THE TUCKER COMPANY

IST659 M406 Project Milestone one & Two Integration

Summitted by:

Summitted to:

Corrective Action and Preventative Action Effectiveness

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Federal Aviation Administration is a concern on CAPA process effectiveness. Last year during their audit in the factory failure on verification has increased significantly. Top management is asking data on how well we are doing on our CAPA process. Opportunities come in different ways.

The content of this project is hypothetical for class project purposes only.

INTRODUCTION

Corrective Action Preventative Action (CAPA) Effectiveness is one of many tools used by many industries to minimize risk and potential reoccurrence cause. The key to effective corrective action is to have verifiable objective evidence in the Corrective Action Plan (CAP) and a robust plan. All verification must involve Measurement of Effectiveness (MoE). MoE is to weigh the proof of the root cause of the problem was removed or mitigated. The Tucker Company use CAPA to monitor compliance, to help ensure the program conform to the process requirements and Business Process Instructions. Also creating an environment strive steadily improving quality that benefits you, myself and all surround us.

This is intended to be used by the Regulatory Quality Oversight System (RQSO) and management who have received a notification from the Federal Aviation Administration (FAA) about the CAPA process.

A CAPA generates a Corrective Action Report (CAR) and gets visibility to the top management. During the verification process; when the process is compliant with the requirement, then quality assurance status the Corrective Action (CA) as PASS singed off the work plan. And when the process not met or deficient to the requirements, quality assurance status it to FAIL then signed off the plan. If CA fails this will be going back to the first cycle. Initiate a new Corrective Action Plan Action.

GUIDE TO CAPA EFFECTIVENESS

Audits - Is a method for verification, witnessing, desktop review and asking questions to the process performers to ensure an employee performing accordingly and match with Business Procedure Instruction (BPI) to the requirements.

Random Sampling - Is a procedure for sampling of a population in which taking a sample selection out of batch to eliminate biases.

Trend Analysis - Is a tool can be used to determine if the problem persists, how frequent or the fix was successful.

Monitoring -The real time observation to ensure performers are working to the process and if there is new process change are working to the latest revision.

Measurement of Effectiveness (MoE) - Is a threshold that will indicate the possible cause is eliminated or mitigated to Acceptable level.

BUSINESS CASE

During the Federal Aviation Audits number of findings has been significantly increased and during their follow-up, the significant amount of corrective action fails. FAA has a collaboration with Regulatory Quality System Oversight (RQSO) management. Federal Aviation Administration wants The Tucker Company to be transparent with them. The result of the meeting is the "PARTNERSHIP." During the collaboration, they agreed to share the CAPA effectiveness result for a year. The first step is to share the data from the previous year.

STAKEHOLDER

There are various staff resources and stakeholders that are involved. This case the External stakeholder is the Federal Aviation Administration (FAA). An internal stakeholder is the Regulatory Quality System Oversight (RQSO), Deputy Quality Manager (DQMR) a program quality who monitor the program compliance, Quality Managers and Employee.

STAKEHOLDER DESCRIPTION

Role	**Responsibility**
Federal Aviation Administration (FAA)	Government agencies who oversee the roles and regulations that can affect the public. The voice, eyes and the ears of the public.
Regulatory Quality System Oversight (RQSO)	Internal quality management who oversee the overall compliance performance of the company and oversee the regulatory requirements.
Deputy Quality Manager (DQMR)	Internal management group who monitor the program level, to ensure conformity to the requirements in the program level.
Quality Manager	Manager who manage the operation in respective work center or area
Quality Assurance	A quality personnel who stamp or sign off work instruction order/CA

GLOSAARY Refer to Appendix A

DATA QUESTIONS

1. What are the top 5 processes in terms of effectiveness?
2. Is CAPA have been adequately shared and included in management review?
3. Are there any tools used to track the favorable and unfavorable trend?

4. What is the employee turnover rate in manufacturing?
5. What is the confidence level of CAPA Effectiveness?

MODELS

Entities

The Tucker Company is relational data. Each entity ensures that the key in a table is unique and entity type corresponds to one or more tables.

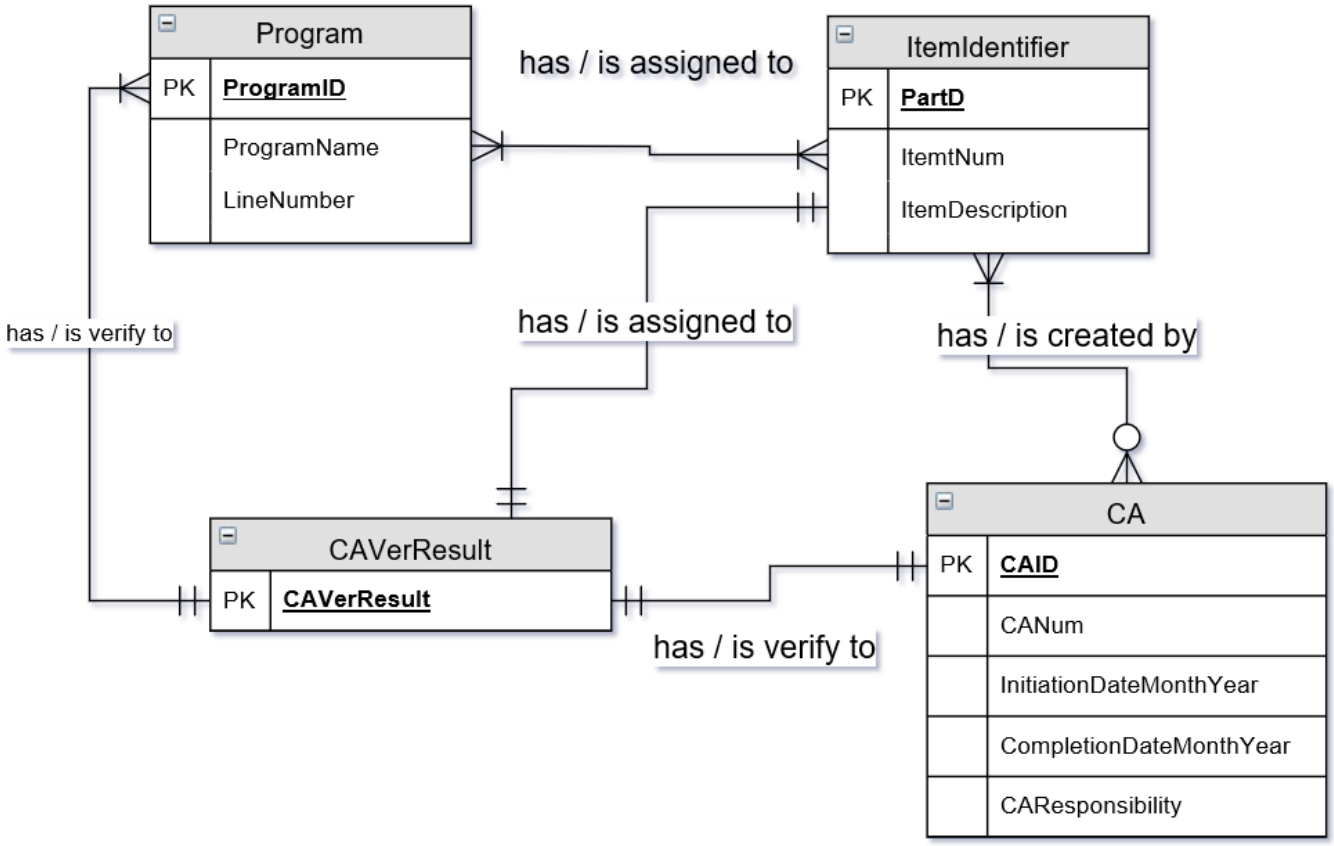
Relations

The Tucker Company own airplane manufacturing. All data are relational data. Attribute contains unique and points to another attribute it contains a unique instance of a data or key. Each table has a unique primary key which identifies the information in each table. Data have many to many relationships and use a bridge table to solve many to many relationships.

