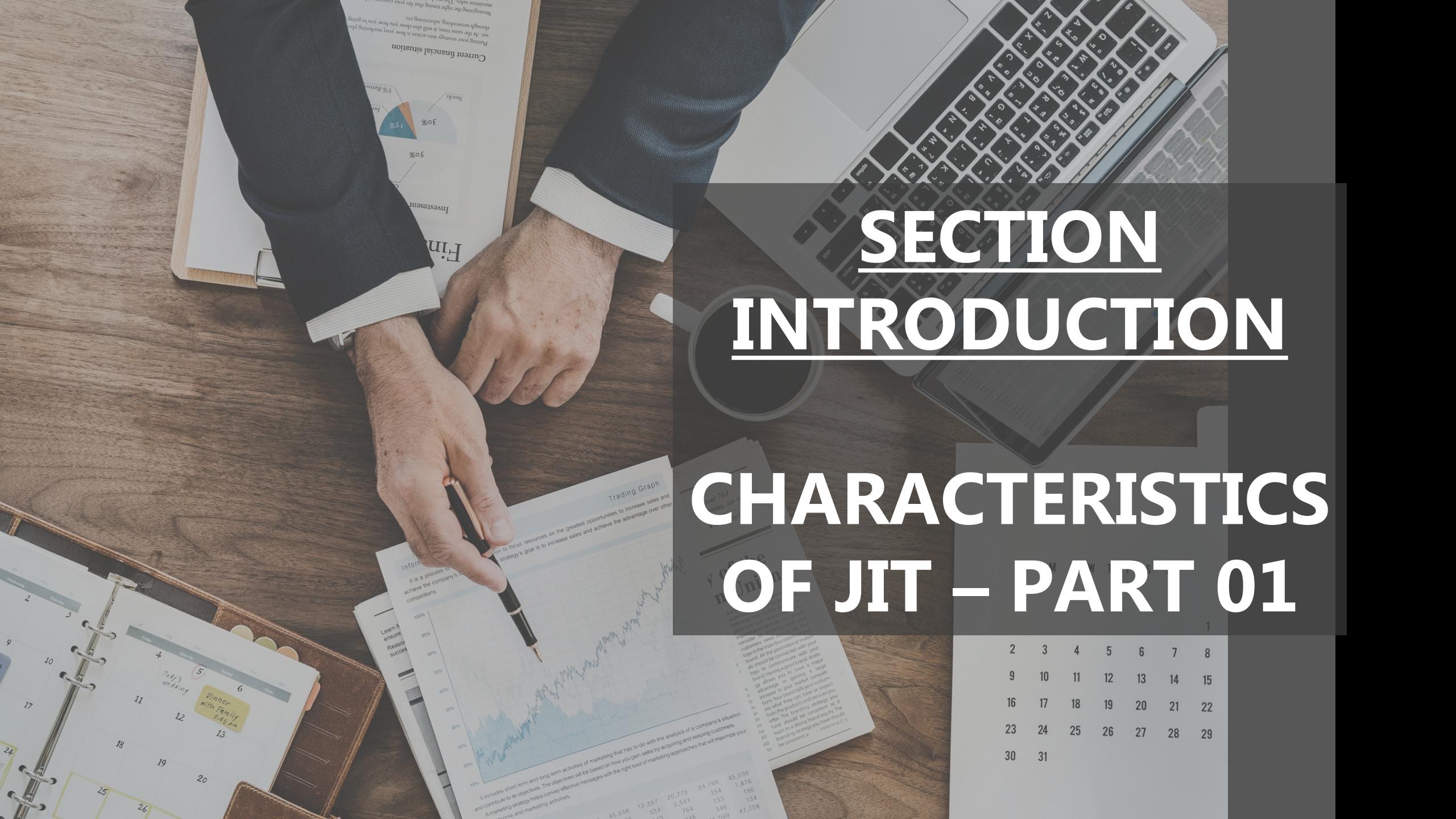
**IT IS THE RESPONSIBILITY OF THE WORKER TO ENSURE THE
PRODUCT MEETS SPECIFICATIONS AND QUALITY REQUIREMENTS**

CASE STUDY OF IMPLEMENTING JIT TO SMALL-SCALE OPERATIONS

ACTIVITY & ACTIVITY SOLUTION

NEXT SECTION

WHAT ARE THE CHARACTERISTICS OF JIT SYSTEM? - PART 01



SECTION INTRODUCTION

CHARACTERISTICS OF JIT – PART 01

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	
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LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

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WHAT ARE THE CHARACTERISTICS OF JIT? PART 01

JIT CONTRIBUTES GREATLY TOWARDS MAKING AN ORGANIZATION SUCCESSFUL

PROPER IMPLEMENTATION OF THESE PRINCIPLES RESULTS IN THE PRODUCTION OF PRODUCTS AND SERVICES:

- **AS REQUIRED BY CUSTOMERS**
- **AT THE RATE DESIRED**
- **AT THE EXPECTED QUALITY**

JIT MINIMIZES UNPRODUCTIVE RESOURCES, AIMS AT CONTINUOUS IMPROVEMENT & ENSURES DESIRED QUALITY

WHAT ARE THE CHARACTERISTICS OF JIT? PART 01

CHARACTERISTICS OF A JIT SYSTEM:

**UNIFORM
WORKSTATION
LOADS**

**SMALL
LOT
SIZES**

**CLOSER
SUPPLIER
TIES**

**MAINTENANCE
OF
HIGH QUALITY**

**QUICK &
ECONOMIC
SETUPS**

**FLEXIBLE
FACILITIES &
MULTI-SKILLED
WORKFORCE**

**PREVENTIVE
MAINTENANCE**

**CONTINUOUS
IMPROVEMENT**

IN THIS SECTION, YOU WILL LEARN

WHAT IS UNIFORM WORKSTATION LOADS?

WHAT ARE SMALL LOT SIZES?

WHAT ARE CLOSER SUPPLIER TIES?

HOW JIT HELPS MAINTAIN HIGH QUALITY

NEXT LECTURE

WHAT IS UNIFORM WORKSTATION LOADS?



WHAT IS UNIFORM WORKSTATION LOADS?

1	2	3	4	5	6	7	8
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WHAT IS UNIFORM WORKSTATION LOADS?

JIT MANUFACTURING HELPS ORGANIZATIONS MAINTAIN
UNIFORM LOADS AT WORKSTATIONS



24000 CARS IN THE CURRENT MONTH



PRODUCTION IS CARRIED OUT 5 DAYS/WEEK



1200 CARS TO BE PRODUCED/DAY



PRODUCTION IS CARRIED OUT IN 2 SHIFTS



SHOULD PRODUCE 600 CARS/SHIFT



WHAT IS UNIFORM WORKSTATION LOADS?

SUPPOSE TOYOTA PRODUCES:

MODEL A = 150 UNITS



MODEL B = 200 UNITS



MODEL C = 250 UNITS



METHOD 01

REQUIRED QUANTITY OF A PARTICULAR TYPE OF CAR IS PRODUCED FIRST

THEN PRODUCTION OF ANOTHER TYPE OF CAR IS STARTED



METHOD 02

TOYOTA CAN ADOPT A METHOD IN WHICH A MIX OF VARIOUS MODELS IS PRODUCED IN SHORT REPETITIVE SEQUENCES

FREQUENCY OF REPETITION FOR EACH MODEL IS IN PROPORTION TO ITS DEMAND

PRODUCTION REQUIREMENTS OF A, B, & C ARE IN THE RATIO 3:4:5,
TOYOTA CAN DEVELOP A PRODUCTION CYCLE OF 12 UNITS:

MODEL A

3 →



MODEL B

4 →



MODEL C

5 →



METHOD 03

TOYOTA CAN DEVELOP A PRODUCTION SEQUENCE OF:

MODEL A



MODEL B



MODEL C



MODEL B



MODEL C



MODEL A



MODEL B



MODEL C



MODEL B



MODEL C



MODEL A



MODEL C





WHAT ARE SMALL LOT SIZES?

M T W T F S S

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	
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WHAT ARE SMALL LOT SIZES?

JIT ORGANIZATIONS MAINTAIN INVENTORY IN THE SMALLEST POSSIBLE LOT SIZES

SMALL LOT SIZES:

- **REDUCE CYCLE INVENTORY**
- **CUTS LEAD TIME**
- **HELPS ACHIEVE UNIFORM WORKLOAD**
- **HAVE LOWER WAITING TIMES**

WHAT ARE SMALL LOT SIZES?

EACH WORK CENTER USES STANDARDIZED CONTAINERS FOR EACH TYPE OF PART

ITEM PLACEMENT IN THE CONTAINERS MAKE IT EASY FOR THE RECEIVING CENTER TO INSPECT, COUNT AND HANDLE THE ITEMS

USE OF SMALL LOT SIZES IS DISADVANTAGEOUS IN TERMS OF INCREASED SETUP FREQUENCY



WHAT ARE CLOSER SUPPLIER TIES?

M T W T F S S

1	2	3	4	5	6	7	8
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WHAT ARE CLOSER SUPPLIER TIES?

JIT ORGANIZATIONS REQUIRE A HIGH LEVEL OF COOPERATION FROM SUPPLIERS

SUPPLIERS SHOULD:

- **PROVIDE TIMELY DELIVERY OF INVENTORY**
- **MEET REQUIRED LEVELS OF QUALITY**
- **BE ACTIVE & RELIABLE**

CHOOSE THOSE SUPPLIERS WHO ARE LOCATED CLOSE TO YOUR PLANT

MAINTAIN LONG-TERM RELATIONSHIPS WITH YOUR SUPPLIERS TO ENSURE SMOOTH & CONTINUOUS PRODUCTION



HOW JIT HELPS MAINTAIN HIGH QUALITY?

HOW JIT HELPS MAINTAIN HIGH QUALITY?

JIT AIMS AT:

- **ACHIEVING A HIGH LEVEL OF CONFORMANCE OF GOODS & SERVICES WITH THEIR SPECIFICATIONS**
- **REDUCING WASTE BY ELIMINATING SCRAP & REWORK**
- **ENCOURAGING WORKERS TO ACT ON THEIR OWN TO ENSURE THE QUALITY OF WORK**

WHENEVER A QUALITY PROBLEM IS IDENTIFIED, THE PRODUCTION IS STOPPED & IT IS CONTINUED ONLY AFTER THE PROBLEM IS SOLVED

EXAMPLE: JIT @ GENERAL MOTORS

MANAGEMENT AT GM AUTHORIZED ITS WORKERS TO DISCONTINUE PRODUCTION BY PULLING A CORD IF THEY FACED ANY PROBLEM

**THIS PRACTICE IS CALLED AS 'ANDON' IN JAPAN
STOPPING THE PRODUCTION LINE HAMPERS PRODUCTION
BUT GM MANAGEMENT WANTED HIGH QUALITY
BY EMPOWERING EMPLOYEES & MAKING THEM RESPONSIBLE, GM
REDUCED THE NUMBER OF SUPERVISORS BY 50%**

CONGRATULATIONS



IN THIS SECTION, YOU LEARNT

WHAT IS UNIFORM WORKSTATION LOADS?

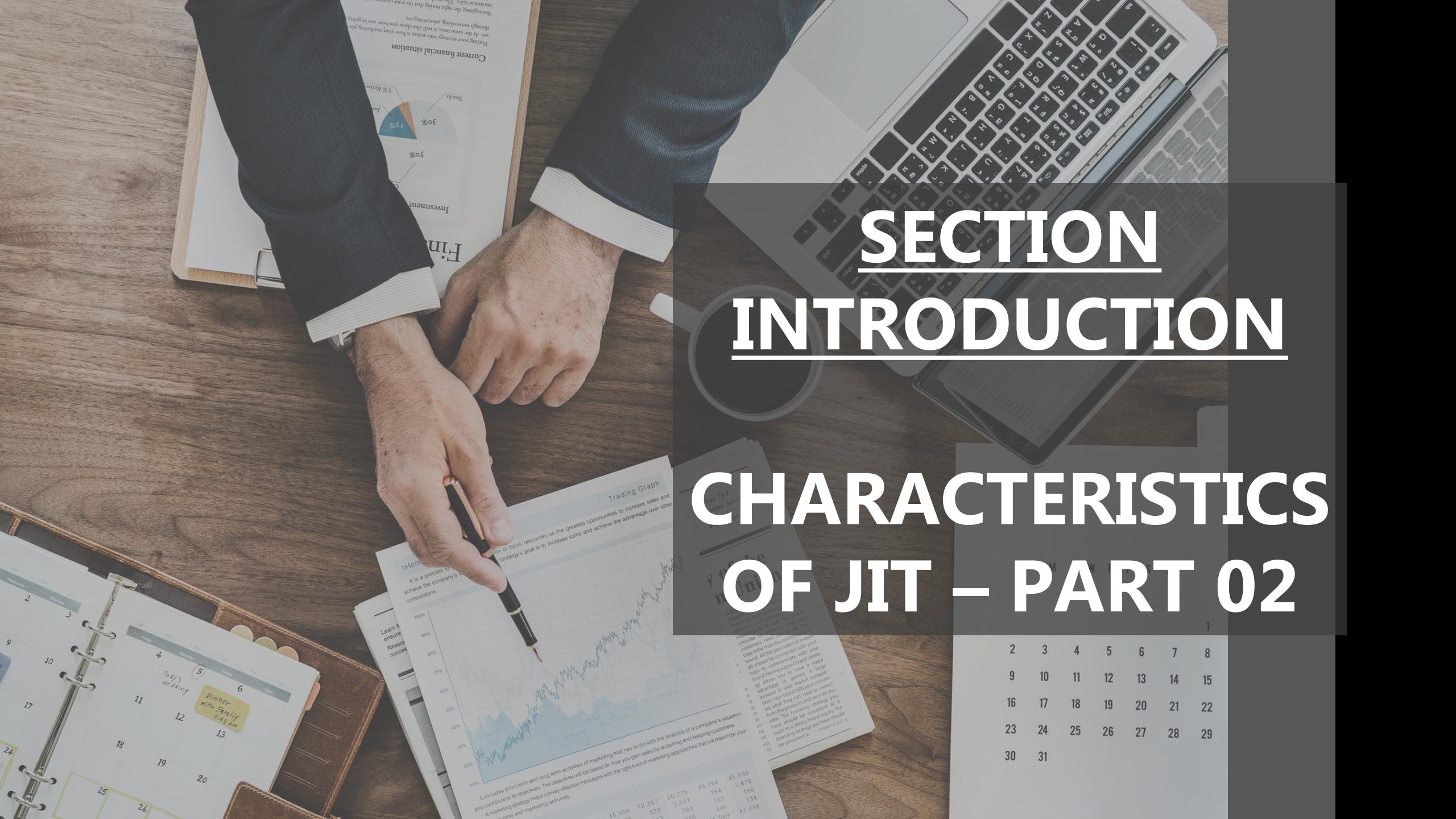
WHAT ARE SMALL LOT SIZES?

