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Raw Material Planning and Vendor Rating System

SRF Limited

Software Requirement Specification (SRS)

The document details the summary of solution architecture and approach for the development of RM Planning & Vendor Rating System for SRF Limited. The document is based on the inputs, system study, discussions and meeting held between BCI & SRF Ltd. Teams.

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Revision History

REVISION NO.	DATE	PREPARED BY	REVIEWED BY	COMMENT
1.0	22-08-2022	Omkar Gaonkar	Prateek Khare	SRS for RM Management and Planning

Abbreviations:

Name	**Abbreviation**
SRF Ltd	SRF, Customer, Client
Bar Code India	BCI
Enterprise Resource Planning	ERP

Table of Contents

1 SPECIFICATION ORGANIZATION

SRF Ltd is currently looking for a planning tool to be used in Raw Materiel forecasting based on production plant and vendor complaint management & rating system. Raw Material planning is a way to ensure that raw materials are readily available for production and products are readily available for delivery to consumers. To sustain the lowest raw materials and finished product levels in store. To organize manufacturing, delivery schedules, and purchasing activities. The requirements in this document are as per the document shared by SRF team after discussing internally with the end users.

Section 1: Introduction

This section provides hardware requirements and documentation conventions.

Section 2: User Interface

This section depicts screen design and logic flow, and is categorized into two groups:

- Application Master Module
- Transaction Module

Section 3: System Architecture

This section provides information of system architecture.

2 INTRODUCTION

2.1 INTENDED AUDIENCE AND READING SUGGESTIONS

The scope of the software would require the development of the front end application, client device application and communication server to transfer data from application to server. The document lays down the specifications of the middleware application, its architecture and infrastructure requirements.

The entire solution consists of followings:

1. Windows Standalone Application

2.2 PROJECT SCOPE

Raw Materials planning is the method used to determine the requirements and quantities of raw materials to implement production. Raw Material planning is a way to ensure that raw materials are readily available for production and products are readily available for delivery to consumers. To sustain the lowest raw materials and finished product levels in store. To organize manufacturing, delivery schedules, and purchasing activities.

The entire solution consists of followings:

- Window Standalone Application

3 SOFTWARE/HARDWARE REQUIREMENTS

Below are the hardware and the software requirements of the application:

3.1 COMPUTERS

Desktop would require following specifications:-

- I5/i7 Processor with Windows 10 operating System
- 8 GB RAM
- 100GB HDD
- Dot net Framework 4.5

3.2 HARDWARE REQUIREMENTS

Hardware required for the application:

- Application Frameworks: Microsoft Visual Studio with ASP.Net & C#
- Database: Oracle (provided by client)

4 User Interface Specification Conventions

This section specifies the user interface portion of the application.

Section Organization

The User Interface Specification presents screen displays or "**Dialogs**".

Documentation Conventions

This section incorporates illustrations of the application user interface. Each screen display "Dialog" consists of the screen display image, a process name, a paragraph documenting the processing required for the dialog, a paragraph listing the navigation options, and a table listing for each variable field on the dialog, its database source or destination, format, and any instructions required to process the field.

The following section contains a sample dialog with each area identified.

5 System Log

System shall maintain internal logs for application.

5.1 Error Logs

These logs will contain any errors encountered during runtime for faster resolution of any problem post deployment.

5.2 Audit Logs

These logs will monitor the activities of user who accessed the application, made changes to File/ Document and the time stamp of these activities.

