



**IMPROVE ON-TIME
ARRIVAL RATE
(MATRIX CORP.)**



IMPROVE THE ON-TIME OFFICE ARRIVAL RATE

DEFINE

PROBLEM STATEMENT:

In the past 15 weeks, our on-time arrival rate is 10% i.e. over 90% of employees working at Matrix Corp. are arriving late to work. The scheduled work hours are from 9:00 am to 5:30 pm, however, employees are late by over 2 to 3 hours on an average each day. This slashes their productivity by 48% and negatively impacts their morale. This also has a major impact on the customers of Matrix Corp as they are unable to meet customer demands.

GOAL STATEMENT:

Improve the on-time arrival rate from 10% to 75% for employees of Matrix Corp. by June 2018.

PROJECT SCOPE:

This project applies to all level of employees and vendors located at Matrix Corp, 1 Square Building, Piccadilly, Manchester

Out of Scope: Any employee or vendor of Matrix Corp. working from home OR any other location

PROJECT TEAM:

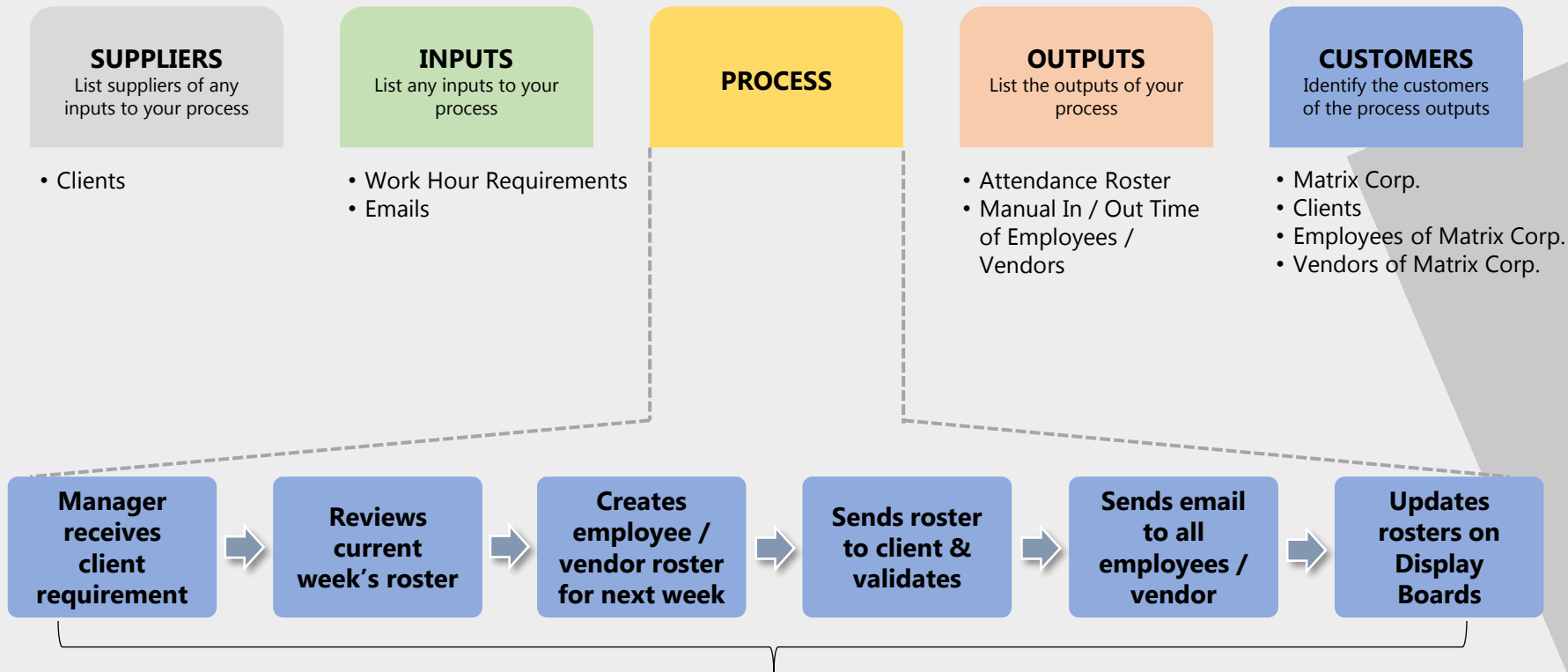
Project Champion: Sean Hirsch
Master Black Belt: Natalie Minghella
Black Belt: Anne Taylor
Green Belt: Skyler Kinnaman
Yellow Belt: Gosha Kutsenko
Project Team: Maria Garcia, Michael Smith, Mary Rodriguez & Robert Hernandez

MILESTONES:

PHASE	PLANNED START DATE	PLANNED END DATE
DEFINE	15-APR	21-APR
MEASURE	22-APR	15-MAY
ANALYZE	16-MAY	22-JUN
IMPROVE	23-JUN	15-JUL
CONTROL	16-AUG	19-SEP

SIPOC: END TO END ROSTER CREATION PROCESS

DEFINE



Attendance Rostering is a Weekly Activity

UNIT, DEFECT, OPPORTUNITY FOR ERROR & SIGMA VALUE

MEASURE

Unit: Any employee arriving to Matrix Corp. office on any given day

Defect: Any employee arriving to Matrix Corp. office on any given day 15 minutes later than the scheduled time

Opportunity for Error (OFE): One day is one opportunity for error

Calculation of Sigma Value (DPMO Method)

The Quality Auditors captured the late arrival data of employees. Of the 300 samples for past 3 months, they identify that employees were late 270 times.

No. of Units? 300

No. of Opportunities of Errors? 1

No. of Defects? 270

$$\text{DPO} = D / (O \times U) = 270 / (1 \times 300) = 0.9$$

$$\text{DPMO} = 1,000,000 \times \text{DPO} = 1,000,000 \times 0.9 = 900,000$$

SIGMA VALUE = 0.2 SIGMA

OUTPUT OF BRAINSTORMING EXERCISE

1. No control; even supervisors get late
2. Traffic
3. Governance Issue
4. Employees fail to read display board
5. Flat tire of the car
6. Supervision issue
7. Feedback not given to employees
8. Employees fail to read emails
9. Bad weather
10. Some employees work late at night
11. Weak monitoring mechanism
12. No incentive to come to office on time
13. Company is too employee friendly
14. Uninteresting work
15. Manual entry & exit notification
16. Lack of bonding with the organization
17. No clear career path
18. Disciplinary issues