WHAT ARE CLOSER SUPPLIER TIES?

HOW JIT HELPS MAINTAIN HIGH QUALITY

NEXT SECTION

WHAT ARE THE CHARACTERISTICS OF JIT SYSTEM? - PART 02



SECTION INTRODUCTION

CHARACTERISTICS OF JIT – PART 02

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WHAT ARE THE CHARACTERISTICS OF JIT? PART 01

CHARACTERISTICS OF A JIT SYSTEM:

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LOT
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**CLOSER
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**MAINTENANCE
OF
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**QUICK &
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**FLEXIBLE
FACILITIES &
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**PREVENTIVE
MAINTENANCE**

**CONTINUOUS
IMPROVEMENT**

NEXT LECTURE

WHAT ARE QUICK AND ECONOMIC SETUPS?

WHAT ARE QUICK & ECONOMIC SETUPS?



WHAT ARE QUICK & ECONOMIC SETUPS?

FIRMS MANUFACTURE THEIR PRODUCTS IN LARGE LOTS
RESULTING IN A LOWER NUMBER OF MACHINE SETUPS

JIT ORGANIZATIONS UNDERGO A LARGE NUMBER OF SETUPS AS
THEY PRODUCE IN SMALL LOTS – THIS IS A DISADVANTAGE
HENCE, JIT ORGANIZATIONS REQUIRE QUICK AND INEXPENSIVE
SETUPS

WHAT ARE QUICK & ECONOMIC SETUPS?

SUCCESSFUL IMPLEMENTATION OF JIT IS GREATLY DEPENDENT ON ITS ABILITY TO REDUCE SETUP TIMES

ENGAGE SPECIALISTS & CONSULTANTS TO TRAIN YOUR WORKERS TO REDUCE SETUP TIMES

ADOPT THIS 4 STEP PROCEDURE TO REDUCE SETUP TIMES:

**ANALYZE
EXISTING SETUP
PROCEDURES**

**SEPARATE
INTERNAL &
EXTERNAL SETUP
ACTIVITIES**

**CONVERT
INTERNAL SETUP
ACTIVITIES INTO
EXTERNAL
ACTIVITIES**

**STREAMLINE
WORK**



STEPS 01 & 02: ANALYZE PROCEDURES & SEPARATE ACTIVITIES

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

STEP 01: ANALYZE EXISTING SETUP PROCEDURES

**EXISTING SETUP PROCEDURE IS RECORDED, NORMALLY WITH THE
HELP OF VIDEOTAPES**

**MANAGEMENT COLLECTS INFORMATION OF THESE PROCEDURES
FROM ITS EMPLOYEES**

**PROCEDURES ARE THEN ANALYZED TO DETERMINE HOW THEY CAN
BE IMPROVED**

STEP 02: SEPARATE INTERNAL & EXTERNAL ACTIVITIES

EXTERNAL SETUP ACTIVITIES ARE THOSE THAT CAN BE PERFORMED WITHOUT STOPPING THE CURRENT PRODUCTION PROCESS

YOUR ORGANIZATION CAN IMPROVE SETUP PROCESS BY SEPARATING EXTERNAL FROM INTERNAL SETUP ACTIVITIES

**THEN DEVELOPING A PLAN TO PERFORM THE EXTERNAL ACTIVITIES, WHILE THE PRODUCTION PROCESS IS UNDER WAY
THUS, TIME IN THE PRODUCTION PROCESS IS SAVED**



STEPS 03 & 04: CONVERT INTERNAL SETUP & STREAMLINE WORK

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

STEP 03: CONVERT INTERNAL ACTIVITIES TO EXTERNAL

YOUR ORGANIZATION SHOULD TRY TO CONVERT ITS INTERNAL SETUP ACTIVITIES INTO EXTERNAL ACTIVITIES BY:

- CHANGING WORK METHODS
- ADDING WORK AIDS
- PURCHASING DUPLICATE SET OF TOOLS OR EQUIPMENT

HERE ARE SOME TIPS & TRICKS TO ENABLE THE CONVERSION OF INTERNAL SETUP ACTIVITIES TO EXTERNAL:

HEATING

**MATERIALS CAN BE PREHEATED
OUTSIDE THE SETUP**

**PREHEAT THE MATERIAL IN ANOTHER
VESSEL**

**SAME TYPE OF REASONING CAN ALSO
BE APPLIED TO OTHER OPERATIONS
LIKE COOLING AND MIXING OF
MATERIALS**



CLEANING

CLEANING ACTIVITIES CAN ALSO BE CONVERTED INTO EXTERNAL SETUP ACTIVITIES BY:

- USING TWO SETS OF TOOLS AND EQUIPMENT**

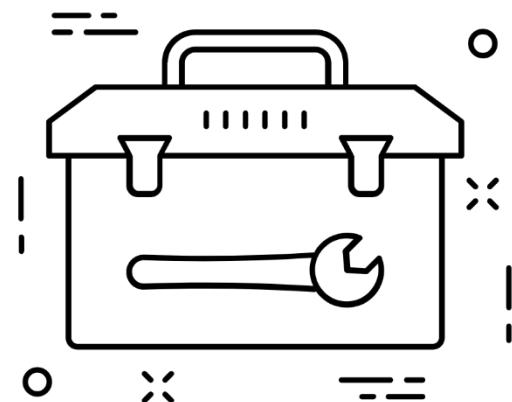
WORKERS CAN REPLACE CONTAMINATED EQUIPMENT WITH A CLEAN SET TO CONTINUE THE PRODUCTION PROCESS WHILE THE CONTAMINATED EQUIPMENT IS CLEANED EXTERNALLY



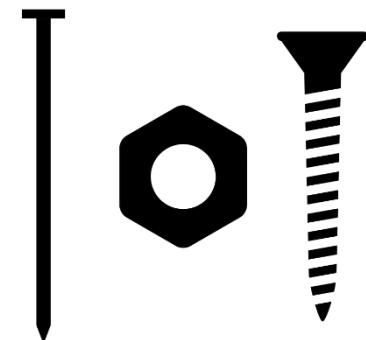
STEP 04: STREAMLINE WORK

SIMPLIFYING INTERNAL ACTIVITIES AND STREAMLINING THE WORK IN YOUR ORGANIZATION REDUCES SETUP TIMES

USE OF STANDARDIZED PARTS ALSO SIMPLIFIES THE PROCESSES AND REDUCES SETUP TIMES



HAVE MULTIPLE TOOLKITS



USE STANDARDIZED PARTS

CONGRATULATIONS



IN THIS SECTION, YOU LEARNT

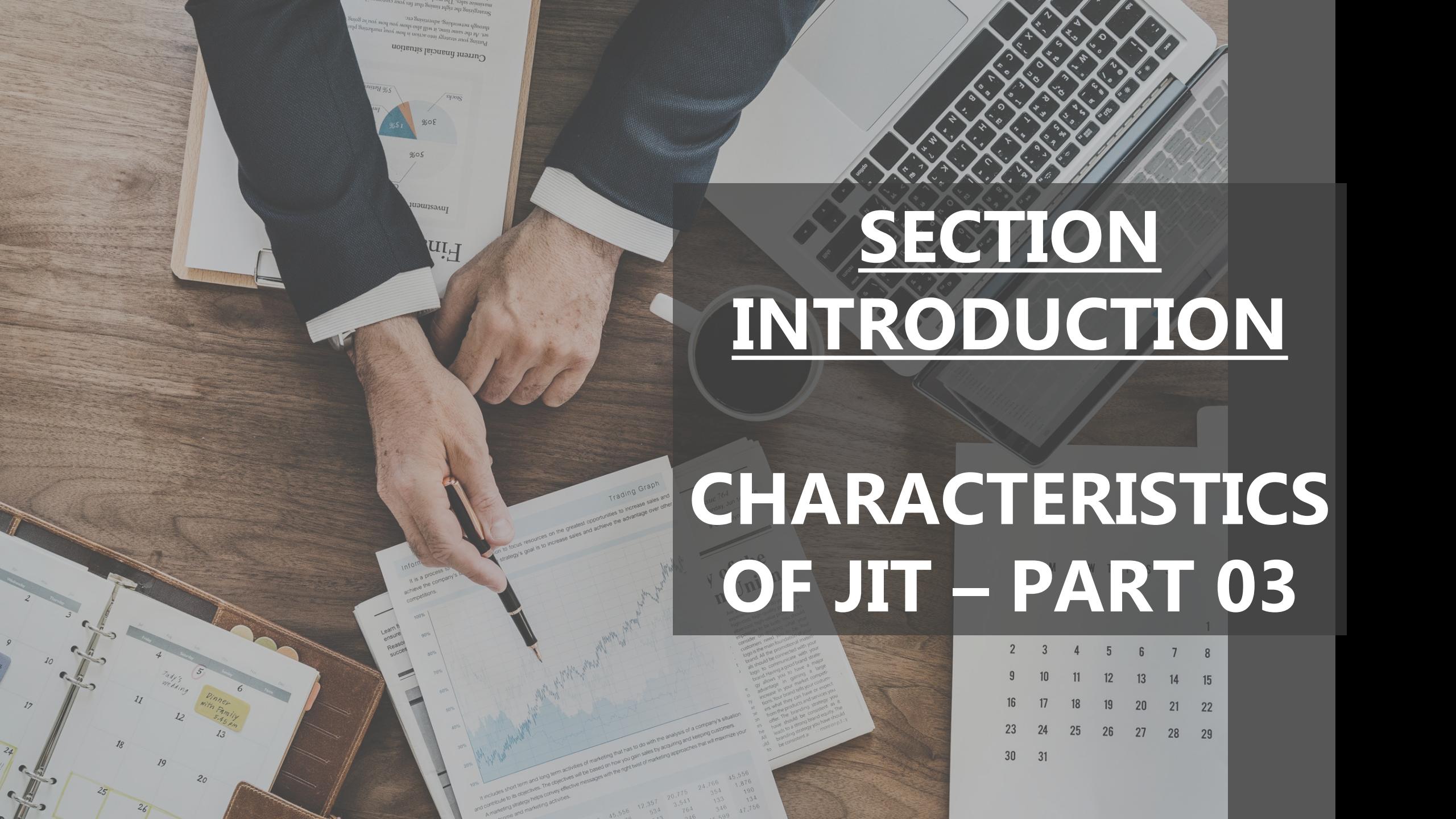
ANALYZE EXISTING SETUP PROCEDURES

**SEPARATION OF INTERNAL AND EXTERNAL SETUP ACTIVITIES AND
CONVERT INTERNAL SETUP ACTIVITIES INTO EXTERNAL SETUP
ACTIVITIES**

STREAMLINE WORK

NEXT SECTION

WHAT ARE THE CHARACTERISTICS OF JIT SYSTEM? - PART 03



SECTION INTRODUCTION

CHARACTERISTICS OF JIT – PART 03

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16	17	18	19	20	21	22	
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LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

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Activity: JIT Introduction		Activity Solution: Key Components of JIT	Section Conclusion		Activity Solution: JIT Characteristics
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Section Conclusion					

7 Steps to Implement JIT in Your Organization	Advantages & Disadvantages of JIT System	How does JIT System Eliminate Waste?	How do Suppliers & Customers Work Together in JIT?	Applications of JIT in Service Industry	Course Conclusion
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Activity Solution: 7 Steps to Implement JIT	Disadvantages of JIT System	How does JIT System Eliminates Waste – Part 02	How does Supplier & Customer Work Together? – Part 02	Application of JIT in Service – Part 02	
Section Conclusion	Section Conclusion	Section Conclusion	How does Supplier & Customer Work Together? – Part 03	Section Conclusion	
		What is Active Listening?	Section Conclusion		

WHAT ARE THE CHARACTERISTICS OF JIT? PART 01

CHARACTERISTICS OF A JIT SYSTEM:

**UNIFORM
WORKSTATION
LOADS**

**SMALL
LOT
SIZES**

**CLOSER
SUPPLIER
TIES**

**MAINTENANCE
OF
HIGH QUALITY**

**QUICK &
ECONOMIC
SETUPS**

**FLEXIBLE
FACILITIES &
MULTI-SKILLED
WORKFORCE**

**PREVENTIVE
MAINTENANCE**

**CONTINUOUS
IMPROVEMENT**

NEXT LECTURE

WHAT ARE FLEXIBLE FACILITIES AND MULTI-SKILLED WORKFORCE?