6 ARCHITECTURAL DESIGN

Overall System consists of:

- Window Application

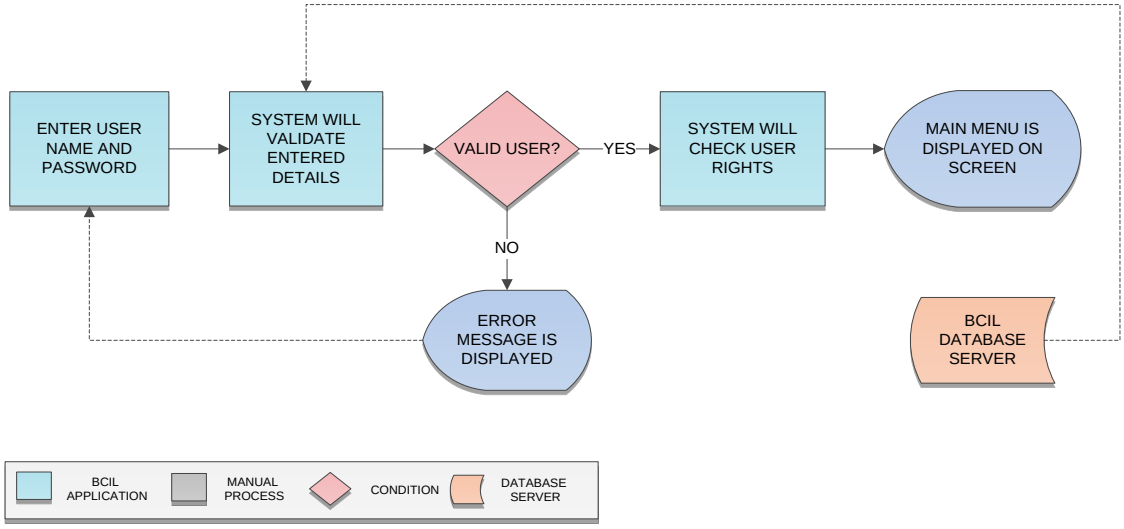
6.1 WINDOW APPLICATION

The Application will be developed for performing Forecast Process for Tyre Cord fabric, Forecast Process for Belting fabric, Forecast Process for Polyester Industrial Yarn, Vendor Complaint Management System and other activities.

7 APPLICATION MODULES

7.1 APPLICATION LOGIN- WEB & DEVICE APPLICATION

This login module will provide access to the application modules. Here the admin/user needs to enter the login detail to enter in the application and to perform the desired actions.



Process: User needs to enter the User Name/ID and Password in display fields and press the Login button. Application will validate the user credential.

User will be able to view only those screens/ modules of which he has been given access rights to.

Validation

- User Name/ ID will be unique for all users.
- User Name/ ID and Password length will be set.

After successful login application menu screen will appear; this screen will have the Master and Transaction options etc.

7.2 MASTERS

7.2.1 CUSTOMER MASTER

The module will be used to view the Customer details downloaded database.

Data Fields	1. Customer Id 2. Customer Name 3. Location 4. Customer Number 5. Sales Type 6. Weft Type
Process Steps	1. Enter the Customer Id number. *User will get the customer from oracle application.* *Customer number will be update later when customer will add in oracle* 2. Enter the Customer details. *Customer not available in oracle application then user can enter manually.* 3. Enter the Customer Location to map. 4. Select the Sales and Weft type. 5. BCI application will download Customer Number from Oracle. 6. Save the details in database.
Functions	View details of the Customer details and Type requirement.

7.2.2 TYRE CORD FABRIC MASTER

The items required for the making of Tyre Cord Fabric materials will be displayed here.

Data Fields	1. Business Segment 2. Item Type 3. Quantity 4. Date and Month 5. Average Ratio
Process Steps	1. Enter the Business Segment details. 2. Enter the type of material used in fabric. 3. Enter the number of quantity used. 4. Enter the Month in which item used. 5. Enter the Average percentage of the sales. 6. Save the details in database of Oracle.
Functions	View details of the Tyre Cord details.

7.2.3 Belting Fabric Master

The items required for the making belting fabric materials will be displayed here.

Data Fields	1. Business Segment 2. Item Type 3. Quantity 4. Date and Month 5. Average Ratio
Process Steps	1. Enter the Business Segment details. 2. Enter the type of material used in fabric. 3. Enter the number of quantity used. 4. Enter the Month in which item used. 5. Enter the Average percentage of the sales. 6. Save the details in database of Oracle.
Functions	View details of the Belting Fabric details and Type requirement.