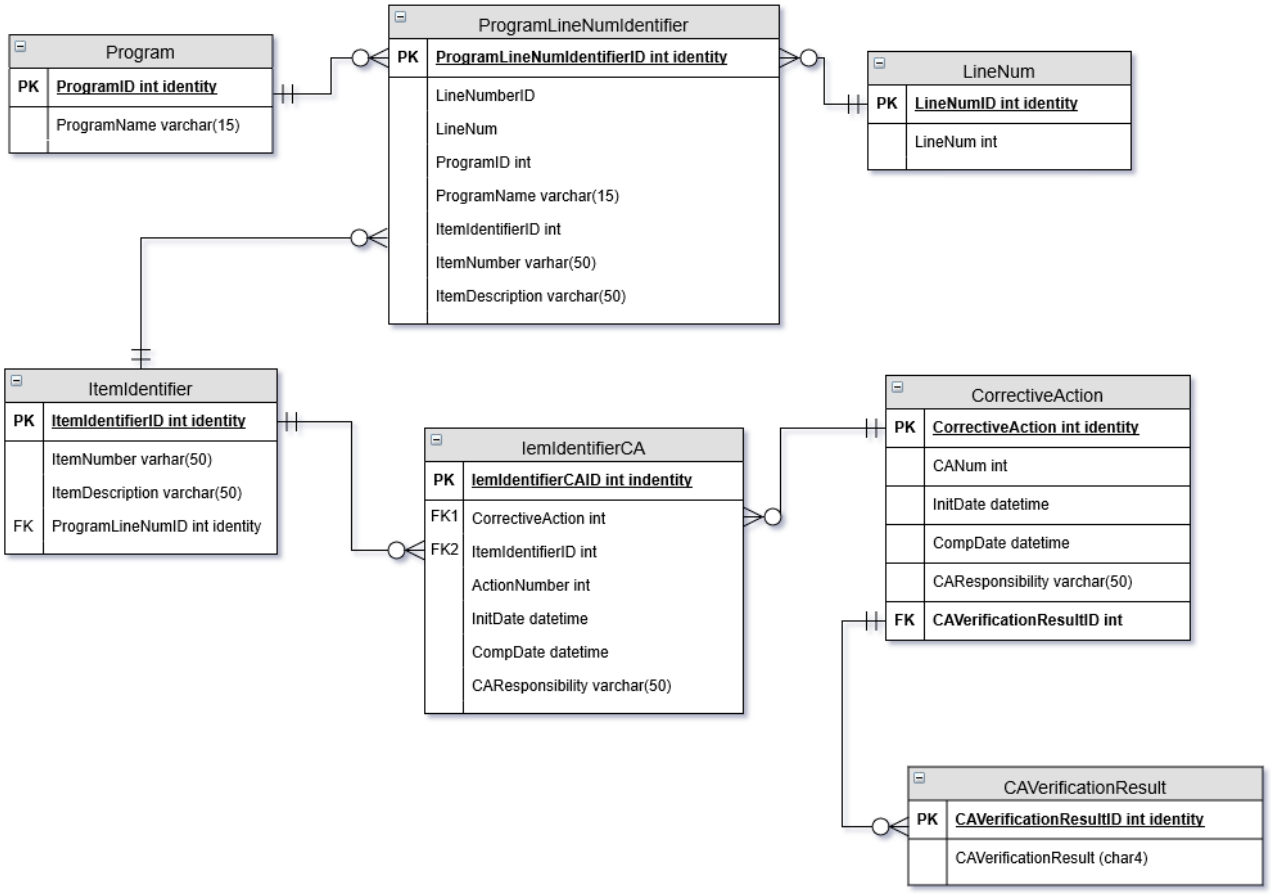
The company has three airplane programs Star Line, Gold line and silver line. Both three programs are producing a significant amount of aircraft a year. To build an airplane it requires thousands and thousands of parts to make one. Various parts use in other line and airplane programs. It is essential to trace what line number and what program consumed the parts if an opportunity will present later, we will be able to trace it back and we will be able to identify the perspective part number, program and line number tie into corrective action.

Corrective Action is required to have a unique ID. This way will create a unique corrective action number in every time the problem occurs. During the verification process, we will be able to verify the CAPA in place remove the cause or pass and fail. It is imperative when writing corrective action one-part number or a process in each CA to provides excellent visibility during the verification process. It creates an accurate trend analysis.

Conceptual Modeling Agreement



Logical Modeling Agreement



APPENDIX A GLOSARRY

ACRONYMS

CAP	Corrective Action Plan
CAPA	Corrective Action Preventative Action
CAR	Corrective Action Report
Deficiency	Emergent not fulfilling the requirements
DQMR	Deputy Quality Manager
Effectiveness	Effectiveness is the capability of producing the desired result was achieved,

	and or, are expected to be delivered, taking into account their relative efficiency
FAA	Federal Aviation Administration
MoE	Measurement of Effectiveness
RQSO	Regulatory Quality Oversight System

DEFINITIONS

Audits:	Is a method for verification, witnessing, desktop review and asking questions to the process performers to ensure an employee performing accordingly and match with Business Procedure Instruction (BPI) with the requirements.
Deficient:	When the product does not fulfill or does not met the requirements.
Deputy Quality Manager	Internal management group who monitor the program level, to ensure conformity to the requirements in the program level.
Measurement of Effectiveness (MoE):	Is a threshold that will indicate the possible cause is eliminated or mitigated to an acceptable level.
Opportunity:	When the product does not fulfill or does not met the requirements
Random Sampling:	Is a procedure for sampling of a population in which taking a sample selection out of batch to eliminate bias.
Trend Analysis:	Is a technical tool use base on the past event that might affect the future — a tool to determine if the problem persists, how frequent or the fix was successful.
Attribute	Attributes define as table and column are joined.
CANum	Corrective Action Number
CAResponsibility	Corrective Action Responsibility
CAVerResult	Corrective action Result
Completion_DateMonthYear	Date Month Year corrective action signed off
Entities	Words use to identify person, thing, or place.
ItemDescription	Name of the part.