WHAT ARE FLEXIBLE FACILITIES & MULTI-SKILLED WORKFORCE?

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WHAT ARE FLEXIBLE FACILITIES?

**ORGANIZATIONS THAT PRODUCE THE SAME PRODUCT REPEATEDLY CAN BENEFIT BY FOLLOWING JUST-IN-TIME
MINIMIZE MOVEMENT OF MATERIAL BY PLACING THE EQUIPMENT IN CELLS**

**A CELL IS A GROUPING OF SEVERAL TYPES OF MACHINES IN WHICH EACH MACHINE PERFORMS A SINGLE OPERATION REPEATEDLY
THIS REDUCES THE NEED FOR MATERIALS HANDLING EQUIPMENT, THEREBY REDUCING MATERIAL-HANDLING COSTS
SUCH FLEXIBLE FACILITIES IMPROVE THE SPEED OF THE PRODUCTION THEREBY ALLOWING QUICK DELIVERIES.**

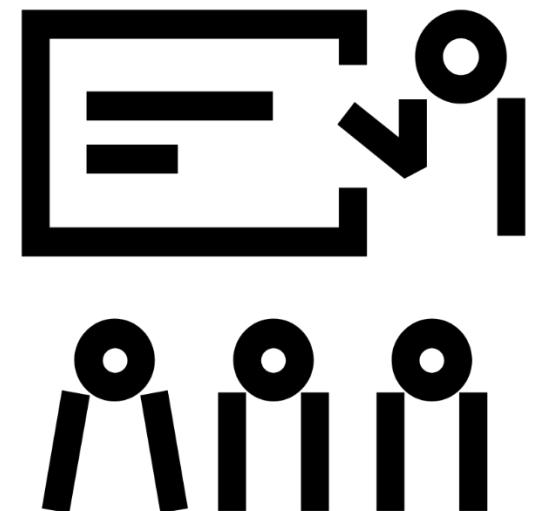
WHAT IS MULTI-SKILLED WORKFORCE?

IN JIT, WORKERS MUST BE CAPABLE OF PERFORMING MORE THAN ONE OPERATION

THE ENTIRE WORKFORCE IS TRAINED CONTINUOUSLY TO DEVELOP A VARIETY OF SKILLS TO SERVE ANY FUNCTION THE FIRM REQUIRES

DEVELOP FLEXIBLE WORKFORCE THROUGH CROSS-TRAINING

A WORKER IS TRAINED TO PERFORM SEVERAL OPERATIONS THAN BEING LIMITED TO ONE CROSS-TRAINING & ESTABLISHING U-FORM CELLS MAKES PRODUCTION MORE FLEXIBLE



WHY U-FORM FACILITIES & SMALL LOT SIZES?

IT MAKES IT EASY TO IDENTIFY DEFECTS THAT OCCUR AT ANY STAGE OF PRODUCTION

CAUSES OF DEFECTS CAN ALSO BE IDENTIFIED AND CORRECTED EASILY

WHEN A DEFECTIVE ITEM IS FOUND THE JIT SYSTEM STOPS THE PRODUCTION PROCESS TO CORRECT THE DEFECT

IF ANY WORK CENTER CAUSES A DEFECT IN THE PRODUCT, THEN ALL WORK CENTERS DOWNSTREAM AUTOMATICALLY STOP OPERATIONS AND HELP SOLVE THE PROBLEM



WHAT IS PREVENTIVE MAINTENANCE?

M T W T F S S

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WHAT IS PREVENTIVE MAINTENANCE?

IN JIT MACHINERY HAS TO BE KEPT IN GOOD WORKING CONDITION SO THAT PRODUCTION IS NOT HAMPERED
UNDERTAKE PREVENTIVE MAINTENANCE TO REDUCE THE OCCURRENCE OF DEFECTS

OBJECTIVE OF PREVENTIVE MAINTENANCE IS TO REPLACE PARTS THAT ARE LIKELY TO PRODUCE DEFECTS

WORKERS ARE GIVEN THE RESPONSIBILITY OF MAINTAINING THEIR MACHINERY AND EQUIPMENT

THEY ARE ALSO TRAINED TO SOLVE OR REPAIR COMMON PROBLEMS

IMPORTANT PRINCIPLES & ACTIONS FOR MAINTENANCE

AIGPE

DESIGN SIMPLE EQUIPMENT AND STANDARDIZE REPLACEMENT PARTS

THE VARIETY OF MACHINES USED SHOULD BE MINIMIZED (IN TERMS OF MANUFACTURER, MODEL, ETC)

COLLECT INFORMATION ABOUT THE FREQUENCY AND CAUSES OF FAILURE OF MACHINES

REPLACE WORN PARTS OF THE EQUIPMENT, AFTER PERIODIC CHECKS

PURCHASE ALL SPARE PARTS THAT ARE NECESSARY DURING REPAIR WORK



WHAT IS CONTINUOUS IMPROVEMENT?

M T W T F S S

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WHAT IS CONTINUOUS IMPROVEMENT?

JIT AIMS AT CONTINUOUS IMPROVEMENT IN QUALITY & PRODUCTIVITY BY IDENTIFYING IMPROVEMENT AREAS

PROBLEMS ARE DETECTED BEFORE THEY ACTUALLY OCCUR

THEY ARE SOLVED IN THE MINIMUM POSSIBLE TIME

FOR MANUFACTURING OPERATIONS, THE PERCENTAGE OF SCRAP CAN BE REDUCED BY:

- FOLLOWING BETTER WORK METHODS**
- TRAINING EMPLOYEES**

WHAT IS CONTINUOUS IMPROVEMENT?

IMBALANCES IN CAPACITY CAN BE ELIMINATED BY:

- **DEVELOPING AN APPROPRIATE MASTER PRODUCTION SCHEDULE (MPS)**
- **MAINTAINING A FLEXIBLE WORKFORCE**

MAINTAIN RELATIONSHIPS WITH SUPPLIERS TO:

- **ENSURE TIMELY DELIVERY OF RAW MATERIALS**
- **WITH THE PRESCRIBED SPECIFICATIONS**

ENSURE COMPLETE INVOLVEMENT OF YOUR EMPLOYEES AND THE MANAGEMENT

CONTINUOUS IMPROVEMENT IN SERVICE OPERATIONS

IN SERVICE OPERATIONS, CONTINUOUS IMPROVEMENT AIMS AT:

- REDUCING THE NUMBER OF PEOPLE INVOLVED**
- WITHOUT AFFECTING THE QUALITY AND**
- WITHOUT AFFECTING THE RATE OF SERVICE**

AFTER REDUCING APPROPRIATE NUMBER OF EMPLOYEES, THE MANAGEMENT EXPLORES WAYS TO IMPROVE SERVICE PROCESS

BARRIERS TO JIT IMPLEMENTATION

WORKER'S RESISTANCE TO CHANGE

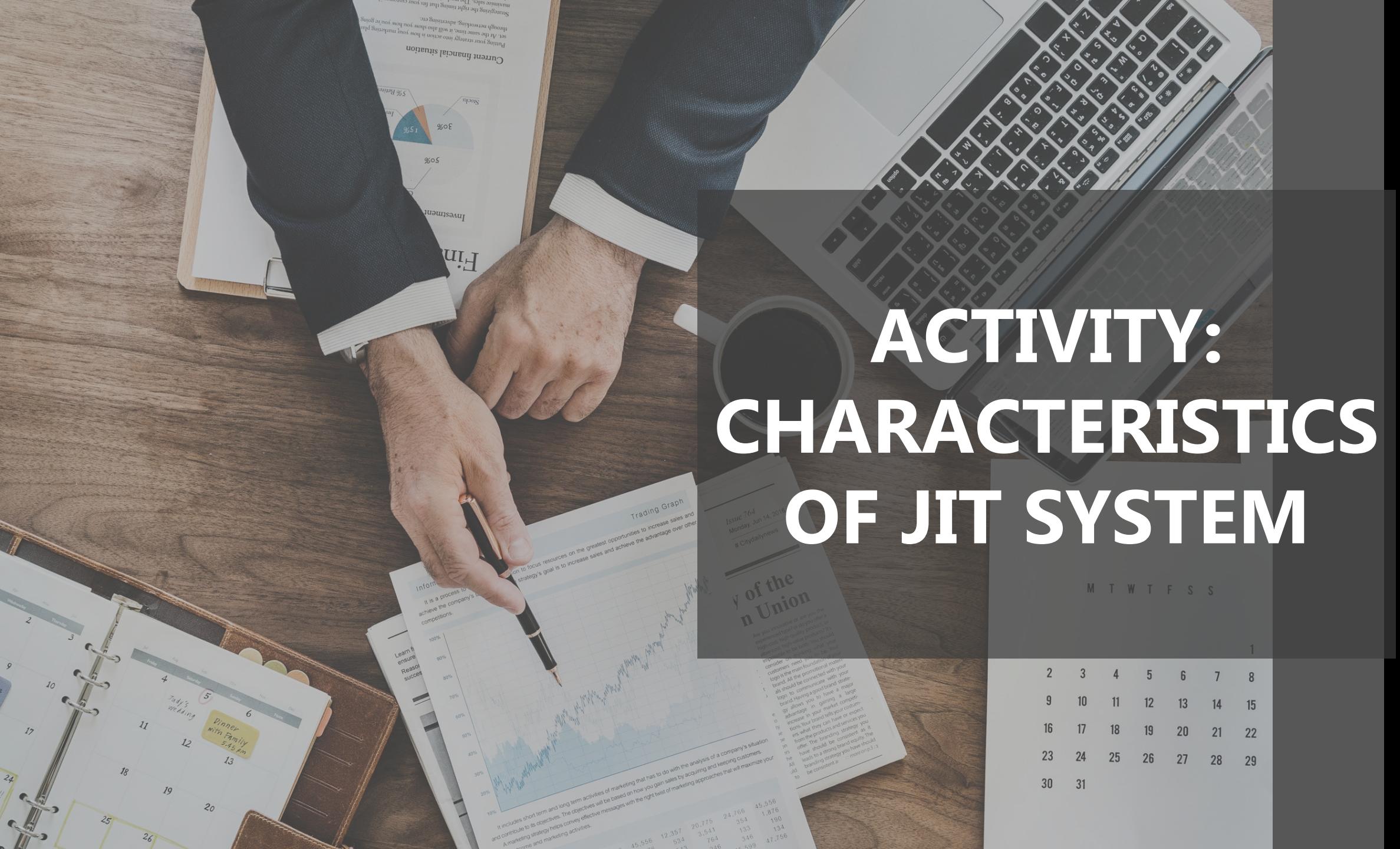
DIFFICULTY IN ACCOMPLISHING ZERO LEAD-TIME

ZERO SAFETY STOCK

ZERO IDLE TIME

**IMPLEMENTATION OF JUST-IN-TIME MANUFACTURING PRINCIPLES
REQUIRES:**

- **GREAT SUPPORT AND COMMITMENT FROM THE TOP MANAGEMENT**
- **EXTENSIVE EMPLOYEE TRAINING**



ACTIVITY: CHARACTERISTICS OF JIT SYSTEM

ACTIVITY: CHARACTERISTICS OF JIT SYSTEM

HAVE PROVIDED A FEW QUESTIONS RELATING TO THE LAST TWO SECTIONS

YOUR JOB IS TO ANSWER THOSE QUESTIONS BASED ON THE CHOICES PROVIDED

NEXT LECTURE

ACTIVITY SOLUTION: CHARACTERISTICS OF JIT SYSTEM



ACTIVITY SOLUTION: CHARACTERISTICS OF JIT SYSTEM

It includes short term and long term activities of marketing that has to do with the analysis of a company's situation and contribute to its objectives. The objectives will be based on how you gain sales by acquiring and keeping customers. A marketing strategy helps convey effective messages with the right mix of marketing approaches that will maximize your income and marketing activities.

45.556 12.357 20.775 24.766 45.556
534 3.541 354 1.875
13 764 133 190
316 136 134
5.599 47.756

ACTIVITY: CHARACTERISTICS OF JIT SYSTEM

HAVE PROVIDED A FEW QUESTIONS RELATING TO THE LAST TWO SECTIONS

YOUR JOB IS TO ANSWER THOSE QUESTIONS BASED ON THE CHOICES PROVIDED

QUESTION 01

WHICH OF THE FOLLOWING IS NOT ONE OF THE CHARACTERISTICS OF THE JUST-IN-TIME SYSTEM?