FISHBONE CATEGORIES

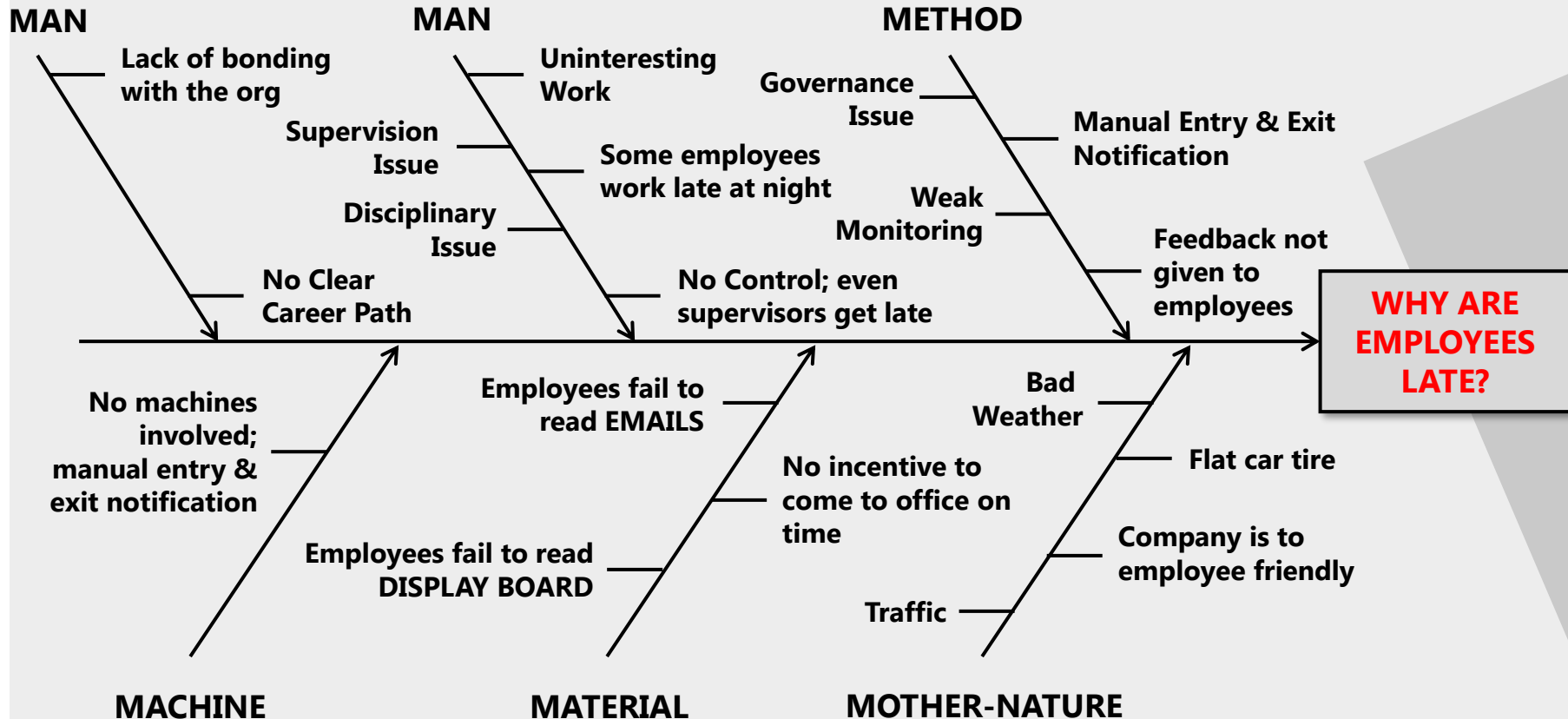
BRAINSTORMING OUTPUT IS CATEGORIZED INTO 5M'S

Mother Nature	Man	Method	Material	Machine
Traffic	No control; even supervisors get late	Governance issue	Employees fail to read display board	No machines involved - manual entry & exit notification
Flat Tyre of the car	Supervision issue	Feedback not given to employee	Employees fail to read emails	
Bad weather	Disciplinary issue	Weak monitoring mechanism	No incentive to come to office on time	
Company is too employee friendly	Some employees work late at night	Manual entry & exit notification	-	
-	Uninteresting work	-	-	
-	Lack of bonding with the company	-	-	
-	No clear career path	-	-	

FISHBONE DIAGRAM

FISHBONE DIAGRAM CREATED BASED
ON THE 5M CATEGORIES

ANALYZE



5 WHY ANALYSIS (PART 01)

- 1

Why are employees late?

Because there are Disciplinary issues
- 2

Where are there disciplinary issues?

Because there's lack of bonding with work
- 3

Why is there lack of bonding with work?

Because work is uninteresting
- 4

Why is work uninteresting?

Because there's no incentive to come to office on-time
- 5

Why is there no incentive to come to office on-time?

Because the incentive policy was last updated in 2002; has not been revised since then

5 WHY ANALYSIS (PART 02)

- 1** Why are employees late? **Because there are Disciplinary issues**

- 2** Where are there disciplinary issues? **Because there is no governance**

- 3** Why is there no governance? **Because even supervisors get late**

- 4** Why do even supervisors get late? **Because the monitoring system is weak**

- 5** Why is the monitoring system weak? **Because of manual entry & exit notification (there is no swipe card entry nor biometrics)**

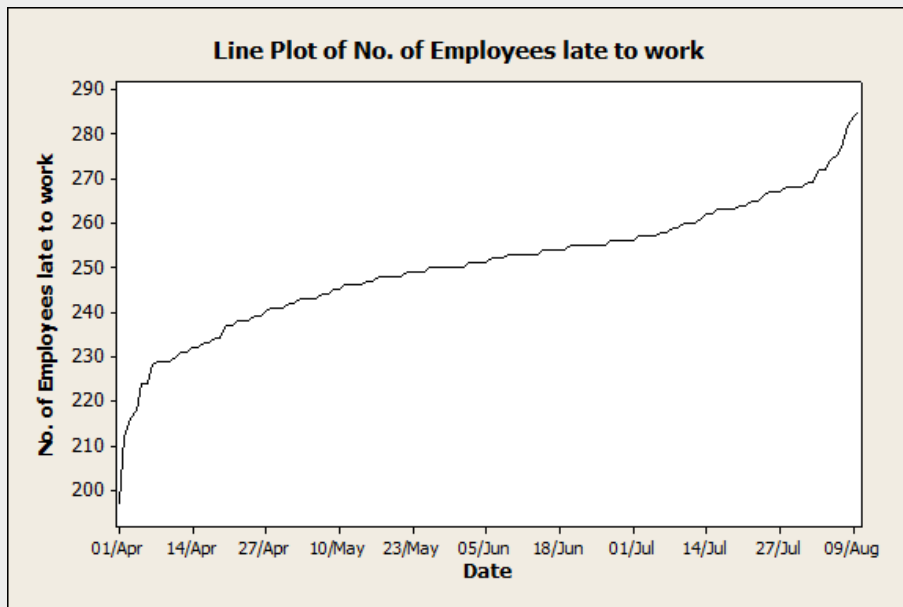
CONTROL IMPACT MATRIX

ANALYZE

Control \ Impact	High	Medium	Low
In Control	<ul style="list-style-type: none">• Lack of Bonding with the Organization• No Clear Career Path• Supervision Issue• Disciplinary Issue• Uninteresting Work• No Control; Even Supervisors are Late• Governance Issue• Weak Monitoring• Manual Entry/Exit Notification• Feedback not given to employees• No incentive to come to office on time• Employees Fail to read display board• Employees Fail to read emails	<ul style="list-style-type: none">• Company is too employee friendly	<ul style="list-style-type: none">• Some employees work late at night
Out of Control	<ul style="list-style-type: none">• Traffic	<ul style="list-style-type: none">• Bad Weather	<ul style="list-style-type: none">• Flat Car Tire