ItemIdentifier	Item Identifier is a designated part number
ItemNum	Item Number it is part number
Intitation_DateMonthYear	Date Month Year corrective action were written.
Federal Aviation Administration	Government agencies who oversee the roles and regulations that can affect the public. The voice, eyes and the ears of the public.
LineNumber	Number of the airplane
ProgramName	Name of the program
Proram	Name of the airplane model
ResultDescription	Is a Result Description during verification if PASS or FAIL
Regulatory Quality System Oversight	Internal quality management who oversee the overall compliance performance of the company and oversee the regulatory requirements.
Quality Assurance	A quality personnel who stamp or sign off work instruction order/CA
Quality Manager	Manager who manage the operation in respective work center or area

SECOND DELIVERABLES

NOTE: FOR SQL REPEATABILTY CODE PLEASE REFER TO ATTACHEMENT 'DELIVERABLES2_SQL'

Physical Database Design – drop objects, create objects, comments, repeatability
l.i drop objects and l.ii create objects (Repeatability)

```
If object_ID('ProgramLineNumIdentifier') is not null
DROP TABLE ProgramLineNumIdentifier


 If object_ID('Program') is not null
DROP TABLE Program

If object_ID('LineNumber') is not null
DROP TABLE LineNumber

If object_ID('ItemIdentifierCA') is not null
DROP TABLE ItemIdentifierCA


If object_ID('CorrectiveAction') is not null
DROP TABLE CorrectiveAction

If object_ID('CorrectiveActionResult') is not null
DROP TABLE CorrectiveActionResult



CREATE TABLE Program(
       ProgramID int IDENTITY(1,1) NOT NULL,
       ProgramName varchar(20) NOT NULL,
 CONSTRAINT PK_Program PRIMARY KEY (ProgramID)
 )


CREATE TABLE LineNumber (
       LineNumID int IDENTITY(1,1) NOT NULL,
       LineNum varchar(20) NOT NULL,
 CONSTRAINT PK_LineNumber PRIMARY KEY (LineNumID)
 )



CREATE TABLE ProgramLineNumIdentifier(
       ProgramLineIdentifier int NOT NULL,
       ProgramID int NOT NULL,
       Program varchar(50) NOT NULL,
       LineNumID int NOT NULL,
       LineNum int NOT NULL,
       ItemIdentifierID int NOT NULL,
       ItemNumber varchar(50) NOT NULL,
       ItemDescription varchar(50) NOT NULL,
```

```
 CONSTRAINT PK_ProgramLineNumIdentifier PRIMARY KEY (ProgramLineIdentifier),
CONSTRAINT FK1_ProgramLineNumIdentifier_ProgramID FOREIGN KEY(ProgramID) REFERENCES Program
(ProgramID),
 CONSTRAINT FK2_ProgramLineNumIdentifier_LineNumberID FOREIGN KEY(LineNumID)REFERENCES
LineNumber (LineNumID),
CONSTRAINT FK3_ProgramLineNumIdentifier_ItemIdentifierID FOREIGN KEY (ItemIdentifierID)
REFERENCES ItemIdentifier (ItemIddentifierID)
)


 CREATE TABLE ItemIdentifierCA(
       ItemIdentifierCAID int IDENTITY NOT NULL,
       ActionNumberID int NOT NULL,
       ItemIdentifierID int NOT NULL,
       ActionNumber varchar(50) NOT NULL,
       InitDate varchar (10) NOT NULL,
       ComDate varchar (10) NOT NULL,
       Responsibility nvarchar(50) NOT NULL,
 CONSTRAINT PK_ItemIdentifierCA PRIMARY KEY (ItemIdentifierCAID),
CONSTRAINT FK1_ItemIdentifierCA_ActionNumberID FOREIGN KEY(ItemIdentifierCAID) REFERENCES
ItemIdentifierCA (ItemIdentifierCAID),
CONSTRAINT FK2_ItemIdentifierCA_ItemIdentifierID FOREIGN KEY(ItemIdentifierCAID)REFERENCES
ItemIdentifierCA (ItemIdentifierCAID)
)


CREATE TABLE CorrectiveAction(
       ActionNumberID int identity NOT NULL,
       ItemIdentifierID int NOT NULL,
       ActionNumber varchar(50) NOT NULL,
       InitDate varchar(10) NOT NULL,
       CompDate varchar (10) NOT NULL,
       Responsibility nvarchar(50) NOT NULL,
       CorrectiveActionResultID int NOT NULL,
 CONSTRAINT PK_CorrectiveAction PRIMARY KEY (ActionNumberID),
 CONSTRAINT FK_CorrectiveAction_CorrectiveActionResultID FOREIGN KEY(ActionNumberID) REFERENCES
CorrectiveAction (ActionNumberID)
)

 CREATE TABLE CorrectiveActionResult(
       CorrectiveActionResultID int IDENTITY  NOT NULL,
       CorrectiveActionResult varchar(10) NOT NULL,
 CONSTRAINT PK_CorrectiveActionResult PRIMARY KEY (CorrectiveActionResultID)
    )

--We are going to look at how many rows that the Gold Line have.

SELECT-- ProgramLineIdentifier
     -- ,ProgramID
      Program
     -- ,LineNumberID
      ,sum(LineNum) as LN
     -- ,ItemIdentifierID
      ,ItemNumber
      ,ItemDescription
```

```
FROM ProgramLineNumIdentifier
Where Program = 'Gold Line'
GROUP  BY
 ItemNumber ,ItemDescription, Program
ORDER BY 1,2,3,4
```

Results | Messages

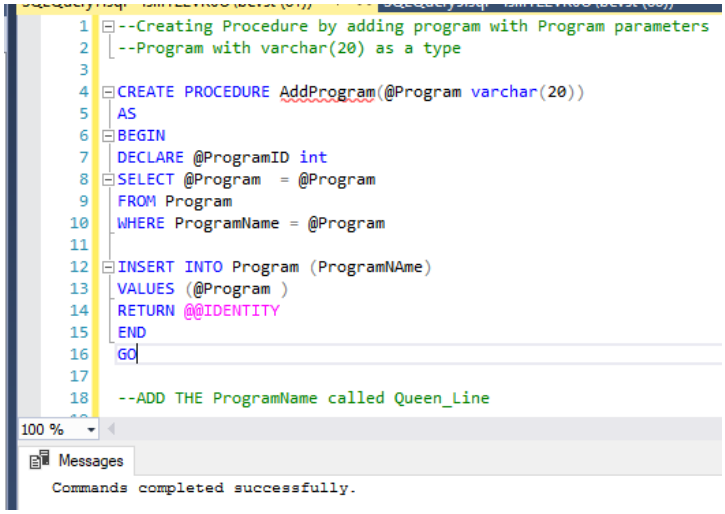
	Program	LN	ItemNumber	ItemDescription
1	Gold Line	10	120Z0-1403	G2 INSTALLATION
2	Gold Line	10	120Z0-1406	FITTING INSTL
3	Gold Line	10	120Z0-1407	PLUMBING INSTL - HYD, MAIN WHE
4	Gold Line	10	120Z0-1723	BRACKET INSTL.
5	Gold Line	10	120Z0-1728	PASSENGER SEAT INSTALLATION
6	Gold Line	10	120Z0-1730	E6 RACK INSTL, 46 SECTION
7	Gold Line	10	120Z0-1734	BOX INSTL
8	Gold Line	10	120Z0-1738	SIDEWALL PANEL INSTALLATION
9	Gold Line	10	120Z0-1739	SIDEWALL PANEL INSTALLATION
10	Gold Line	10	120Z0-1743	PASSENGER SEAT INSTL
11	Gold Line	10	120Z0-1745	CURTAIN/HEADER INSTL - FWD GAL
12	Gold Line	10	120Z0-1752	SIDEWALL PANEL INSTALLATION
13	Gold Line	10	120Z0-1753	G4C INSTALLATION
14	Gold Line	10	120Z0-1754	BRACKET INSTL
15	Gold Line	11	120Z0-1755	RIB INSTL
16	Gold Line	11	120Z0-1756	GALLEY 1 INSTALLATION