- A. PREVENTIVE MAINTENANCE**
- B. UNIFORM WORKSTATION LOADS**
- C. CLOSER SUPPLIER TIES**
- D. NONE OF THE ABOVE**

QUESTION 01

WHICH OF THE FOLLOWING IS NOT ONE OF THE CHARACTERISTICS OF THE JUST-IN-TIME SYSTEM?

- A. PREVENTIVE MAINTENANCE**
- B. UNIFORM WORKSTATION LOADS**
- C. CLOSER SUPPLIER TIES**
- D. NONE OF THE ABOVE**

QUESTION 02

FIRMS THAT FOLLOW JUST-IN-TIME TYPE OF MANUFACTURING SYSTEM MAINTAIN INVENTORY IN THE SMALLEST POSSIBLE LOT SIZES.

- A. TRUE**
- B. FALSE**

QUESTION 02

FIRMS THAT FOLLOW JUST-IN-TIME TYPE OF MANUFACTURING SYSTEM MAINTAIN INVENTORY IN THE SMALLEST POSSIBLE LOT SIZES.

- A. TRUE**
- B. FALSE**

QUESTION 03

WHICH OF THE FOLLOWING IS NOT A CRITICAL COMPONENT OF CLOSER SUPPLIER TIES IN THE JUST-IN-TIME MANUFACTURING SYSTEM.

- A. SUPPLIERS SHOULD BE ABLE TO PROVIDE TIMELY DELIVERY OF INVENTORY**
- B. SUPPLIERS SHOULD BE ABLE TO MEET REQUIRED LEVELS OF QUALITY**
- C. SUPPLIERS SHOULD BE ACTIVE AND RELIABLE**
- D. FIRMS ALSO MAINTAIN SHORT-TERM RELATIONSHIPS WITH THEIR SUPPLIERS TO ENSURE SMOOTH AND CONTINUOUS PRODUCTION**

QUESTION 03

WHICH OF THE FOLLOWING IS NOT A CRITICAL COMPONENT OF CLOSER SUPPLIER TIES IN THE JUST-IN-TIME MANUFACTURING SYSTEM.

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QUESTION 04

JUST-IN-TIME MANUFACTURING FIRMS UNDERGO A LARGER NUMBER OF SETUPS AS THEY PRODUCE IN SMALL LOTS. THIS IS A DISADVANTAGE OF THE JUST-IN-TIME SYSTEM.

- A. TRUE**
- B. FALSE**

QUESTION 04

JUST-IN-TIME MANUFACTURING FIRMS UNDERGO A LARGER NUMBER OF SETUPS AS THEY PRODUCE IN SMALL LOTS. THIS IS A DISADVANTAGE OF THE JUST-IN-TIME SYSTEM.

- A. TRUE**
- B. FALSE**

QUESTION 05

WHICH OF THE FOLLOWING ARE THE BARRIERS THAT ORGANIZATIONS NEED TO OVERCOME TO IMPLEMENT THE JUST-IN-TIME SYSTEM.

- A. WORKER'S RESISTANCE TO CHANGE**
- B. DIFFICULTY IN ACCOMPLISHING ZERO LEAD-TIME**
- C. DIFFICULTY IN ACCOMPLISHING ZERO SAFETY STOCK**
- D. DIFFICULTY IN ACCOMPLISHING ZERO IDLE TIME**
- E. ALL OF THE ABOVE**
- F. NONE OF THE ABOVE**

QUESTION 05

WHICH OF THE FOLLOWING ARE THE BARRIERS THAT ORGANIZATIONS NEED TO OVERCOME TO IMPLEMENT THE JUST-IN-TIME SYSTEM.

- A. WORKER'S RESISTANCE TO CHANGE**
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- D. DIFFICULTY IN ACCOMPLISHING ZERO IDLE TIME**
- E. ALL OF THE ABOVE**
- F. NONE OF THE ABOVE**

CONGRATULATIONS



IN THIS SECTION, YOU LEARNT

WHAT ARE FLEXIBLE FACILITIES & MULTI-SKILLED WORKFORCE?

WHAT IS PREVENTIVE MAINTENANCE?

WHAT IS CONTINUOUS IMPROVEMENT?

ACTIVITY & ACTIVITY SOLUTION

NEXT SECTION

WHAT ARE THE 7 STEPS TO IMPLEMENT JUST-IN-TIME IN YOUR ORGANIZATION?



SECTION INTRODUCTION

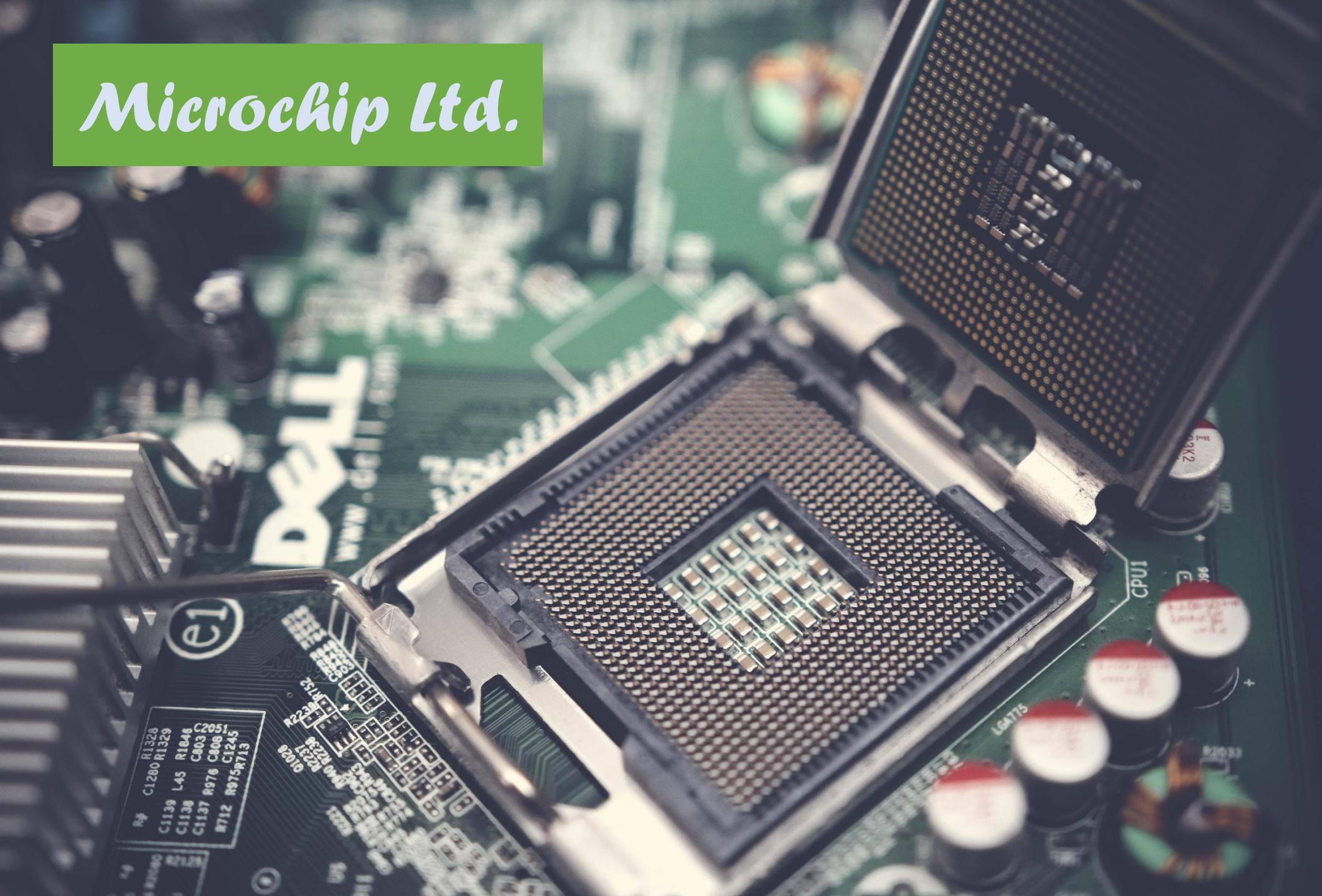
7 STEPS TO IMPLEMENT JIT

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LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

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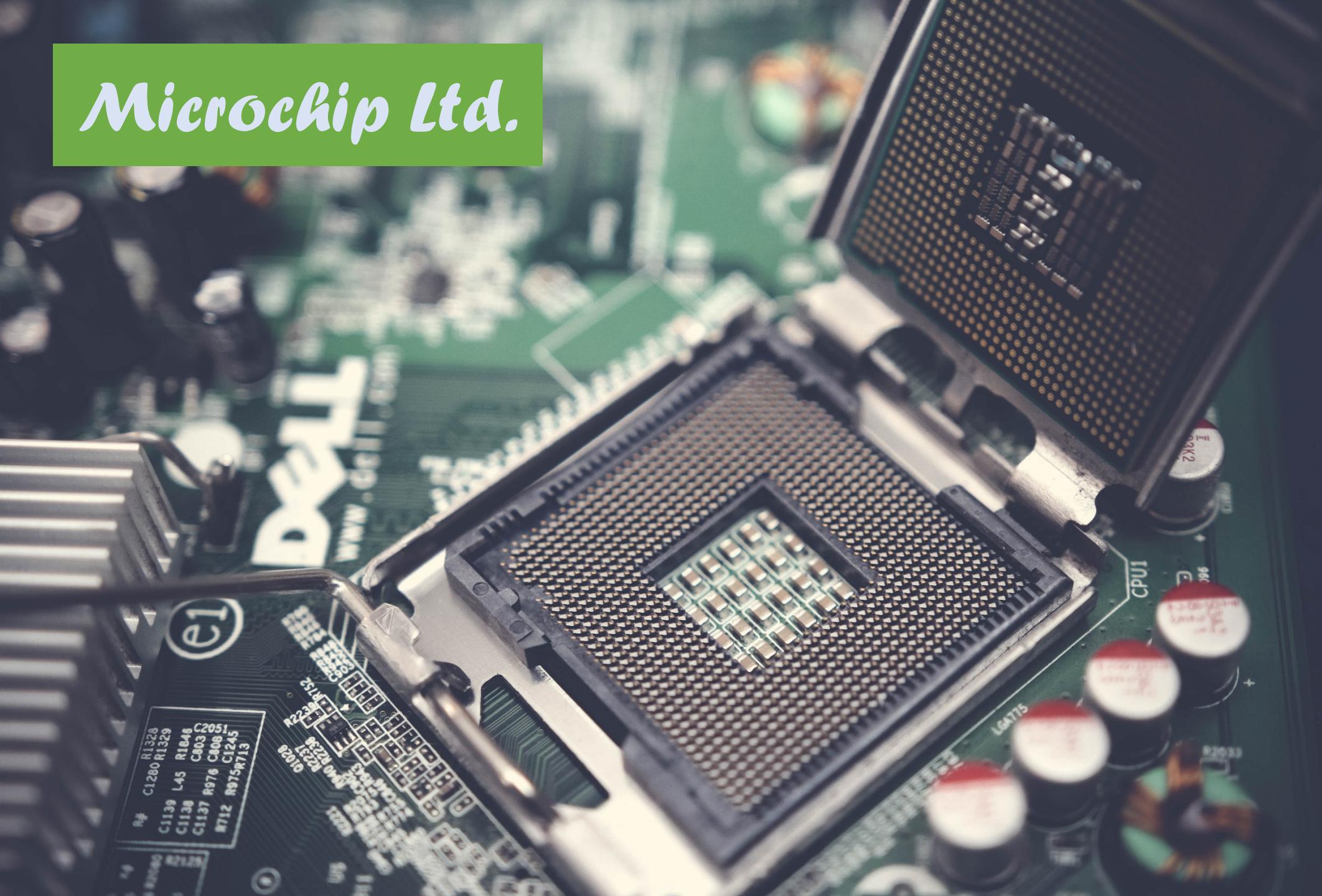
Microchip Ltd.



NEXT LECTURE

ACTIVITY SOLUTION: 7 HIGH LEVEL STEPS TO IMPLEMENT JIT

Microchip Ltd.