ANALYZE: LINE CHART

ANALYZE



DATA FACTS:

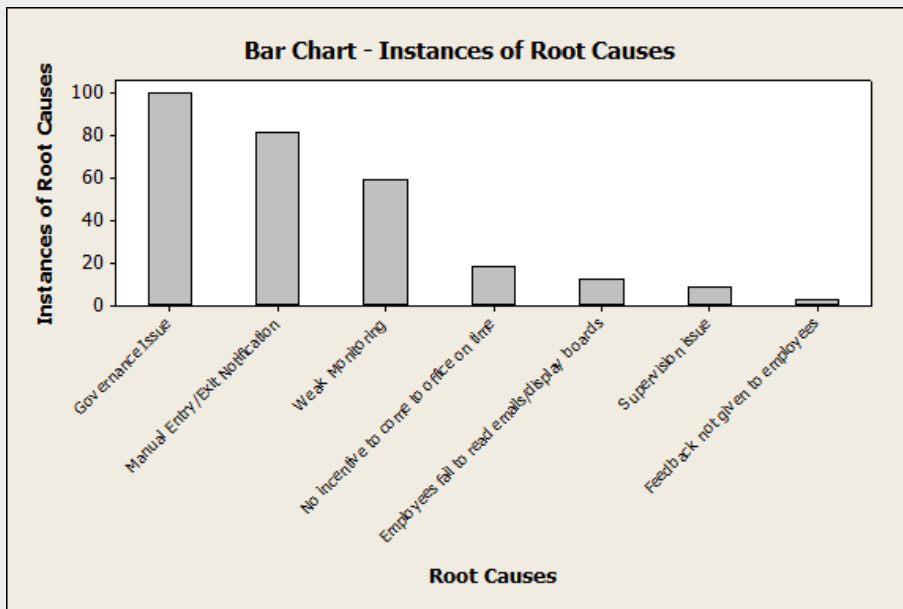
- **134 DATA POINTS FROM 1ST APR TO 10TH AUG**
- **DATA REPRESENTS NO. OF PEOPLE LATE TO WORK EACH DAY**

INFERENCE:

- **A CONSISTENTLY INCREASING TREND OF LATE ARRIVALS OBSERVED**
- **LATE ARRIVALS INCREASED FROM 197 TO 285 BETWEEN APR TO AUG**

ANALYZE: BAR CHART

ANALYZE



DATA FACTS:

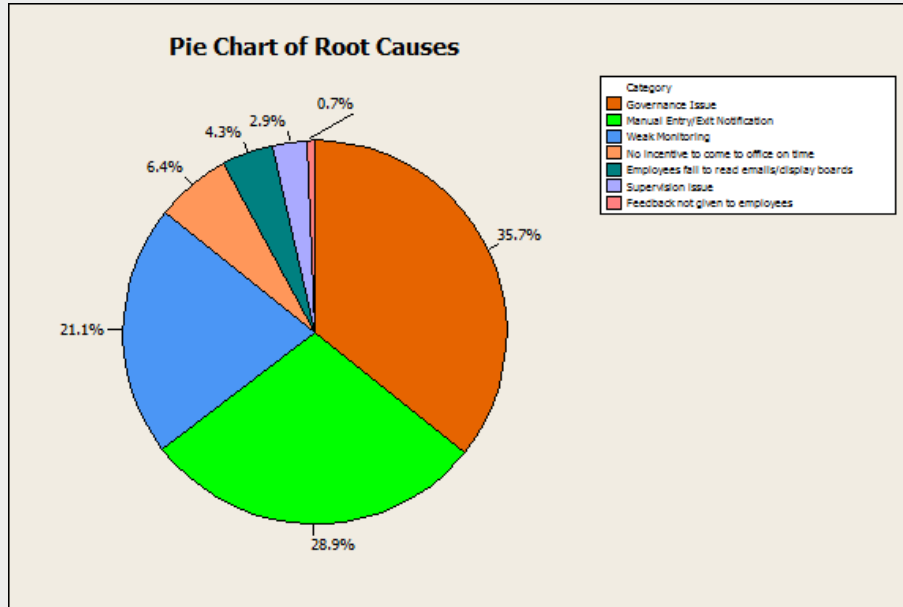
- **TOTAL COUNT: 280 INSTANCES**
- **TOP 7 ROOT CAUSES IDENTIFIED**

INFERENCE:

- **GOVERNANCE ISSUE, MANUAL ENTRY/EXIST NOTIFICATION & WEAK MONITORING IDENTIFIED AS TOP 3 ROOT CAUSES OUT OF 7**

ANALYZE: PIE CHART

ANALYZE



DATA FACTS:

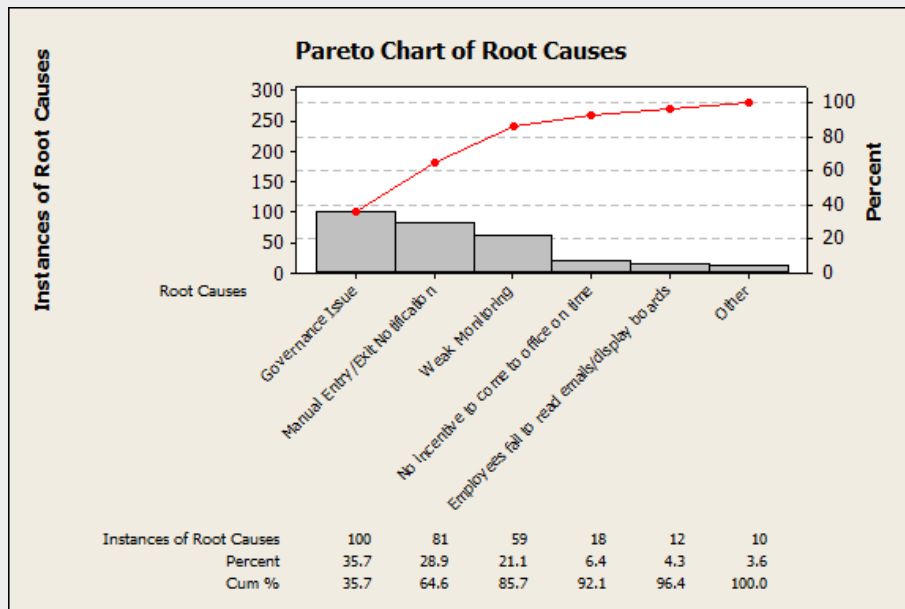
- **TOTAL COUNT: 280 INSTANCES**
- **TOP 7 ROOT CAUSES IDENTIFIED**

INFERENCE:

- **GOVERNANCE ISSUE (35.7%), MANUAL ENTRY/EXIST NOTIFICATION (28.9%) & WEAK MONITORING (21.1%) ARE TOP 3 CONTRIBUTORS**

ANALYZE: PARETO CHART

ANALYZE



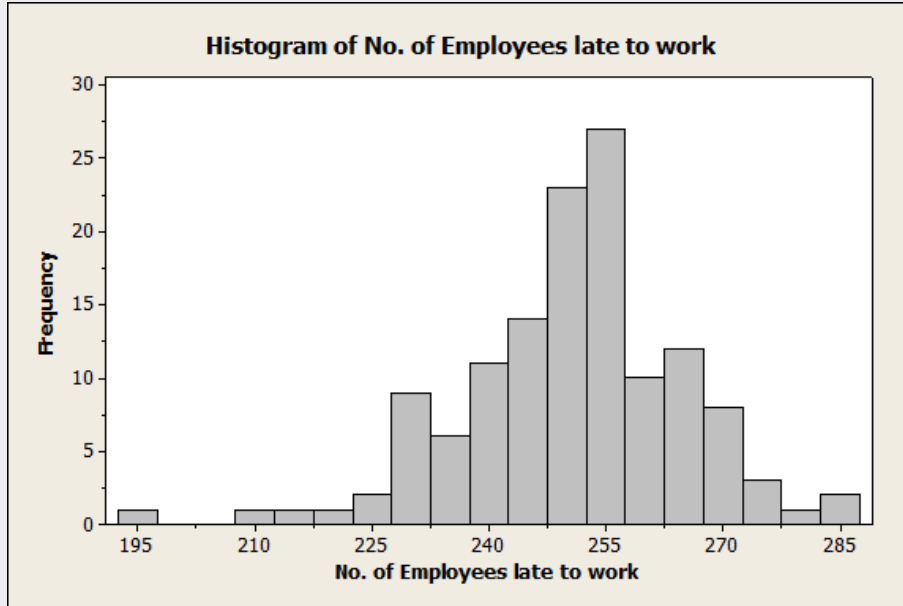
DATA FACTS:

- **TOTAL COUNT: 280 INSTANCES**
- **TOP 7 ROOT CAUSES IDENTIFIED**

INFERENCE:

- **GOVERNANCE ISSUE, MANUAL ENTRY/EXIST NOTIFICATION & WEAK MONITORING CONTRIBUTE TO 85.7% OF TOTAL INSTANCES**

ANALYZE: HISTOGRAM



DATA FACTS:

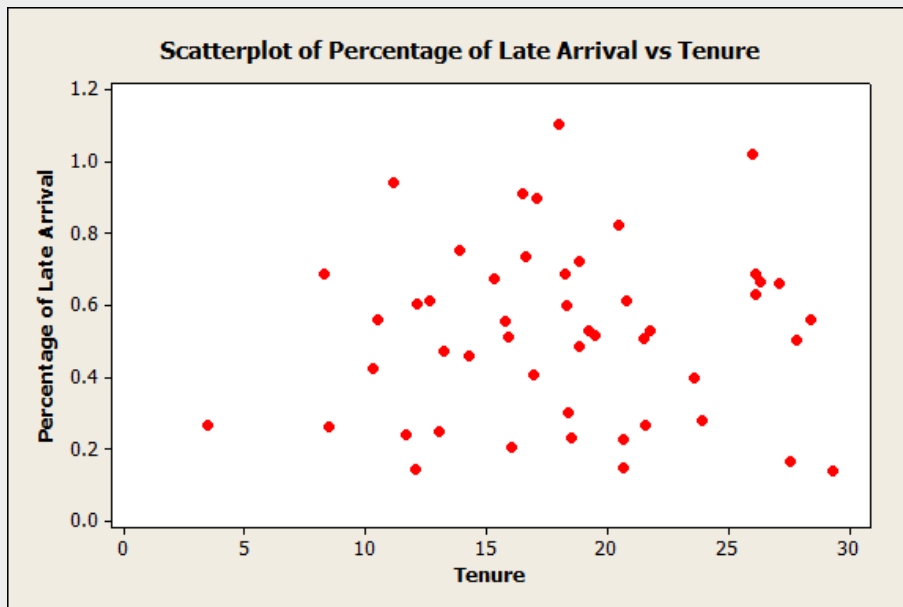
- **134 DATA POINTS FROM 1ST APR TO 10TH AUG**
- **DATA REPRESENTS NO. OF PEOPLE LATE TO WORK EACH DAY**

INFERENCE:

- **ABOUT 240 TO 270 EMPLOYEES ARE CONSISTENTLY LATE**
- **ONLY A FEW INSTANCES OF DAYS LESSER THAN 225 LATE ARRIVALS**
- **ALSO LESS INSTANCES OF DAYS GREATER THAN 270 LATE ARRIVALS**

ANALYZE: SCATTERPLOT

ANALYZE



DATA FACTS:

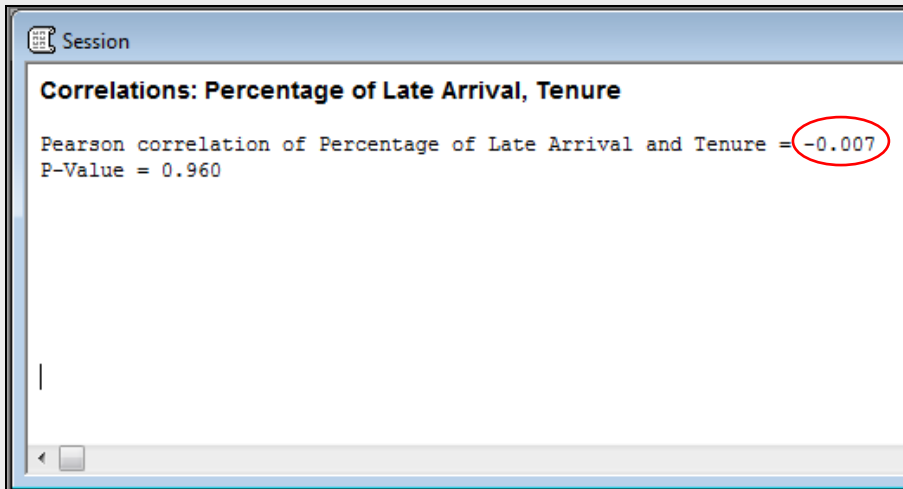
- **TOTAL COUNT: SAMPLE OF 50 EMPLOYEES**
- **COMPARISON OF EMPLOYEE WISE LATE ARRIVAL % AND THEIR TENURE**

INFERENCE:

- **THE DIAGRAM LOOKS SCATTERED. THERE IS NO CORRELATION BETWEEN TENURE & PERCENTAGE OF LATE ARRIVALS.**

ANALYZE: CORRELATION ANALYSIS

ANALYZE



DATA FACTS:

- **TOTAL COUNT: SAMPLE OF 50 EMPLOYEES**
- **COMPARISON OF EMPLOYEE WISE LATE ARRIVAL % AND THEIR TENURE**

INFERENCE:

- **PEARSON'S CORRELATION COEFFICIENT VALUE IS -0.007**
- **IT IS VERY CLOSE TO 0**
- **THIS CONFIRMS THAT THERE IS NO CORRELATION BETWEEN TENURE AND PERCENTAGE OF LATE ARRIVALS**

POTENTIAL SOLUTIONS:

1. **ADD A BIOMETRIC OR AN AUTOMATED SWIPE IN/OUT MECHANISM**
2. **CREATE A ROBUST GOVERNANCE FROM AN AUTOMATED MECHANISM TO TRACK, MONITOR AND REPORT LATE ARRIVALS**
3. **START SMS SERVICE TO ALL EMPLOYEES WITH THEIR ROSTER DETAILS**
4. **BUILD A COMPANY APP TO BE INSTALLED ON ALL EMPLOYEES/VENDORS ANDROID/IOS PHONES TO CIRCULATE ROSTERS**
5. **ENSURE ALL SUPERVISORS COME ON TIME**
6. **PROVIDE TRAINING TO ALL SUPERVISORS TO GIVE FEEDBACK IF THEIR TEAM MEMBERS ARRIVE LATE**
7. **RUN A SHORT TERM INCENTIVE PLAN FOR EMPLOYEES / VENDORS TO COME ON TIME**
8. **INVOLVE HR AND CREATE A CAREER PATH FOR ALL EMPLOYEES**

POTENTIAL SOLUTIONS (CONTINUED):

9. **MAKE WORK INTERESTING AND CHALLENGING**
10. **ENGAGE TEAM MEMBERS IN TEAM BONDING ACTIVITIES**
11. **PROVIDE RECOGNITION TO THOSE EMPLOYEES WHO ARE CONSISTENTLY ON TIME**
12. **PROVIDE FREE CAB SERVICES TO ALL EMPLOYEES / VENDORS**
13. **CONNECT WITH LOCAL GOVERNMENT AUTHORITIES TO IMPROVE THE TRAFFIC SITUATION OF THE CITY**
14. **PROVIDE EMPLOYEES A 24 X 7 CAR TIRE REPAIR SERVICE IN THE CITY**
15. **PROVIDE FREE MOVIE TICKETS OR FREE RESORT PASSES AS A REWARD TO CONSISTENTLY BE ON-TIME**

SCREEN AGAINST “MUSTS” AND “WANTS”

MUSTS

- **ADD A BIOMETRIC OR AN AUTOMATED SWIPE IN/OUT MECHANISM**
- **CREATE A ROBUST GOVERNANCE FROM AN AUTOMATED MECHANISM TO TRACK, MONITOR AND REPORT LATE ARRIVALS**
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WANTS

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SCREEN AGAINST “MUSTS” AND “WANTS”

MUSTS

- **RUN A SHORT TERM INCENTIVE PLAN FOR EMPLOYEES / VENDORS TO COME ON TIME**
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WANTS

- **PROVIDE FREE MOVIE TICKETS OR FREE RESORT PASSES AS A REWARD TO CONSISTENTLY BE ON-TIME**

PROCESS CAPABILITY RE-ANALYSIS

IMPROVE

Unit: Any employee arriving to Matrix Corp. office on any given day

Defect: Any employee arriving to Matrix Corp. office on any given day 15 minutes later than the scheduled time

Opportunity for Error (OFE): One day is one opportunity for error

Calculation of Sigma Value (DPMO Method)

The Quality Auditors captured the late arrival data of employees. Of the 300 samples for past 3 months, they identify that employees were late 270 times.

No. of Units? 300

No. of Opportunities of Errors? 1

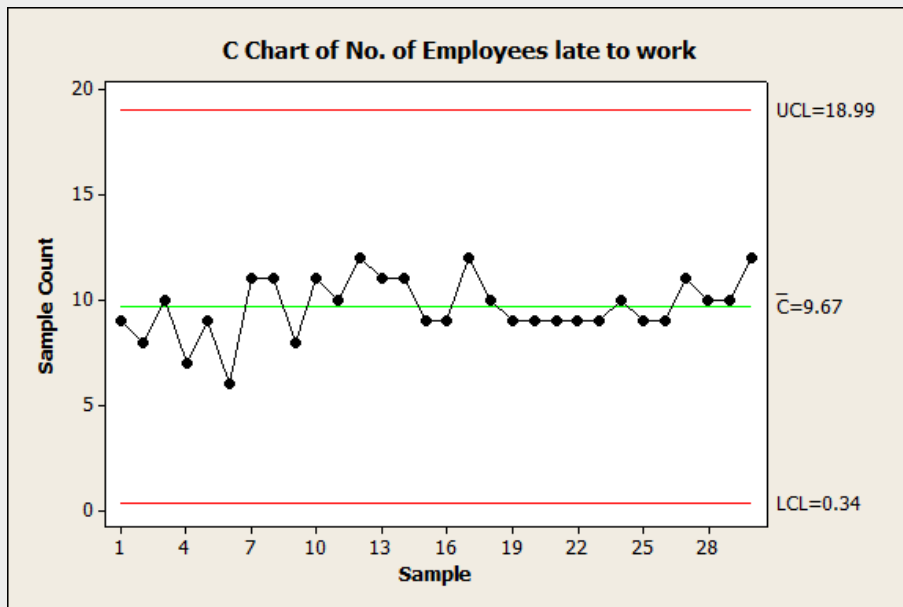
No. of Defects? 33

$$\text{DPO} = D / (O * U) = 270 / (1 * 300) = 0.11$$

$$\text{DPMO} = 1,000,000 * \text{DPO} = 1,000,000 * 0.11 = 110,000$$

SIGMA VALUE has improved from 0.2 SIGMA to 2.7 SIGMA

CONTROL CHART (C CHART)