Query executed successfully. | ist-s-Students.syr.edu (12.... | DESKTOP-T22VK6O\bevst ... | IST659_M406_bitucker | 00:00:00 | 146 rows

II. DATA CREATION – INSERT STATEMENTS WITH AND WITHOUT DEFAULTS, STORED PROCEDURES, COMMENTS

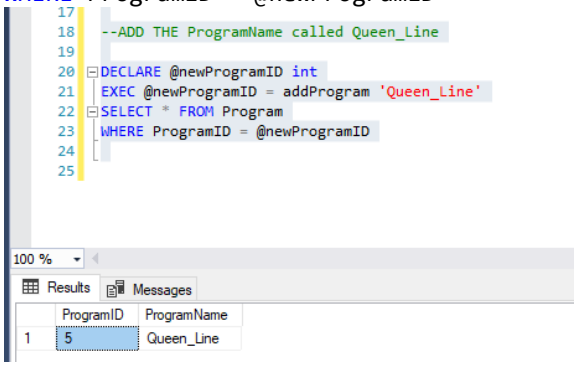
```
INSERT INTO  Program (ProgramName)
VALUES ('Gold_Line'), ('Silver_Line'), ('Star_Line')

--Creating Procedure by adding program with Program parameters
--Program with varchar(20) as a type

CREATE PROCEDURE AddProgram(@Program varchar(20))
AS
BEGIN
DECLARE @ProgramID int
SELECT @Program = @Program
FROM Program
WHERE ProgramName = @Program

INSERT INTO Program (ProgramNAme)
VALUES (@Program )
```

```
RETURN @@IDENTITY
END
GO
DECLARE @newProgramID int
EXEC @newProgramID = addProgram 'Queen_Line'
SELECT * FROM Program
WHERE ProgramID = @newProgramID
```



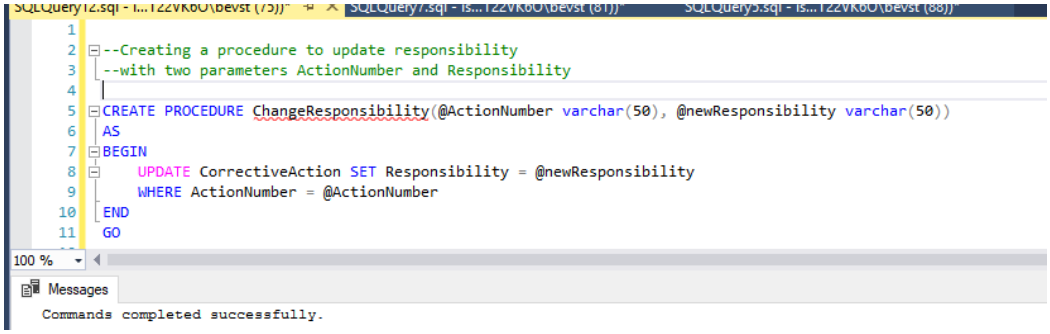
--ADD THE ProgramName called Queen_Line

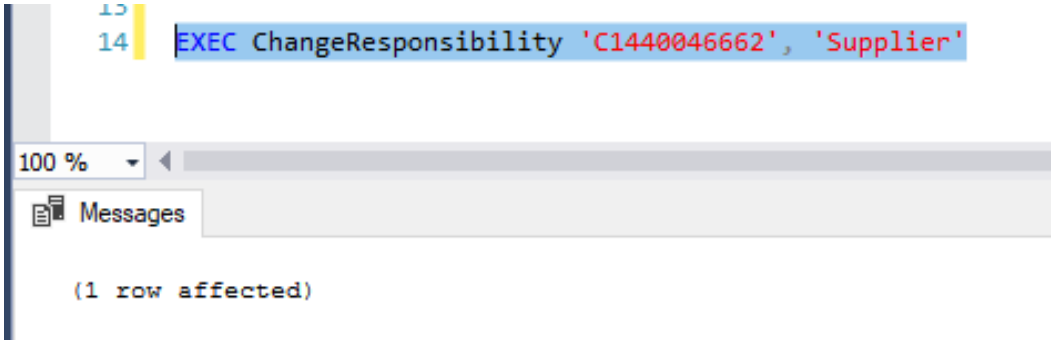
```
DECLARE @newProgramID int
EXEC @newProgramID = addProgram 'Queen_Line'
SELECT * FROM Program
WHERE ProgramID = @newProgramID
```

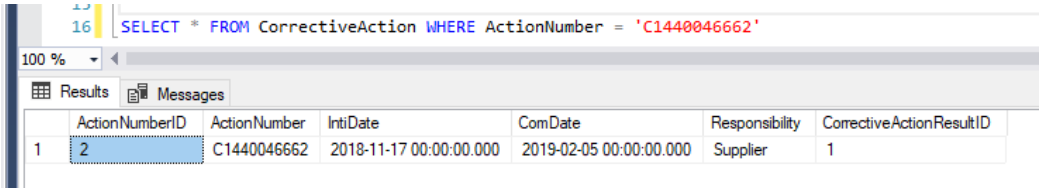


III. DATA MANIPULATION – UPDATE STATEMENTS, STORED PROCEDURES, FUNCTIONS, COMMENTS

```
--Creating a procedure to update responsibility
--with two parameters ActionNumber and Responsibility

    CREATE PROCEDURE ChangeResponsibility(@ActionNumber varchar(50), @newResponsibility
    varchar(50))
AS
    BEGIN
           UPDATE CorrectiveAction SET Responsibility = @newResponsibility
           WHERE ActionNumber = @ActionNumber
END
GO

EXEC ChangeResponsibility 'C1440046662', 'Supplier'

    SELECT * FROM CorrectiveAction WHERE ActionNumber = 'C1440046662'
```

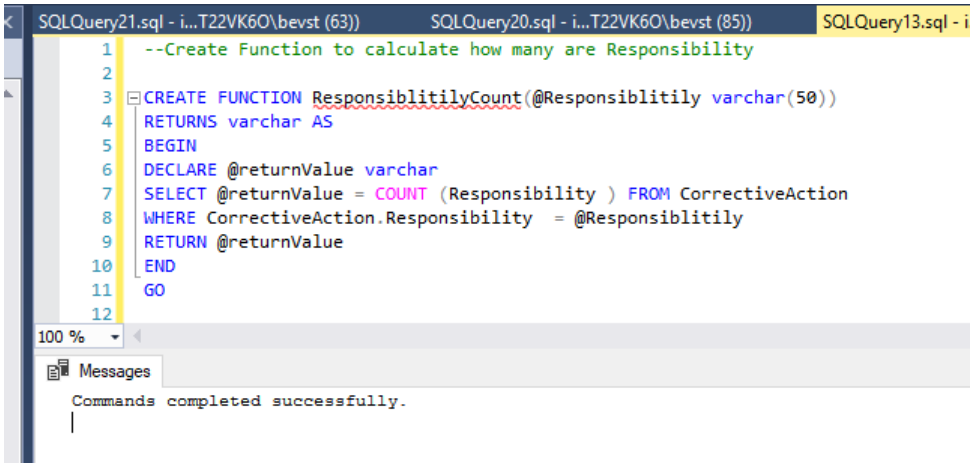







```
--Create Function to calculate how many are Responsibility
CREATE FUNCTION ResponsiblitilyCount(@Responsiblitily varchar(50))
RETURNS varchar AS
BEGIN
DECLARE @returnValue varchar
```

```
SELECT @returnValue = COUNT (Responsibility ) FROM CorrectiveAction
WHERE CorrectiveAction.Responsibility  = @Responsiblitily
RETURN @returnValue
END
GO
```