ACTIVITY SOLUTION:

CONDITIONS FOR SUCCESSFUL JIT IMPLEMENTATION:

- COMMITMENT OF THE TOP MANAGEMENT
- CONSIDERABLE FINANCIAL OUTLAY IS REQUIRED DURING THE EARLY STAGES

YOUR ORGANIZATION MAY FACE SOME PRODUCTION LOSS AND CHANGES TO MANAGEMENT PROCEDURES

TRUST AND COMMITMENT BETWEEN THE SUPPLIER AND THE CUSTOMER NEEDS TO BE BUILT UP

ACTIVITY SOLUTION:

7 HIGH-LEVEL STEPS TO MAKE JIT IMPLEMENTATION SUCCESSFUL:

**STABILIZE AND LEVEL
THE MASTER
PRODUCTION
SCHEDULE**

**REDUCE OR ELIMINATE
SETUP TIMES**

**REDUCE LOT SIZES
(MANUFACTURING
AND PURCHASE)**

**REDUCE LEAD TIMES
(PRODUCTION AND
DELIVERY)**

**USE IDLE TIME FOR
PREVENTIVE
MAINTENANCE**

**CREATE A FLEXIBLE
WORKFORCE**

**REQUIRE SUPPLIER
QUALITY ASSURANCE
AND IMPLEMENT A
ZERO DEFECT QUALITY
PROGRAM**

STABILIZE & LEVEL THE MASTER PRODUCTION SCHEDULE

AIGPE

A MASTER PRODUCTION SCHEDULE (MPS) IS A SCHEDULE SHOWING WEEK BY WEEK THE QUANTITY OF EACH PRODUCT THAT MUST BE PRODUCED ACCORDING TO CUSTOMER ORDERS AND DEMAND FORECAST

WORK CENTERS SHOULD BE UNIFORMLY LOADED THROUGH CONSTANT DAILY PRODUCTION

REDUCE OR ELIMINATE SETUP TIMES

SETUP TIMES SHOULD BE REDUCED BY SEPARATING INTERNAL AND EXTERNAL ACTIVITIES

A “ONE-TOUCH” SETUP CAN BE DEVELOPED WITH THE HELP OF BETTER PLANNING, PROCESS REDESIGN, AND PRODUCT REDESIGN

REDUCE LOT SIZES (MANUFACTURING AND PURCHASE)

REDUCTION IN SETUP TIMES ALLOWS ECONOMICAL PRODUCTION OF SMALLER LOTS

CLOSE COOPERATION WITH SUPPLIERS IS NECESSARY TO ACHIEVE REDUCTIONS IN ORDER LOT SIZES FOR PURCHASED ITEMS

JIT REQUIRES MORE FREQUENT DELIVERIES

REDUCE LEAD TIMES (PRODUCTION AND DELIVERY)

PRODUCTION LEAD TIMES CAN BE REDUCED BY:

- **MOVING WORKSTATIONS CLOSER**
- **APPLYING GROUP TECHNOLOGY AND CELLULAR MANUFACTURING CONCEPTS**
- **REDUCING QUEUE LENGTH**
- **IMPROVING THE COORDINATION AND COOPERATION BETWEEN SUCCESSIVE PROCESSES**

DELIVERY LEAD TIMES CAN BE REDUCED THROUGH:

- **CLOSE COOPERATION WITH SUPPLIERS**
- **INDUCING SUPPLIERS TO LOCATE CLOSER TO THE FACTORY**

USE IDLE TIME FOR PREVENTIVE MAINTENANCE

IDLE TIME OF MACHINES AND WORKERS SHOULD BE USED TO:

- **MAINTAIN EQUIPMENT AND**
- **PREVENT BREAKDOWNS**

CREATE A FLEXIBLE WORKFORCE

WORKERS SHOULD BE TRAINED TO:

- **OPERATE SEVERAL MACHINES**
- **PERFORM MAINTENANCE TASKS AND**
- **PERFORM QUALITY INSPECTIONS**

**THE ATTITUDE OF RESPECT FOR PEOPLE LEADS TO GIVING
WORKERS MORE RESPONSIBILITY FOR THEIR WORK**

SUPPLIER QUALITY ASSURANCE & ZERO DEFECTS

ERRORS LEADING TO DEFECTIVE ITEMS MUST BE ELIMINATED

QUALITY AT THE SOURCE PROGRAM MUST BE IMPLEMENTED TO:

- GIVE WORKERS THE RESPONSIBILITY FOR THE QUALITY OF THEIR WORK**
- AUTHORITY TO STOP PRODUCTION WHEN SOMETHING GOES WRONG**

CONGRATULATIONS



7 HIGH-LEVEL STEPS TO MAKE JIT IMPLEMENTATION SUCCESSFUL:

**STABILIZE AND LEVEL
THE MASTER
PRODUCTION
SCHEDULE**

**REDUCE OR ELIMINATE
SETUP TIMES**

**REDUCE LOT SIZES
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**USE IDLE TIME FOR
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**CREATE A FLEXIBLE
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QUALITY ASSURANCE
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NEXT SECTION

WHAT ARE THE ADVANTAGES AND DISADVANTAGES OF THE JUST-IN-TIME SYSTEM?



SECTION INTRODUCTION ADVANTAGES & DISADVANTAGES OF JIT SYSTEM

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NEXT LECTURE

WHAT ARE THE ADVANTAGES OF JUST-IN-TIME SYSTEM?



WHAT ARE THE ADVANTAGES OF JUST-IN-TIME SYSTEM?

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WHAT ARE ADVANTAGES OF JUST-IN-TIME SYSTEM?

HIGH VOLUMES OF WORK-IN PROGRESS INVENTORY END UP PRODUCING A LARGE AMOUNT OF SCRAP

IT IS ALSO VERY DIFFICULT TO IDENTIFY DEFECTS WHEN VOLUMES ARE VERY LARGE

MACHINE CONDITIONS, TOOL SETTINGS, QUALITY OF RAW MATERIALS, ETC. HAVE TO BE CHECKED

SEVERAL ORGANIZATIONS NOW ADOPT JIT IN WHICH DEFECTS ARE DISCOVERED WHERE A LARGE PRODUCTION LOT IS PRODUCED

WHAT ARE ADVANTAGES OF JUST-IN-TIME SYSTEM?

USING JIT, ORGANIZATIONS CAN REDUCE WASTE SUCH AS:

- **WASTE OF OVERPRODUCTION**
- **WASTE OF TIME SPENT IN WAITING**
- **WASTE IN TRANSPORTATION & MOVEMENT**
- **WASTE IN PROCESSING**
- **WASTE IN KEEPING EXCESS INVENTORY**
- **WASTE OF DEFECTIVE PARTS**

OPERATIONAL BENEFITS OF JIT SYSTEM

INCREASED UTILIZATION OF MACHINERY AND EQUIPMENT

REDUCED INVESTMENT IN INVENTORY

IMPROVEMENT IN THE QUALITY OF PRODUCT OR SERVICE

REDUCTION IN SPACE REQUIREMENTS OF THE FIRM

REDUCTION IN PRODUCTION CYCLE TIME

ZERO INVENTORY STORAGE AND MAINTENANCE COSTS

CLOSER RELATIONSHIP WITH SUPPLIERS

REDUCTION IN FORMAL PAPER WORK

HIGHER INVOLVEMENT OF EMPLOYEES

BENEFITS FOR SUPPLIERS FROM JIT SYSTEM

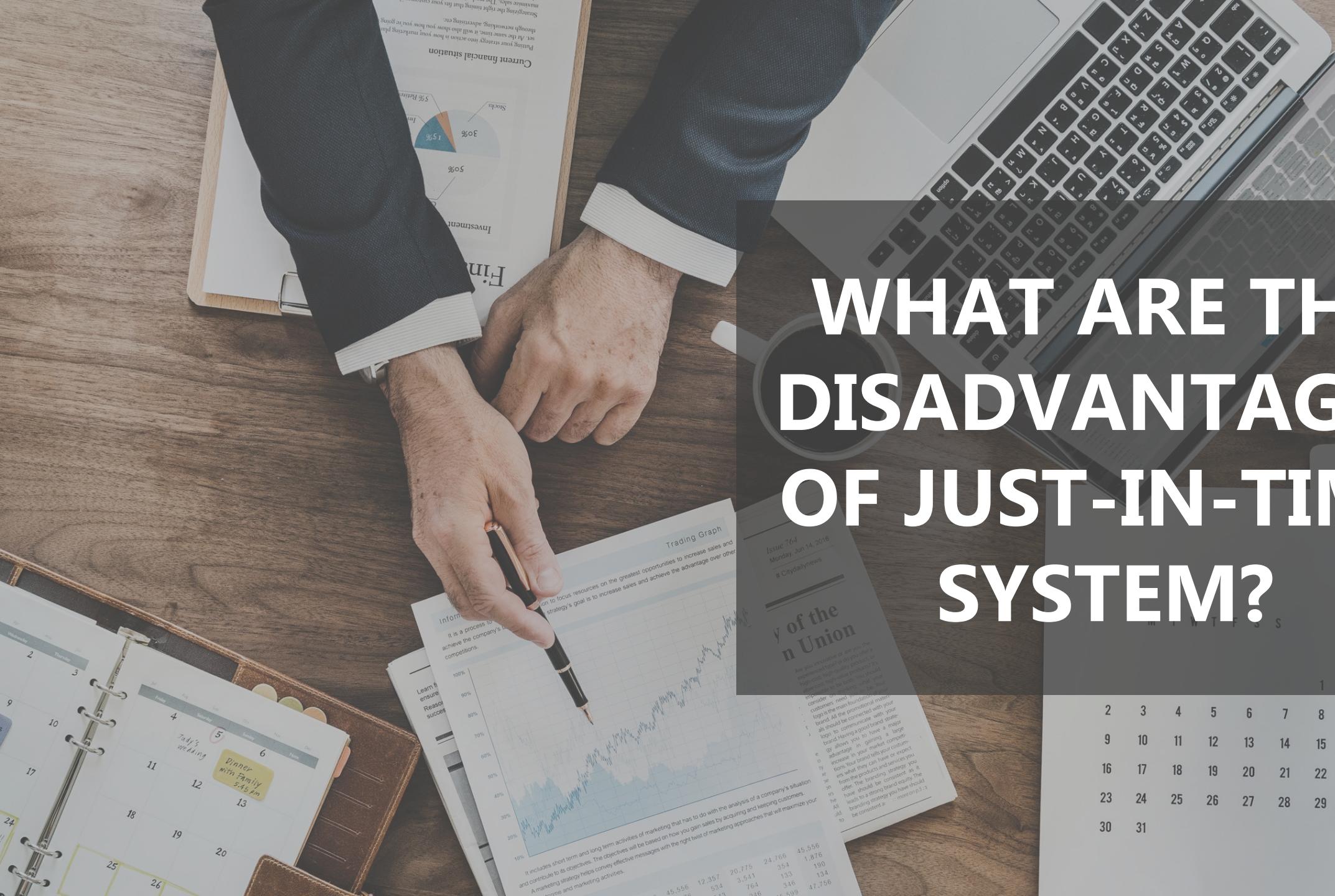
A LONG-TERM
GUARANTEED
CONTRACT FOR SUPPLY
OF MATERIALS

A STEADY AND
CONTINUOUS DEMAND
FOR THEIR MATERIALS

LESS EXPENDITURE ON
PROMOTIONAL
ACTIVITIES

TIMELY PAYMENT FOR
MATERIALS SUPPLIED

WHAT ARE THE DISADVANTAGES OF JUST-IN-TIME SYSTEM?



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WHAT ARE DISADVANTAGES OF JUST-IN-TIME SYSTEM?

**CULTURAL
DIFFERENCES**

**EXTERNAL
OBSTACLES**

**GLOBAL &
LOGISTIC ISSUES**

**INTRACTABLE
ACCOUNTING
SYSTEM**

**SMALL
SUPPLIER
DIFFICULTIES**

**RESISTANCE TO
CHANGE**

WHAT ARE DISADVANTAGES OF JUST-IN-TIME SYSTEM?

CULTURAL DIFFERENCES

ORGANIZATIONAL CULTURE VARIES FROM FIRM TO FIRM

IT IS DIFFICULT TO CHANGE ORG CULTURE IN A SHORT TIME

EXTERNAL OBSTACLES

JIT CANNOT TOLERATE INCREASING DEMAND RATES

ALSO CANNOT TOLERATE LOAD FLUCTUATIONS

GLOBAL AND LOGISTIC ISSUES

IF THE DISTRIBUTION CHANNELS ARE DISRUPTED, IT LEADS TO PRODUCTION DISRUPTIONS FOR SUBSEQUENT CUSTOMERS

WHAT ARE DISADVANTAGES OF JUST-IN-TIME SYSTEM?

INTRACTABLE ACCOUNTING SYSTEMS

THE TRADITIONAL WAY OF ACCOUNTING AND FINANCIAL MEASURES CANNOT TAKE INTO ACCOUNT THE JIT METHOD

SMALL SUPPLIER DIFFICULTIES

SMALL SUPPLIERS FACE DIFFICULTIES WITH SMALL LOTS INVENTORY
THEY MAY NOT HAVE THE ADVANTAGE OF ECONOMIES OF SCALE

RESISTANCE TO CHANGE

JIT REQUIRES EMPLOYEES TO LEARN NEW FUNDAMENTALS
BUT HUMAN NATURE IS RESISTANCE TO CHANGE

CONGRATULATIONS



ADVANTAGES OF THE JIT SYSTEM

INCREASED UTILIZATION OF MACHINERY AND EQUIPMENT

REDUCED INVESTMENT IN INVENTORY

IMPROVEMENT IN THE QUALITY OF PRODUCT OR SERVICE

REDUCTION IN SPACE REQUIREMENTS OF THE FIRM

REDUCTION IN PRODUCTION CYCLE TIME

ZERO INVENTORY STORAGE AND MAINTENANCE COSTS

CLOSER RELATIONSHIP WITH SUPPLIERS

REDUCTION IN FORMAL PAPER WORK

HIGHER INVOLVEMENT OF EMPLOYEES

DISADVANTAGES OF THE JIT SYSTEM

**CULTURAL
DIFFERENCES**

**EXTERNAL
OBSTACLES**

**GLOBAL &
LOGISTIC ISSUES**

**INTRACTABLE
ACCOUNTING
SYSTEM**

**SMALL
SUPPLIER
DIFFICULTIES**

**RESISTANCE TO
CHANGE**

NEXT SECTION

HOW DOES THE JUST-IN-TIME SYSTEM ELIMINATE WASTE?