DATA FACTS:

- 30 DATA POINTS FROM 1ST NOV TO 30TH NOV
- DATA REPRESENTS NO. OF PEOPLE LATE TO WORK EACH DAY

INFERENCE:

- EMPLOYEE LATE ARRIVAL NUMBERS ARE IN-CONTROL

CONTROL PLAN

CONTROL

Process		Method					Action	
			Sample					
Process Step	What is being Controlled?	How is it Measured?	Size	Frequency	Responsible Party	Where is it Recorded?	Response Plan	Responsible Party
Attendance Reports from automated systems are sent to all stakeholders	Attendance Tracking	Check if the report is sent everyday at 12:00 pm	1 Report	Every Day	MIS	MIS Tracker	Reach the attendance application vendor and log a ticket	MIS SPOC
Track if SMS service is working for all employees	SMS Service	Check if the roster sms is sent to all employees	1 Report	Every Thursday	MIS	MIS Tracker	Reach the sms application vendor and log a ticket	MIS SPOC
Track in-time of all supervisors	Login Time of all Supervisors	Check the automated attendance tracker for supervisors	1 Report	Every Day	Manager	Manager Folder	If the automated attendance tracker fails, approach the MIS team to log a ticket with the vendor	Manager
Provide training to all supervisors to give feedback if their team members arrive late	Supervisor action	Training attendance and training exam scores	1 Report	Every Month	Manager	Training Folder	If the training is not conducted, approach the training team and report the issue	Manager
Engage team members in team bonding activities	Team Bonding	Check if the monthly team outing budget is used by respective supervisors	1 Report	Every Month	Manager	Finance Reports	If the team outing budget is not used, seek an explanation from the supervisor	Manager

CASE STUDY

IMPROVING THE LATE ARRIVALS OF EMPLOYEES AT MATRIX CORP.

15th December

PROBLEM STATEMENT:

In the past 15 weeks, our on-time arrival rate is 10% i.e. over 90% of employees working at Matrix Corp. are arriving late to work. The scheduled work hours are for 8.5 hours, however, employees arrive late at work by over 2 to 3 hours on an average each day. This slashes their productivity by 48% and negatively impacts their morale. This also has a major impact on the customers of Matrix Corp as they are unable to meet customer demands.

PROJECT GOAL:

Improve the on-time arrival rate from 10% to 75% for employees of Matrix Corp. by June 2018.

PROJECT TEAM:

Project Champion: Sean Hirsch

Master Black Belt: Natalie Minghella

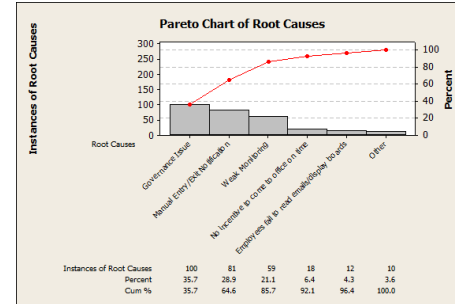
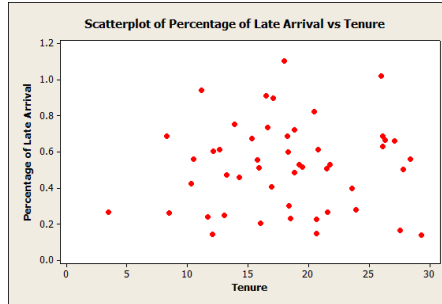
Black Belt: Anne Taylor

Green Belt: Skyler Kinnaman

Yellow Belt: Gosha Kutsenko

Project Team: Maria Garcia, Michael Smith, Mary Rodriguez & Robert Hernandez

ROOT CAUSES IDENTIFICATION:



ACTIONS TAKEN:

- Add a biometric or an automated swipe in/out mechanism
- Create a robust governance from an automated mechanism to track, monitor and report late arrivals
- Start sms service to all employees with their roster details
- Ensure all supervisors come on time
- Provide training to all supervisors to give feedback if their team members arrive late

PROJECT OUTCOME:

On-Time Arrival rate improved from 10% to > 90%

SIGMA VALUE OF THE LATE ARRIVAL RATE IMPROVED FROM 0.2 SIGMA TO 2.7 SIGMA