IV. ANSWERING DATA QUESTIONS – SELECT STATEMENTS, VIEWS, COMMENTS

IV.i. What are the top 5 processes in terms of effectiveness?

```
SELECT TOP 5  ActionNumber, CompDate, Responsibility
FROM CorrectiveAction
```

Results | Messages

	ActionNumber	CompDate	Responsibility
1	C1440046662	2019-02-05 00:00:00.0000000	Supplier
2	C1440046812	2019-02-05 00:00:00.0000000	Drawing Change Engineering
3	C1440046736	2019-02-04 00:00:00.0000000	Drawing Change Engineering
4	C1440046759	2019-02-04 00:00:00.0000000	Drawing Change Engineering
5	C1440046813	2019-02-04 00:00:00.0000000	Drawing Change Engineering

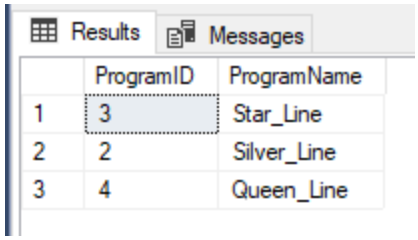
IV.ii. Is CAPA have been adequately shared and included in management review?

```
WITH
cte
AS
(
SELECT
              CorrectiveAction.Responsibility
       ,COUNT (CorrectiveAction.CorrectiveActionResultID)  ByGroup,
       SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 1 THEN 1 ELSE 0 END) AS Passes,
       SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 2 THEN 1 ELSE 0 END) AS Fails
FROM CorrectiveAction
Join CorrectiveActionResult on CorrectiveAction.CorrectiveActionResultID =
CorrectiveActionResult.CorrectiveActionResultID
GROUP BY Responsibility
)
SELECT

Responsibility, Passes, 100 * Passes/ByGroup AS Percent_Passed,
              Fails, 100* Fails/bygroup AS Percent_Failed, ByGroup
FROm cte
```

Results | Messages

	Responsibility	Passes	Percent_Passed	Fails	Percent_Failed	ByGroup
1	Drawing Change Engineering	568	92	48	7	616
2	Manufacturing	312	90	31	9	343
3	Manufacturing New Process	15	88	2	11	17
4	Supplier	38	88	5	11	43

```
--Creating view for the Program
If  object_ID ('dbo.Programs') is not null
DROP VIEW Programs
GO
CREATE VIEW Programs AS
       SELECT TOP 3
*
FROM Program
ORDER BY  ProgramName DESC
GO

 SELECT * FROM Programs
```

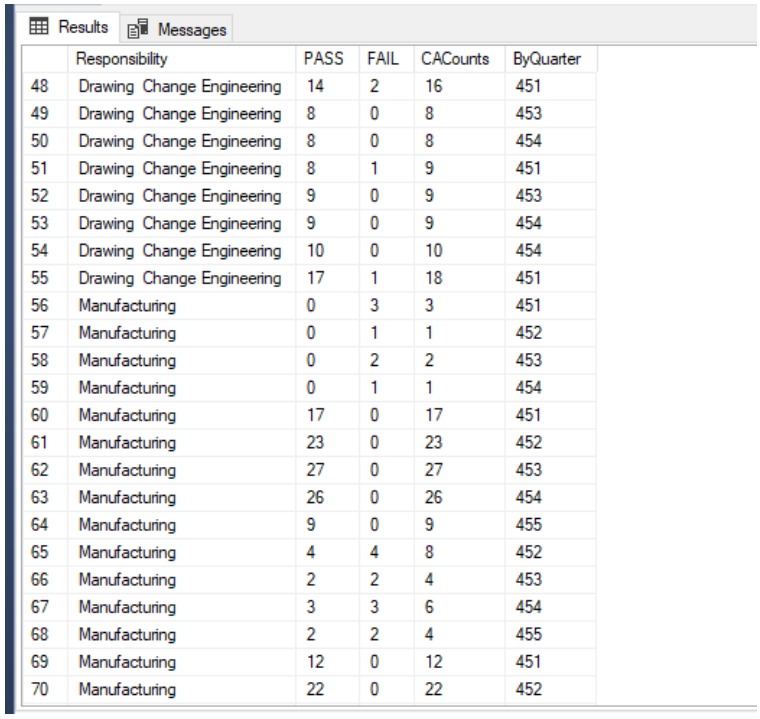


Results | Messages

	ProgramID	ProgramName
1	3	Star_Line
2	2	Silver_Line
3	4	Queen_Line

IV.iii. Are there any tools used to track the favorable and unfavorable trend?

```
--Corrective Action Report PASS, FAIL by Quarter
WITH
cte
AS
(
SELECT
       CorrectiveAction.Responsibility
       ,COUNT(CorrectiveAction.CompDate) CompDate
       ,DATEDIFF(QUARTER, 2018-01-31,CorrectiveAction.CompDate) ByQuarter
       ,COUNT (CorrectiveAction.CorrectiveActionResultID)  TotalCorrectiveAction
       ,SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 1 THEN 1 ELSE 0 END) AS Passes
       ,SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 2 THEN 1 ELSE 0 END) AS Fails
FROM CorrectiveAction
Join CorrectiveActionResult on CorrectiveAction.CorrectiveActionResultID =
CorrectiveActionResult.CorrectiveActionResultID
GROUP BY Responsibility,CompDate
--ORDER BY CompDate DESC

)
SELECT Responsibility ,SUM(Passes) PASS ,SUM(Fails) FAIL
,SUM(TotalCorrectiveAction)CACounts
,(ByQuarter) ByQuarter
FROm cte
GROUP BY Responsibility, Passes,Fails,TotalCorrectiveAction,CompDate,ByQuarter
```



Results | Messages

	Responsibility	PASS	FAIL	CACounts	ByQuarter
48	Drawing Change Engineering	14	2	16	451
49	Drawing Change Engineering	8	0	8	453
50	Drawing Change Engineering	8	0	8	454
51	Drawing Change Engineering	8	1	9	451
52	Drawing Change Engineering	9	0	9	453
53	Drawing Change Engineering	9	0	9	454
54	Drawing Change Engineering	10	0	10	454
55	Drawing Change Engineering	17	1	18	451
56	Manufacturing	0	3	3	451
57	Manufacturing	0	1	1	452
58	Manufacturing	0	2	2	453
59	Manufacturing	0	1	1	454
60	Manufacturing	17	0	17	451
61	Manufacturing	23	0	23	452
62	Manufacturing	27	0	27	453
63	Manufacturing	26	0	26	454
64	Manufacturing	9	0	9	455
65	Manufacturing	4	4	8	452
66	Manufacturing	2	2	4	453
67	Manufacturing	3	3	6	454
68	Manufacturing	2	2	4	455
69	Manufacturing	12	0	12	451
70	Manufacturing	22	0	22	452