SECTION INTRODUCTION HOW DOES JIT ELIMINATES WASTE

LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

What is Just-In-Time?	What is Key Component # 1 of Just-In-Time?	What is Key Component # 2 of Just-In-Time?	Characteristics of JIT System - Part 01	Characteristics of JIT System - Part 02	Characteristics of JIT System - Part 03
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Activity: JIT Introduction		Activity Solution: Key Components of JIT	Section Conclusion		Activity Solution: JIT Characteristics
Activity Solution: JIT Introduction		Section Conclusion			Section Conclusion
Section Conclusion					
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Activity Solution: 7 Steps to Implement JIT	Disadvantages of JIT System	How does JIT System Eliminates Waste – Part 02	How does Supplier & Customer Work Together? – Part 02	Application of JIT in Service – Part 02	
Section Conclusion	Section Conclusion	Section Conclusion	How does Supplier & Customer Work Together? – Part 03	Section Conclusion	
		What is Active Listening?	Section Conclusion		

IN THIS SECTION, YOU WILL ANSWER THIS KEY QUESTION

WASTE IN JAPAN IS ANYTHING OTHER THAN THE MINIMUM AMOUNT OF EQUIPMENT, MATERIALS, PARTS, AND WORKERS WHICH ARE ABSOLUTELY ESSENTIAL TO PRODUCTION.

HOW DO JIT ELEMENTS HELP IN REDUCING THE WASTAGE?

NEXT LECTURE

HOW DOES JUST-IN-TIME SYSTEM ELIMINATES WASTE? PART 01



HOW DOES JUST-IN-TIME SYSTEM ELIMINATES WASTE? PART 01

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7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

AIGPE

**FOCUSED
FACTORY
NETWORKS**

**GROUP
TECHNOLOGY**

**QUALITY
AT
SOURCE**

**JUST-IN-TIME
PRODUCTION**

**UNIFORM
PLANT
LOADING**

**KANBAN
PRODUCTION
CONTROL
SYSTEMS**

**MINIMIZED
SETUP TIMES**

7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

FOCUSED FACTORY NETWORKS

JAPANESE BUILD SMALL FACTORY PLANTS

THE PLANTS ARE DESIGNED ONLY FOR ONE PURPOSE

THESE PLANTS CAN BE OPERATED ECONOMICALLY, AS IT IS EASY TO
REDUCE WASTE IN A SMALL PLANT

GROUP TECHNOLOGY

JAPANESE CONSIDER ALL THE OPERATIONS REQUIRED TO MAKE A
PART AND GROUP THOSE MACHINES TOGETHER

THIS ELIMINATES MOVEMENT & QUEUE TIME

IT REDUCES INVENTORY & THE REQUIRED NUMBER OF EMPLOYEES

7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

QUALITY AT THE SOURCE

IT MEANS DOING IT RIGHT THE FIRST TIME

WHEN SOMETHING GOES WRONG, A WORKER IS ALLOWED TO STOP THE PROCESS OR ASSEMBLY LINE IMMEDIATELY

FACTORY WORKERS BECOME THEIR OWN INSPECTORS

THIS ELIMINATES THE FEEDING OF DEFECTIVE PRODUCTS TO THE NEXT WORKSTATION

7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

JUST-IN-TIME PRODUCTION

**JUST-IN-TIME MEANS PRODUCING WHAT IS NEEDED
ANYTHING OVER THE MINIMUM BECOMES A WASTE**

JUST-IN-TIME:

- IS ALSO KNOWN AS LEAN OR STOCKLESS PRODUCTION**
- IMPROVES PROFITS & ROI BY REDUCING INVENTORY**
- IMPROVES PRODUCT QUALITY**
- REDUCES PRODUCTION AND DELIVERY LEAD TIMES**
- ALSO REDUCES OTHER COSTS (SUCH AS THOSE ASSOCIATED
WITH MACHINE SETUP AND EQUIPMENT BREAKDOWN)**

7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

AIGPE

UNIFORM PLANT LOADING

SMOOTHENING THE PRODUCTION FLOW TO DAMPEN THE REACTION WAVES THAT NORMALLY OCCUR IN RESPONSE TO SCHEDULE VARIATIONS IS TERMED AS UNIFORM PLANT LOADING

**WHEN A CHANGE IS MADE IN THE FINAL ASSEMBLY, THE CHANGES ARE MAGNIFIED THROUGHOUT THE LINE AND THE SUPPLY CHAIN
THE ONLY WAY TO ELIMINATE THE PROBLEM IS TO MAKE ADJUSTMENTS AS SMALL AS POSSIBLE**

THIS CAN BE DONE BY SETTING A FIRM MONTHLY PRODUCTION PLAN FOR WHICH THE OUTPUT RATE IS FROZEN

7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

AIGPE

KANBAN PRODUCTION CONTROL SYSTEM

A KANBAN CONTROL SYSTEM USES A SIGNALING DEVICE TO REGULATE JIT FLOWS

KANBAN MEANS “SIGN” IN JAPANESE

THE AUTHORITY TO PRODUCE OR STOP COMES FROM DOWNSTREAM OPERATIONS

A KANBAN SYSTEM IS A PULL-SYSTEM,

KANBAN IS USED TO PULL PARTS TO THE NEXT PRODUCTION STAGE WHEN THEY ARE NEEDED

THIS REDUCES WASTES AS ONLY WHAT THE IMMEDIATE CUSTOMER DEMANDS IS PRODUCED

7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

MINIMIZED SETUP TIMES

BECAUSE SMALL LOT SIZES ARE THE NORM, MACHINE SETUP TIMES
MUST BE QUICKLY ACCOMPLISHED

JIT AIMS FOR SINGLE DIGIT SETUP TIMES (LESS THAN 10 MINUTES)
OR 'ONE-TOUCH' SETUP

IT CAN BE DONE THROUGH BETTER PLANNING, PROCESS REDESIGN
AND PRODUCT REDESIGN

THIS REDUCES THE IDLE TIME OF BOTH MACHINES AND WORKERS

CONGRATULATIONS



7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

AIGPE

**FOCUSED
FACTORY
NETWORKS**

**GROUP
TECHNOLOGY**

**QUALITY
AT
SOURCE**

**JUST-IN-TIME
PRODUCTION**

**UNIFORM
PLANT
LOADING**

**KANBAN
PRODUCTION
CONTROL
SYSTEMS**

**MINIMIZED
SETUP TIMES**

NEXT SECTION

HOW DO SUPPLIERS & CUSTOMERS WORK TOGETHER USING JUST-IN-TIME?



SECTION INTRODUCTION HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

It includes short term and long term activities of marketing that has to do with the analysis of a company's situation and contribute to its objectives. The objectives will be based on how you gain sales by acquiring and keeping customers. A marketing strategy helps convey effective messages with the right mix of marketing approaches that will maximize your income and marketing activities.

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366 133
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LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

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SECTION INTRODUCTION

FOR JIT COMPANIES, IT IS COMMON TO HAVE VENDORS MAKE DELIVERIES ONCE OR TWICE A DAY

LATE OR POOR DELIVERY OF SUPPLIES WILL QUICKLY BRING THE JIT SYSTEM TO A HALT

HENCE, CUSTOMERS & SUPPLIERS NEED TO WORK TOGETHER TO ENSURE RELIABLE DELIVERY

IN THIS SECTION, YOU WILL LEARN

HOW SUPPLIERS AND CUSTOMERS CAN WORK TOGETHER?



HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

PART 01

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HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

COMPANIES NEED TO ALTER THEIR RELATIONSHIPS WITH THEIR SUPPLIERS TO FOLLOW JIT PRODUCTION SYSTEM

TO MAKE JIT SUCCESSFUL, A PARTNERSHIP HAS TO BE ESTABLISHED BETWEEN BUYERS & SUPPLIERS

**PRICE SHOULD NOT BE THE ONLY CRITERIA TO SELECT A SUPPLIER
QUALITY ASSURANCE AND RELIABLE SUPPLY ARE RELEVANT FACTOR FOR THE SELECTION OF A SUPPLIER**

FOCUS OF THE JIT SYSTEM REMAINS ON WASTE REDUCTION

HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

**FOCUS OF THE JIT SYSTEM REMAINS ON WASTE REDUCTION
THIS RESULTS IN:**

- **REDUCED INSPECTIONS**
- **MINIMIZED FREIGHT COST**
- **BOTH PAPERWORK AND SUPPLIER SELECTION COSTS ARE AVOIDED**

THE GOAL OF THIS CRITERION IS TO HAVE ONLY ONE SUPPLIER FOR EACH TYPE OF MATERIAL

QUALITY ASSURANCE IS AN IMPORTANT PREREQUISITE TO ESTABLISH A RELATIONSHIP WITH A COMPANY

HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

**SAFETY OR PROTECTIVE STOCKS ARE ELIMINATED
HENCE, DEFECTIVE MATERIALS CAN BRING THE PRODUCTION
SYSTEM TO HALT
THIS MAY CAUSE DELAY IN THE PRODUCT DELIVERY TO CUSTOMERS
QUALITY MATERIAL ENSURES:**

- **FINISHED GOODS AND SERVICES COMPLY WITH CLIENT SPECIFICATIONS**
 - **NOT EVEN A SINGLE PRODUCT UNDERPERFORMS**
- A SUPPLIER NEEDS TO SUPPLY THE MATERIAL IN THE RIGHT QUANTITY & AT THE CORRECT TIME**



HOW SUPPLIERS & CUSTOMERS WORK TOGETHER? PART 02

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HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

**COMPANIES FOLLOWING THE JIT SYSTEM SHOULD PURSUE THE
“ONE SUPPLIER PER PRODUCT” OBJECTIVE**

**JIT FIRMS SHOULD HELP THEIR SUPPLIERS MAKE THEIR
PRODUCTION PROCESS EFFICIENT AND DELIVER QUALITY PRODUCTS**

SUPPLIERS MIGHT NEED FINANCIAL AID FROM BUYERS

**IN SUCH CASES, YOU MAY PROVIDE FINANCIAL HELP TO YOUR
VENDORS TO KEEP SUPPLYING MATERIAL W/O INTERRUPTIONS**

**YOUR ORGANIZATION CAN FACILITATE SOME TECHNOLOGY
SYSTEMS TO EXCHANGE INFORMATION**

**LONG-TERM CONTRACTS HELPS AVOID PAPERWORK SEARCHING
FOR NEW BIDS AND BUILDS CONFIDENCE IN THE RELATIONSHIP**

HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

SELECTION OF A SUPPLIER AND THE RELATIONSHIP WITH IT IS IMPORTANT FOR THE SUCCESS OF A BUYER

FOR THE CUSTOMER:

- IT INCREASES CONTROL OVER PURCHASING ACTIVITIES**
- ELIMINATES INSPECTIONS AND**
- REDUCES PAPERWORK**

FOR THE SUPPLIER:

- IT INCREASES THE VOLUME OF BUSINESS AND**
- HELPS MEETING SCHEDULES CONSISTENTLY**



HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

PART 03

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HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

THERE ARE AT LEAST FOUR WAYS IN WHICH CUSTOMERS AND SUPPLIERS CAN WORK TOGETHER:

**SHARE
PRODUCTION
SCHEDULES
PROMPTLY**

**INCLUDE
SUPPLIERS IN THE
PRODUCT DESIGN**

**HELP SUPPLIERS
IMPROVE THEIR
PRODUCTION
METHODS**

**HAVE SPATIALLY
CLOSE FACILITIES**

HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

SHARE PRODUCTION SCHEDULES PROMPTLY

CUSTOMER AND SUPPLIER MUST SHARE PRODUCTION PLANS ON A REAL TIME BASIS

CUSTOMERS SHOULD NOTIFY THE SUPPLIER IMMEDIATELY OF ANY CHANGE IN THE SCHEDULED PRODUCTION VOLUME

INCLUDE SUPPLIERS IN THE PRODUCT DESIGN

THIS MAKES IT EASIER FOR THE SUPPLIERS TO MODIFY THEIR PRODUCTION DESIGN (IF REQUIRED)

AS A RESULT, COMPONENTS WILL BE EASIER TO PRODUCE WITH CONSISTENT QUALITY AT A LOWER COST

HOW SUPPLIERS & CUSTOMERS WORK TOGETHER?

HELP SUPPLIERS IMPROVE THEIR PRODUCTION METHODS

IT IS IN YOUR BEST INTEREST TO SHARE THE PRODUCTION EXPERTISE AND HELP SUPPLIERS IMPROVE THEIR SYSTEMS

MANY USERS OF JIT SYSTEMS MAKE TRANSFER OF TECHNOLOGY EXPLICIT IN THEIR CONTRACT

HAVE SPATIALLY CLOSE FACILITIES

LONG DISTANCE SUPPLIES RESULT IN UNCERTAINTY IN THE DELIVERY OF PRODUCTS OR SERVICES

ALSO RESULTS IN LONGER SHIPPING CYCLE TIMES

YOU MAY LOCATE MAJOR SUPPLIERS IN THE VICINITY

CONGRATULATIONS



IN THIS SECTION, YOU LEARNT

**THE DETAILS TO MAKE LONG-LASTING AND FRUITFUL
RELATIONSHIP WITH YOUR SUPPLIERS**

**WHAT, WHERE, WHEN AND HOW'S OF THIS CRITICAL
RELATIONSHIP IN THOROUGH DETAIL**

NEXT SECTION

WHAT ARE THE APPLICATIONS OF JUST-IN-TIME IN SERVICE INDUSTRY?