7.2.4 Vendor Rating Master

The rating for each vendor as the Quality of material supplied listing will be displayed here.

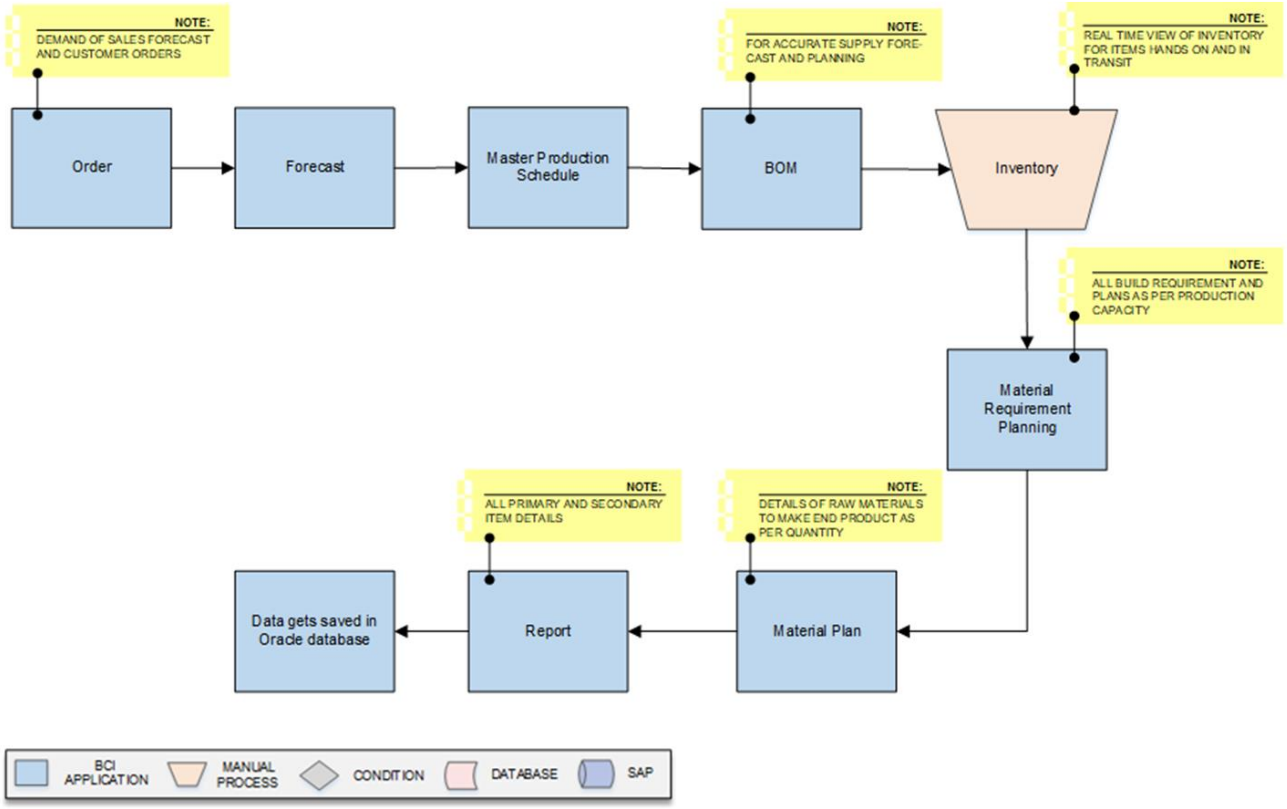
Data Fields	1. Parameter 2. Operational definition 3. No. of Lots 4. Weightage 5. Date Extraction for Quality Parameter
Process Steps	1. Enter the Parameter data. 2. Enter the definition of the particular parameter. 3. Enter the No. of lots and the weight of lot. 4. Enter the date extraction done by formula or machine. 5. Save the details in database of Oracle.
Functions	View details of the Belting Fabric details and Type requirement.