IV.iv. What is the employee turnover rate in manufacturing?

```
--We are going to look at the year to date result of manufacturing CA if they are affected
--with manufacturing employee turnover.
WITH
cte
AS
(
SELECT
            CorrectiveAction.Responsibility
      ,COUNT (CorrectiveAction.CorrectiveActionResultID)  ByGroup,
      SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 1 THEN 1 ELSE 0 END) AS Passes,
      SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 2 THEN 1 ELSE 0 END) AS Fails
FROM CorrectiveAction
Join CorrectiveActionResult on CorrectiveAction.CorrectiveActionResultID =
CorrectiveActionResult.CorrectiveActionResultID
Where CorrectiveAction.Responsibility  between 'Manufacturing' and 'Manufacturing New Process'
GROUP BY Responsibility

)
SELECT

Responsibility, Passes, 100 * Passes/ByGroup AS Percent_Passed,
            Fails, 100* Fails/bygroup AS Percent_Failed, ByGroup
FROm cte
```

	Responsibility	Passes	Percent_Passed	Fails	Percent_Failed	ByGroup
1	Manufacturing	312	90	31	9	343
2	Manufacturing New Process	15	88	2	11	17

Manufacturing Corrective Action Result(CAR) had a total of 90 percent passing rate on year to end date. The data shows that Engineering had a drawing change drive a new process to a supplier and the process performers on the floor. Base on this data there is an improvement coming up this will increase higher than 90 percent passing rate about three months.

IV.iv. What is the confidence level of CAPA Effectiveness?

```
WITH
cte
AS
(
SELECT
              -- CorrectiveAction Responsibility
       COUNT (CorrectiveAction.CorrectiveActionResultID)  TotalCorrectiveAction,
       SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 1 THEN 1 ELSE 0 END) AS Passes,
       SUM(CASE CorrectiveAction.CorrectiveActionResultID WHEN 2 THEN 1 ELSE 0 END) AS Fails
FROM CorrectiveAction
--GROUP BY Responsibility
Join CorrectiveActionResult on CorrectiveAction.CorrectiveActionResultID =
CorrectiveActionResult.CorrectiveActionResultID

)
SELECT Passes, 100 * Passes/TotalCorrectiveAction AS Percent_Passed,
              Fails, 100* Fails/TotalCorrectiveAction AS Percent_Failed, TotalCorrectiveAction
FROm cte
```

100 %

Results | Messages

	Passes	Percent_Passed	Fails	Percent_Failed	TotalCorrectiveAction
1	933	91	86	8	1019

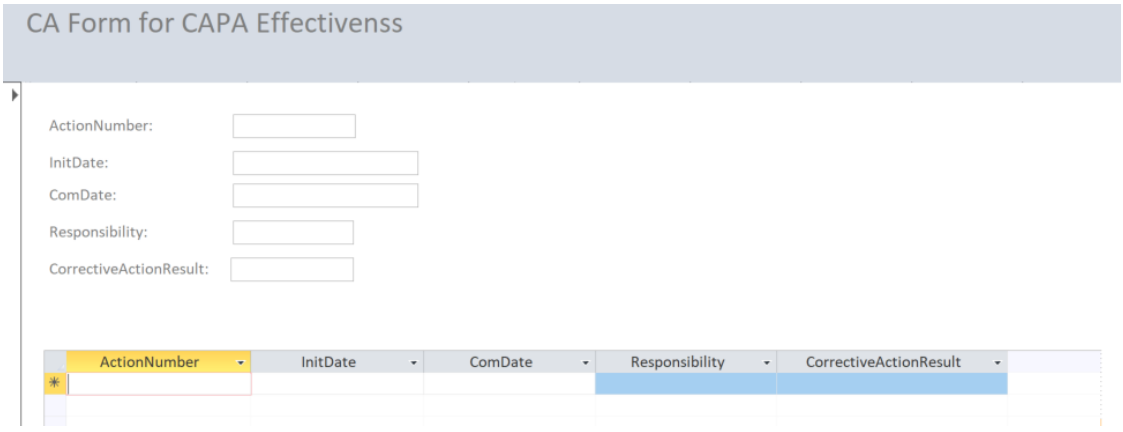
The year to end Confidence level CAPA Effectiveness is 91 percent in spite of engineering change.