SECTION INTRODUCTION APPLICATIONS OF JIT IN SERVICE INDUSTRY?

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KEY QUESTION:

ALTHOUGH JUST-IN-TIME PRODUCTION IS EFFECTIVE IN MANUFACTURING SYSTEMS, IT HAS ALSO BEEN APPLIED EFFECTIVELY IN THE SERVICES SECTOR

JUST-IN-TIME PRINCIPLES ARE BEING USED WIDELY IN THE RETAIL INDUSTRY BY COMPANIES SUCH AS WAL-MART, HOME DEPOT AND K-MART

HOW IS JUST-IN-TIME BEING UTILIZED IN THE SERVICE SECTOR?



WHAT ARE THE APPLICATIONS OF JIT IN SERVICE? PART 01

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APPLICATIONS OF JIT IN SERVICE – PART 01

**ORGANIZE
PROBLEM-
SOLVING GROUPS**

**UPGRADE
HOUSEKEEPING**

**UPGRADE
QUALITY**

**LEVEL THE
FACILITY LOAD**

**ELIMINATE
UNNECESSARY
ACTIVITIES**

**INTRODUCE
DEMAND-PULL
SCHEDULING**

APPLICATIONS OF JIT IN SERVICE – PART 01

ORGANIZE PROBLEM-SOLVING GROUPS

**QUALITY CIRCLES CAN BE USED AS A PART OF STRATEGY TO
IMPLEMENT NEW SERVICE PRACTICES**

**DEVELOPING PROBLEM-SOLVING GROUPS IS SIMILAR TO THE
CONCEPT OF QUALITY CIRCLES**

**THESE GROUPS CAN LOOK FOR SOLUTIONS TO THE PROBLEMS IN
THE SERVICE DELIVERY SYSTEM**

APPLICATIONS OF JIT IN SERVICE – PART 01

UPGRADE HOUSEKEEPING

**ONLY NECESSARY ITEMS SHOULD BE KEPT IN THE WORK AREA
EVERYTHING REQUIRED IS KEPT IN A STATE OF READINESS
HOUSEKEEPING REDUCES THE TIME TAKEN TO COMPLETE AN ACTIVITY**

UPGRADE QUALITY

**DEVELOPING RELIABLE PROCESS CAPABILITIES IS A WAY TO IMPROVE QUALITY
THE SERVICE ORGANIZATION SHOULD CONTINUOUSLY LOOK FOR WAYS TO IMPROVE THE QUALITY OF THEIR PROCESS**



WHAT ARE THE APPLICATIONS OF JIT IN SERVICE? PART 02

M T W T F S

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APPLICATIONS OF JIT IN SERVICE – PART 02

LEVEL THE FACILITY LOAD

FIRMS SYNCHRONIZE PRODUCTION WITH DEMAND

FOR EXAMPLE:

- **INTERNET SERVICE PROVIDERS (ISPS) CHARGE LESS IN THE NIGHT FOR THE INTERNET ACCESS**
- **THE ISP'S EXPERIENCE HEAVY LOADS DURING THE EVENINGS WHEN OFFICE GOERS AND THEIR CHILDREN RETURN HOME**
- **SO THEY OFFER SCHEMES WITH REDUCED RATES FOR BROWSING AT NIGHT**

APPLICATIONS OF JIT IN SERVICE – PART 02

ELIMINATE UNNECESSARY ACTIVITIES

A STEP THAT DOES NOT ADD VALUE SHOULD BE ELIMINATED

EXAMPLE: DEVELOPING A CHECKLIST OF EQUIPMENT REQUIRED BEFORE A SURGERY CAN REDUCE THE WAIT TIME IN STARTING A SURGERY

INTRODUCE DEMAND-PULL SCHEDULING

DUE TO THE NATURE OF SERVICE AND CONSUMPTION, DEMAND-PULL SCHEDULING IS NECESSARY FOR A SERVICE BUSINESS

CONGRATULATIONS



APPLICATIONS OF JIT IN SERVICE

**ORGANIZE
PROBLEM-
SOLVING GROUPS**

**UPGRADE
HOUSEKEEPING**

**UPGRADE
QUALITY**

**LEVEL THE
FACILITY LOAD**

**ELIMINATE
UNNECESSARY
ACTIVITIES**

**INTRODUCE
DEMAND-PULL
SCHEDULING**

NEXT SECTION

WHAT ARE THE BENEFITS OF JUST-IN-TIME PRODUCTION SYSTEM FOR ORGANIZATIONS?



SECTION INTRODUCTION BENEFITS OF JIT FOR ORGANIZATIONS

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IN THIS SECTION, YOU WILL LEARN

**THE BENEFITS THAT A COMPANY CAN DERIVE WITH THE HELP OF
THE JIT PRODUCTION SYSTEM?**



WHAT ARE THE BENFITS OF JIT FOR ORGANIZATIONS?

PART 01

BENEFITS OF JIT FOR ORGANIZATIONS – PART 01

FLEXIBILITY

**WASTE
ELIMINATION**

**REDUCE THE
SETUP TIME**

**SMALL
LOT SIZES**

BENEFITS OF JIT FOR ORGANIZATIONS – PART 01

FLEXIBILITY

THE JIT SYSTEM PROVIDES GREATER FLEXIBILITY IN THE PRODUCTION PROCESS

INVENTORY LEVELS ARE ALWAYS KEPT AT MINIMUM LEVEL HENCE, IT BECOMES EASIER FOR COMPANIES TO SHIFT THEIR PRODUCTION BETWEEN PRODUCTS

**COMPANIES BECOME MORE RESPONSIVE TO THE MARKET
THE RESPONSE TIME ALSO DECREASES SIGNIFICANTLY**

BENEFITS OF JIT FOR ORGANIZATIONS – PART 01

WASTE ELIMINATION

ACTIVITIES THAT DO NOT ADD VALUE TO THE PRODUCTION PROCESS IS WASTE

TOYOTA IDENTIFIES SEVEN TYPES OF WASTE:

OVERPRODUCTION

WAITING TIME

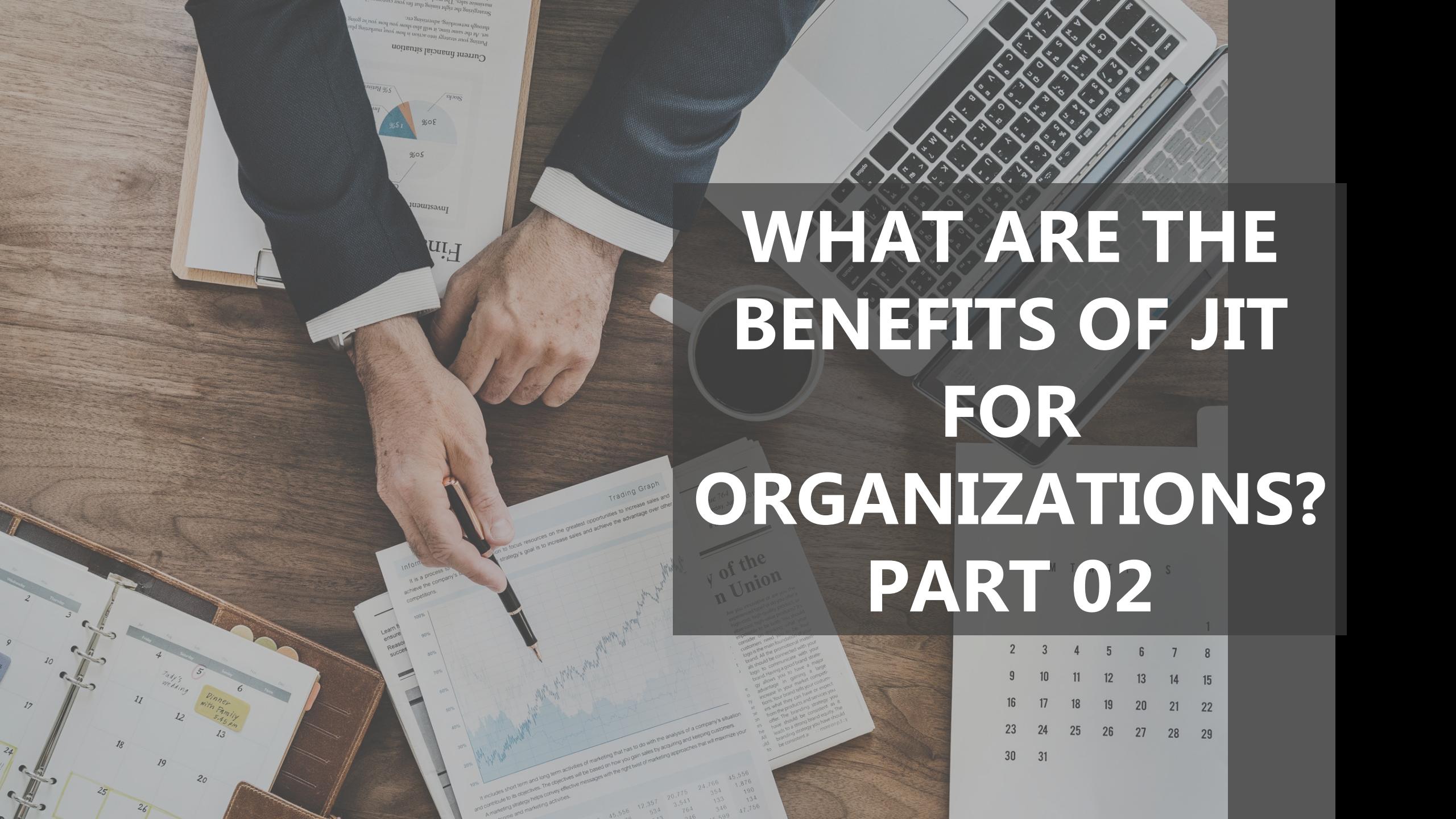
TRANSPORT

INVENTORY

MOTION

DEFECTIVE GOODS

OVERPROCESSING



WHAT ARE THE BENEFITS OF JIT FOR ORGANIZATIONS? PART 02

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BENEFITS OF JIT FOR ORGANIZATIONS – PART 02

REDUCING THE SETUP TIME

THE SYSTEM MUST RESPOND TO FREQUENTLY CHANGING DEMANDS AND MACHINE CHANGEOVERS

SUCCESS DEPENDS ON COMMITMENT OF BOTH THE SHOP FLOOR WORKERS AND THEIR SUPERVISORS

SMALL LOT SIZE

WE HAVE ALREADY DISCUSSED SMALL LOT SIZES AT LENGTH
THIS IS ONE OF THE KEY BENEFITS OF JUST-IN-TIME FOR ORGANIZATIONS

CONGRATULATIONS



BENEFITS OF JIT FOR ORGANIZATIONS – PART 01

FLEXIBILITY

**WASTE
ELIMINATION**

**REDUCE THE
SETUP TIME**

**SMALL
LOT SIZES**

NEXT SECTION

COURSE CONCLUSION



COURSE CONCLUSION & SUMMARY

M T W T F S S

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

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Section Conclusion	Section Conclusion	Section Conclusion	Section Conclusion	Section Conclusion	
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WHAT IS JUST-IN-TIME?

A PLANNING SYSTEM FOR PROCESSES THAT MINIMIZES THE AVAILABILITY OF MATERIAL INVENTORIES TO ONLY:

- **WHAT?**
- **WHEN? AND**
- **HOW MUCH IS STRICTLY NECESSARY?**

IS AN INTEGRATED SET OF ACTIVITIES DESIGNED TO ACHIEVE HIGH-VOLUME PRODUCTION USING:

- **MINIMAL INVENTORIES, RAW MATERIALS**
- **WORK-IN PROCESS, FINISHED GOODS, AND**
- **OTHER CONSUMABLE GOODS**

WHAT IS JUST-IN-TIME?

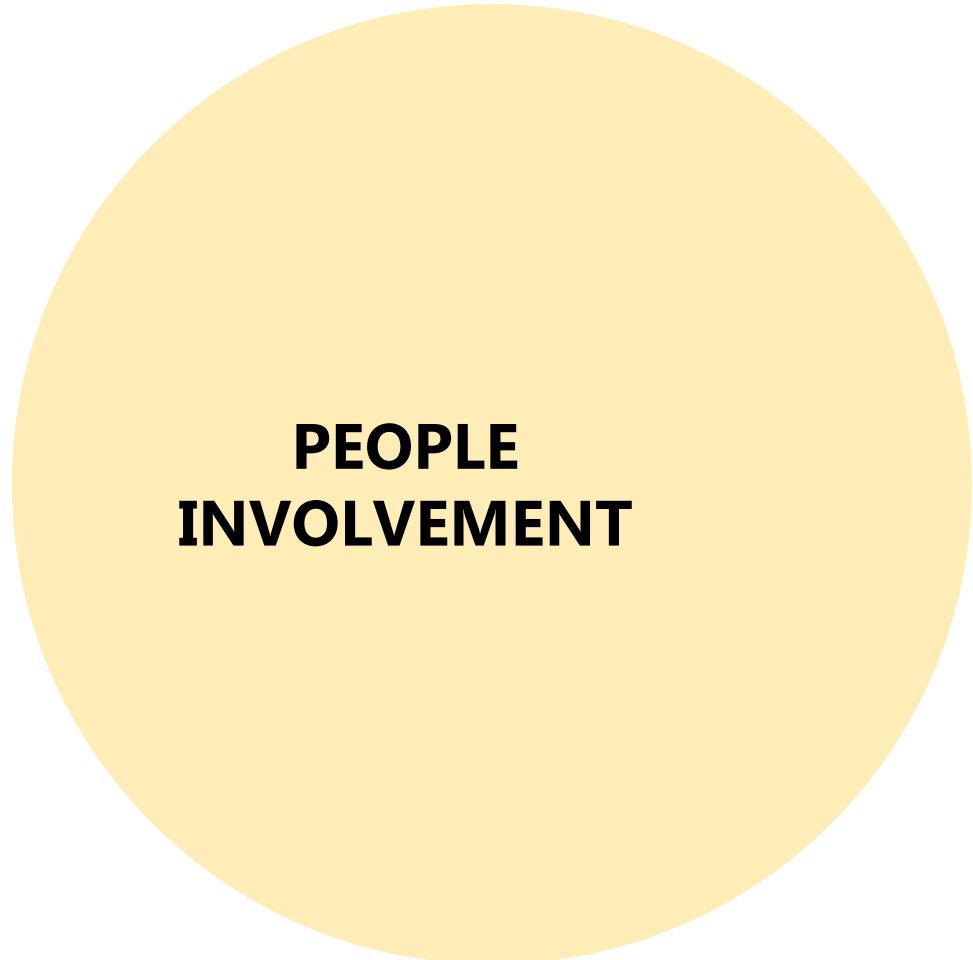
**DEVELOPED BY TAIICHI OHNO & ASSOCIATES AT TOYOTA
IS A KEY PILLAR OF TOYOTA PRODUCTION SYSTEM (TPS)**

LEAN MASTERCLASS: JUST-IN-TIME SPECIALIZATION

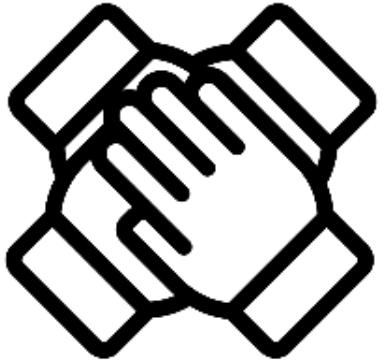
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Section Conclusion	Section Conclusion	Section Conclusion	Section Conclusion	Section Conclusion	
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TWO COMPONENTS OF JUST-IN-TIME



3 KEY ELEMENTS OF PEOPLE INVOLVEMENT



TEAMWORK

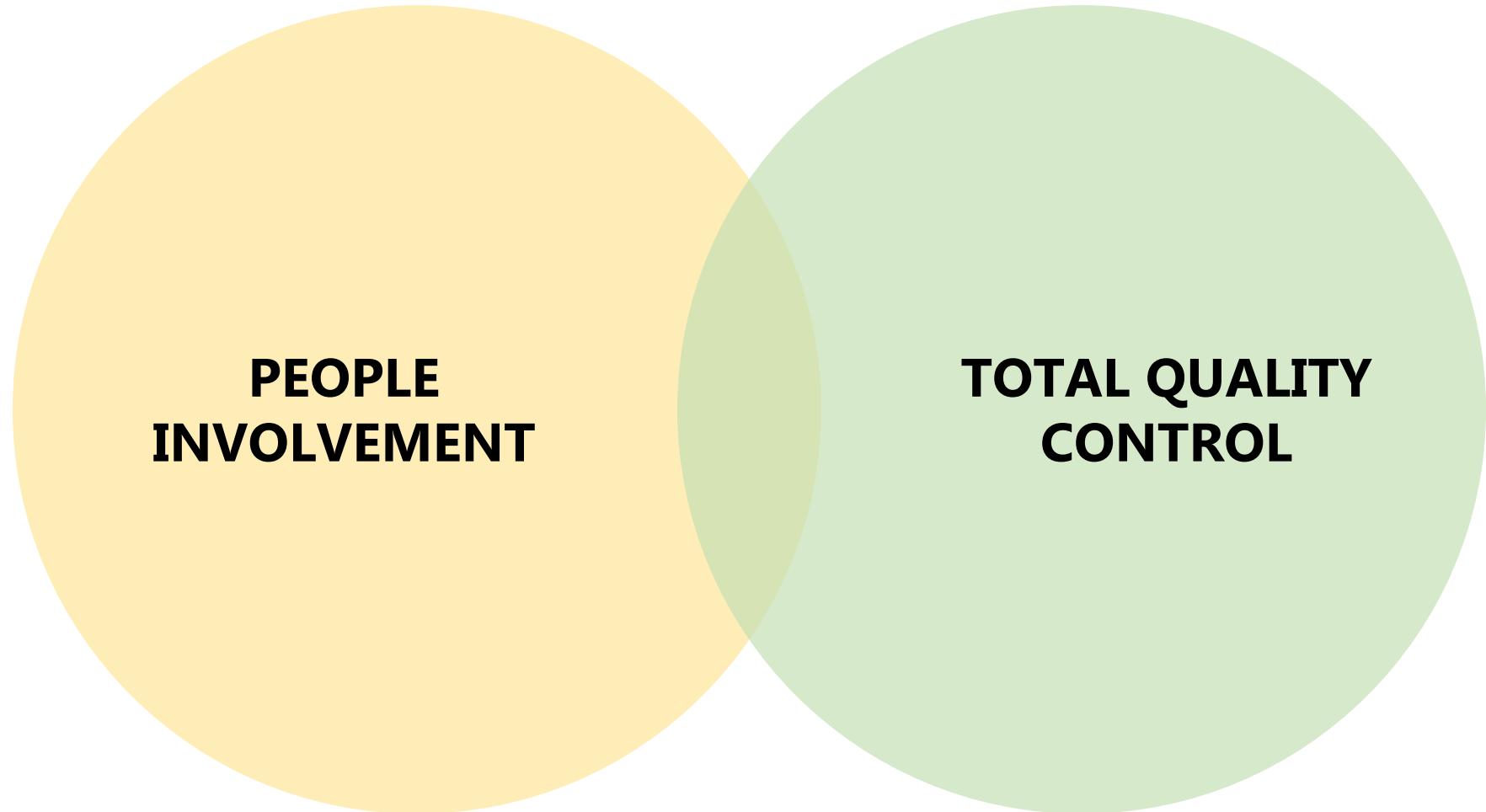


DISCIPLINE



**SUPPLIER
INVOLVEMENT**

TWO COMPONENTS OF JUST-IN-TIME



CONCEPT OF IMMEDIATE CUSTOMER

EACH WORKER CONSIDERS THE NEXT WORKER (WHO CONTINUES THE PROCESS OF PRODUCTION) AS A CUSTOMER

IT IS THE RESPONSIBILITY OF THE WORKER TO ENSURE THE PRODUCT MEETS SPECIFICATIONS AND QUALITY REQUIREMENTS

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WHAT ARE THE CHARACTERISTICS OF JIT? PART 01

CHARACTERISTICS OF A JIT SYSTEM:

**UNIFORM
WORKSTATION
LOADS**

**SMALL
LOT
SIZES**

**CLOSER
SUPPLIER
TIES**

**MAINTENANCE
OF
HIGH QUALITY**

**QUICK &
ECONOMIC
SETUPS**

**FLEXIBLE
FACILITIES &
MULTI-SKILLED
WORKFORCE**

**PREVENTIVE
MAINTENANCE**

**CONTINUOUS
IMPROVEMENT**

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7 HIGH-LEVEL STEPS TO MAKE JIT SUCCESSFUL:

**STABILIZE AND LEVEL
THE MASTER
PRODUCTION
SCHEDULE**

**REDUCE OR ELIMINATE
SETUP TIMES**

**REDUCE LOT SIZES
(MANUFACTURING
AND PURCHASE)**

**REDUCE LEAD TIMES
(PRODUCTION AND
DELIVERY)**

**USE IDLE TIME FOR
PREVENTIVE
MAINTENANCE**

**CREATE A FLEXIBLE
WORKFORCE**

**REQUIRE SUPPLIER
QUALITY ASSURANCE
AND IMPLEMENT A
ZERO DEFECT QUALITY
PROGRAM**

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7 KEY ELEMENTS THAT ADDRESS ELIMINATION OF WASTE

AIGPE

**FOCUSED
FACTORY
NETWORKS**

**GROUP
TECHNOLOGY**

**QUALITY
AT
SOURCE**

**JUST-IN-TIME
PRODUCTION**

**UNIFORM
PLANT
LOADING**

**KANBAN
PRODUCTION
CONTROL
SYSTEMS**

**MINIMIZED
SETUP TIMES**

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APPLICATIONS OF JIT IN SERVICE

**ORGANIZE
PROBLEM-
SOLVING GROUPS**

**UPGRADE
HOUSEKEEPING**

**UPGRADE
QUALITY**

**LEVEL THE
FACILITY LOAD**

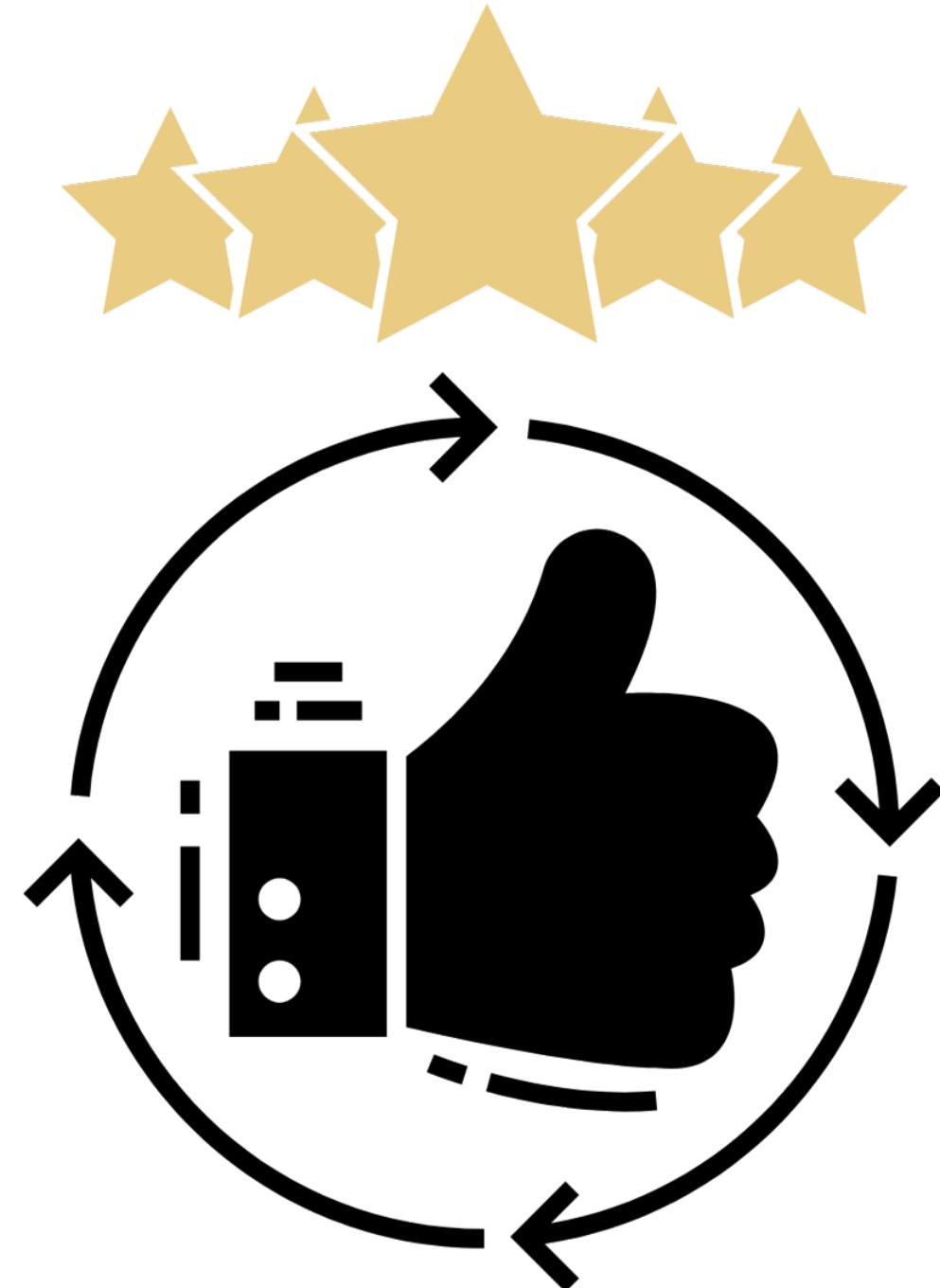
**ELIMINATE
UNNECESSARY
ACTIVITIES**

**INTRODUCE
DEMAND-PULL
SCHEDULING**

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KEEP LEARNING AND KEEP GROWING