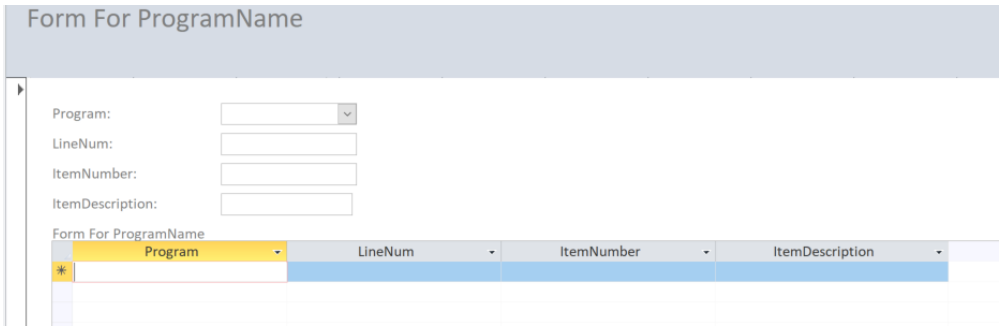
V. RAW DATA SAMPLES

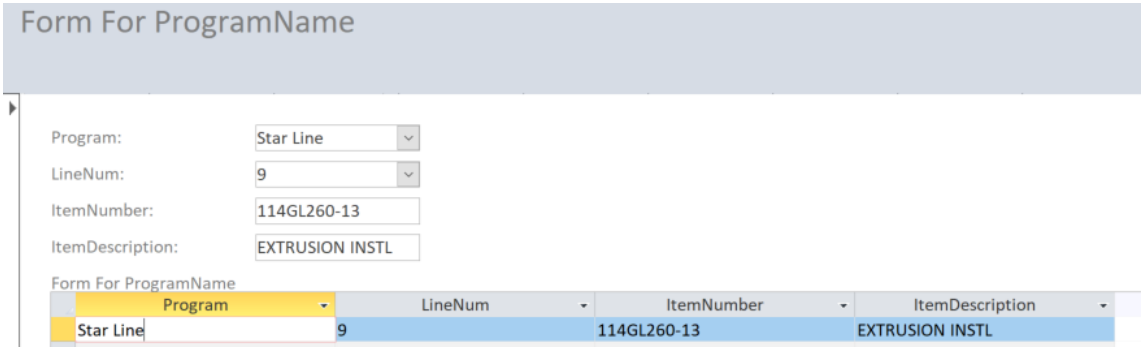
	A	B	C	D	E	F	G	H	I
1	PGM_ID	LN_NO	CAR	VERIFIC	ITEM_IDENTIFIER	ITEM_DESC	ACTION_RESPONSIBILITY	INIT_DATE	COMPLETE
11	Star_Lines	13	C2500000051	PASS	115S7001-701	FOLDING WING TIP, FIXED	Engineering	1/4/2018	1/10/2019
12	Silver_Lines	23	C1660023507	PASS	113U9610-3A	AFT FAIRING INSTL NO. 3	Engineering	1/4/2018	11/15/2018
13	Silver_Lines	23	C1660023511	PASS	65B10925-188	SUPPORT STRUCT INSTL M	QAI	1/8/2018	1/23/2019
14	Gold_Lines	37	C1440045782	PASS	251A2002-201	CONTROL DATA INSTL	Engineering	1/8/2018	2/4/2019
15	Star_Lines	25	C1780021093	PASS	222S0001-2897#A	SOFTWARE INSTL	Engineering - Quick Change	1/8/2018	8/10/2018
16	Silver_Lines	23	C1660023512	PASS	416U1850-21B	EMERGENCY EQUIP SUPPC	Engineering	1/9/2018	11/15/2018
17	Star_Lines	23	C1750010119	PASS	141S2500-10	WEB INSTL	QAI	1/9/2018	2/26/2018
18	Star_Lines	23	C1750010118	FAIL	141S2500-10	WEB INSTL	QAI	1/9/2018	2/1/2018
19	Gold_Lines	41	C1440045789	PASS	288A4140-459	WIRE BUNDLE INSTL.	Engineering	1/10/2018	6/26/2018
20	Gold_Lines	41	C1450010692	PASS	287A4181-784	BRACKET INSTALLATION	Engineering	1/10/2018	8/2/2018
21	Gold_Lines	41	C1440045787	PASS	214A3003-11	SYS INSTL MIX BAY AIR DIS	Engineering	1/10/2018	8/1/2018
22	Gold_Lines	41	C1440045785	FAIL	146A0201-1	INTEGRATION INSTL - SEA	QAI	1/10/2018	9/18/2018
23	Gold_Lines	39	C1440045784	FAIL	146A0201-1	INTEGRATION INSTL - SEA	QAI	1/10/2018	7/6/2018
24	Gold_Lines	41	C1450010694	PASS	141A0640-21	INTEGRATION	QAI	1/10/2018	6/12/2018
25	Gold_Lines	27	C1440045793	PASS	415A1114-630	G4B ELECTRONIC CTRL PAI	Engineering - Quick Change	1/11/2018	6/7/2018
26	Star_Lines	25	C1780021097	PASS	284S2002-230	P210 PANEL INTERNAL WI	QAI	1/11/2018	9/6/2018
27	Star_Lines	25	C1770009469	PASS	246S4010-400#B	ONS SOFTWARE INSTL	Engineering - Quick Change	1/11/2018	1/16/2019
28	Silver_Lines	23	C1640008048	FAIL	116U2011-1	WING AIRLD RIB INSTL	QAI	1/11/2018	1/14/2019
29	Gold_Lines	39	C1470025889	PASS	415A1110-431511	GALLEY 1 INSERT INSTL	Engineering	1/12/2018	7/11/2018
30	Star_Lines	25	C1230042469	PASS	182S1310-701	REAR SPAR INSTL-MAIN B	Engineering	1/13/2018	8/29/2018
31	Star_Lines	25	C1960000071	PASS	123S1234-56	TEST	QAI	1/14/2018	11/1/2018
32	Gold_Lines	39	C1440045808	PASS	BRACKET INSTL.	2284A0840-1	QAI	1/15/2018	10/30/2018
33	Gold_Lines	42	C1430028344	PASS	115A2001-607	LOWER INSTL-INBD FIXED	Engineering	1/15/2018	3/16/2018
34	Gold_Lines	41	C1440045810	PASS	288A4646-69	WIRE BUNDLE INSTL	Engineering	1/16/2018	9/26/2018
35	Gold_Lines	41	C1450010702	PASS	287A4080-168	STRINGER CLIP INSTL - WI	QAI	1/16/2018	5/30/2018
36	Star_Lines	25	C1720007823	PASS	151S1550-4	INTERCOSTAL INSTL	QAI	1/16/2018	7/18/2018

VI. IMPLEMENTATION – DATA ENTRY/MAINTENANCE FORMS, REPORTS FOR THE 5 DATA QUESTIONS

VI.i Implementation



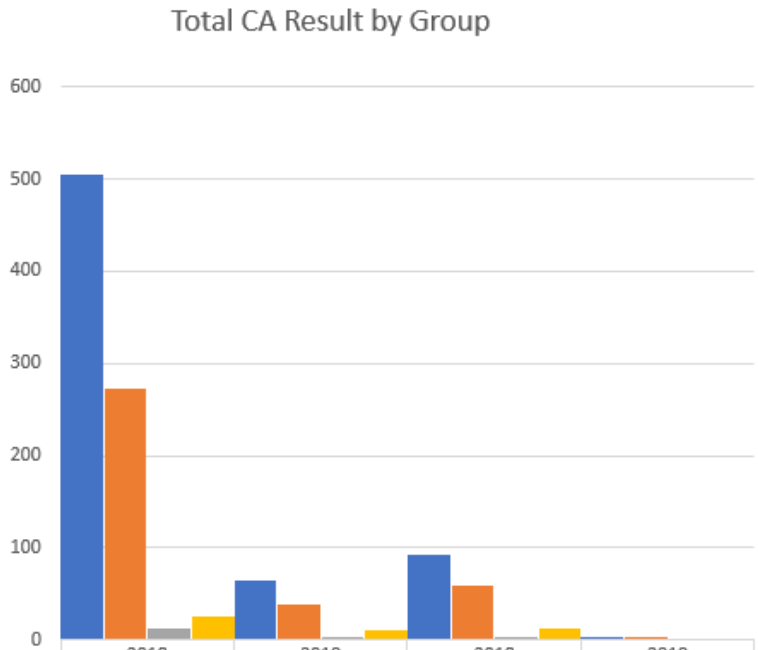




1. **What are the top 5 processes in terms of effectiveness?**
   Please refer to Page 1 Guide to CAPA Effectiveness

2. Is CAPA have been adequately shared and included in management review?

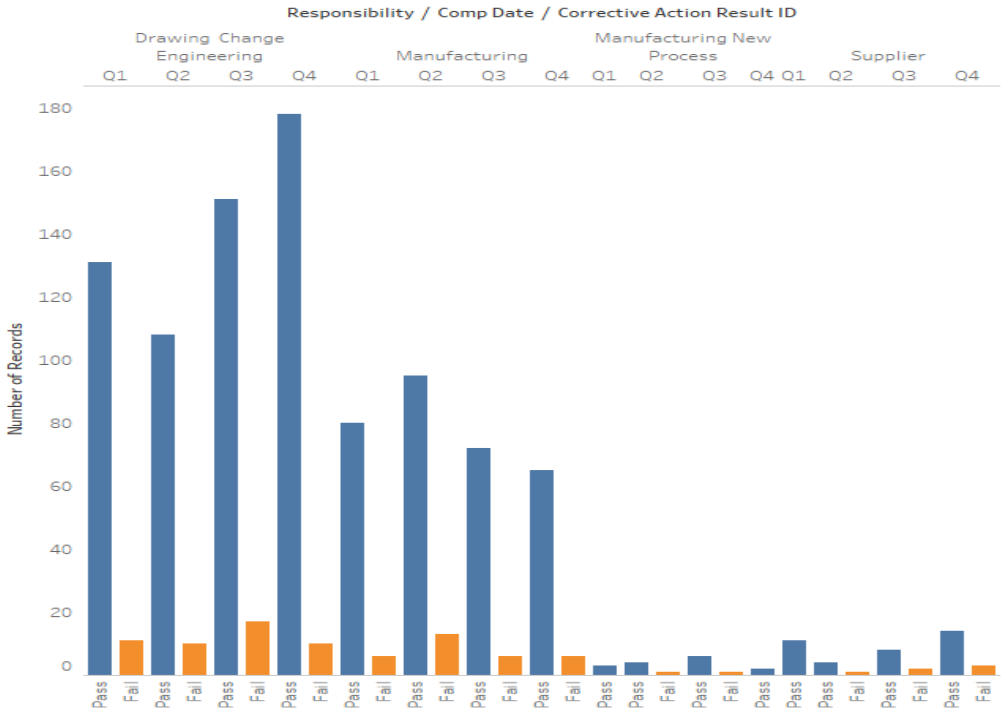
Base on the report all groups are monitored and included in management review.



	Pass 2018	Pass 2019	Fail 2018	Fail 2019
Drawing Change Engineering	504	64	92	4
Manufacturing	273	39	58	4
Manufacturing New Process	12	3	4	
Supplier	26	11	12	

3. Are there any tools used to track the favorable and unfavorable trend?

CAPA Effectiveness Report by Quarter

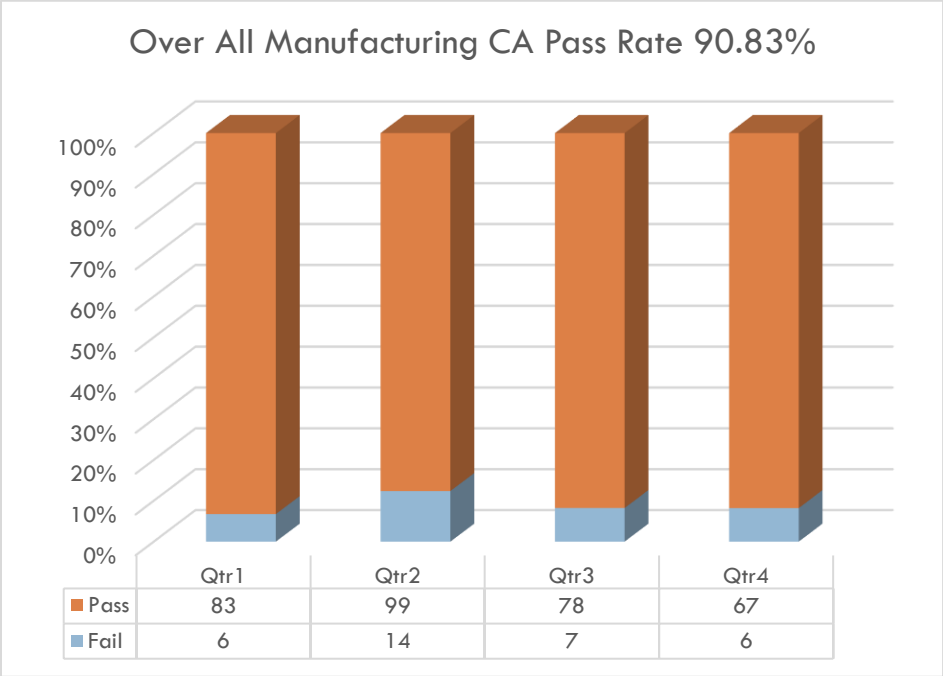


CAPA Effectiveness Report by Quarter

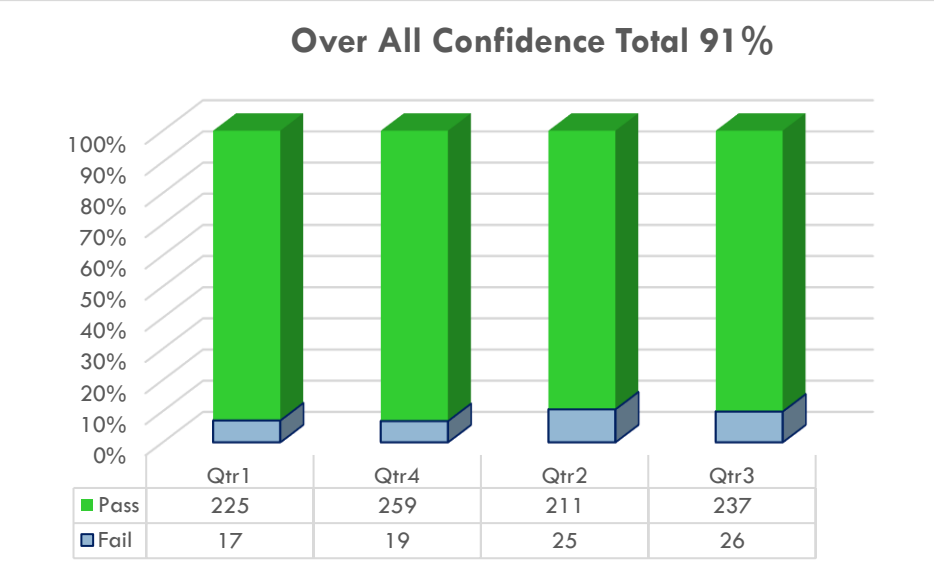
Responsibility / Com Date

Correc..	Drawing Change Engineering				Manufacturing				Manufacturing New Process				Supplier			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Pass	131	108	151	178	80	95	72	65	3	4	6	2	11	4	8	14
Fail	11	10	17	10	6	13	6	6		1	1			1	2	3

4. What is the employee turnover rate in manufacturing?



5. What is the confidence level of CAPA Effectiveness?



VI. REFLECTION – HOW DID YOUR ASSUMPTIONS FROM THE START OF THE PROJECT CHANGE? WHAT WOULD YOU DO DIFFERENTLY?

In the beginning, I thought my model is straightforward. When I start doing a query, it was not working. I have many to many relationships that contains Foreign key ID in it. Which means doesn't mean anything. I had to redesign my model, added a few tables. The many - to - many relationships contains a significant amount of pieces of information, that is imperative during the query process. What I would do differently is to pay attention to many -to- many relationships and perform some testing as I go to ensure the model is working. Then start loading more data as soon as the model is working.

VI. SUMMARY – INTEGRATING THE 2ND MILESTONE WITH THE 1ST IN A COHESIVE DOCUMENT.

After the integration of milestone one and two, data shows that the Federal Aviation administration's concern on CAPA Effectiveness is not a big issue but could be better. The year to date CAPA Effectiveness is 91 percent. The change in Engineering it triggers a new Process change in Manufacturing. Despite the change, the effectiveness is within the expectation threshold, and results communicated well communicated across the organization.