7.2.5 VENDOR GRADING MASTER

The items rating grade master will be displayed here.

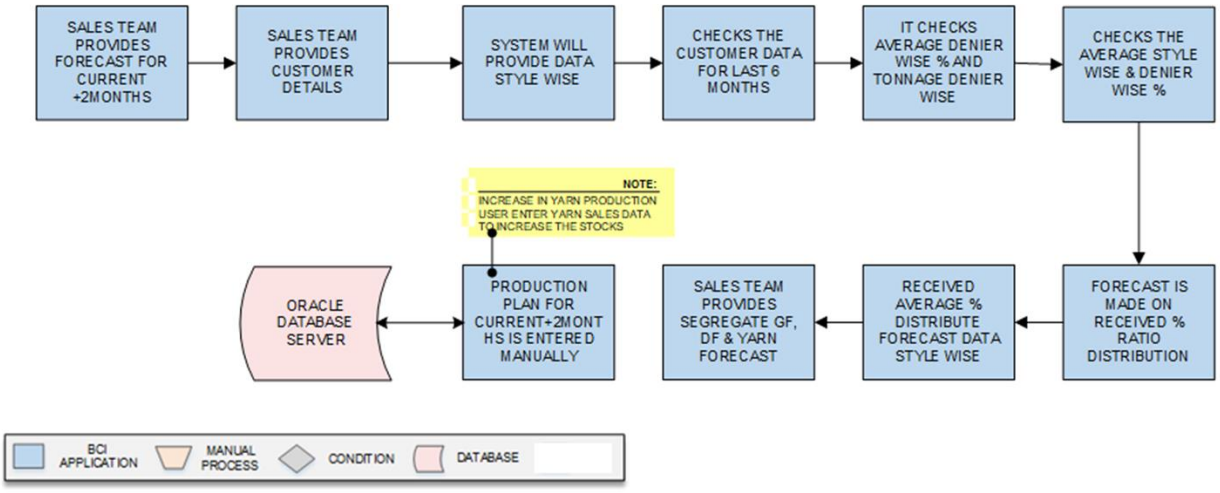
Data Fields	1. Name 2. Rating 3. Grading 4. Implications
Process Steps	1. Enter the Rating in percentage. 2. Enter the grading for each ratings. 3. Enter the Implications for each grade. 4. Save the details in database of Oracle.
Functions	View details of the grading to each Vendor products.

7.3 PROCESS FLOW DIAGRAM



7.4 Demand Orders and forecasting

7.4.1 Forecast Process For Tyre Cord Fabric



Activities

Module Description	This module will be used to provide the forecast for the Tyre Cord Fabric and sales requirement order. ***This activity will be done using Web Application.***

Pre-Conditions	1. Authorized access to the application.

Process Steps

1. The Sales team will provide the forecast current+2 month.
2. It will also provide the forecast customer wise quantity only.

Customer	Feb`22	Mar`22	Apr'22
MRF	650	825	1000
JK	1200	1150	1200

3. System will calculate and distribute the quantity style wise.
4. Check the customer wise production data of last 6 month.

Customer		Month						
Ceat	Denier	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Grand Total
	840	171.9	148.2	165.2	164.9	195.5	78.6	924.3
	1260	463.6	510.1	495.8	499.3	499.8	167.2	2635.8

5. Consider the average denier wise % and derive the absolute tonnage denier wise.

Denier	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Last 6 months Avg %
840	17%	16%	18%	17%	20%	17%	17%

6. Consider the average Style wise & denier wise % and derive the absolute tonnage Style/denier wise.

Qty & Ratio %	Aug-21	%	Sep-21	%	Oct-21	%	Nov-21	%	Dec-21	%	Jan-22	%	Avg %
840	171.9	100%	148.22	100%	165.24	100%	164.87	100%	195.49	100%	78.55	100%	100%
1453-HW	28.04	16.3%	22	14.6%	11.34	6.9%	3.12	1.9%	31.25	16.0%	12.6	16.0%	11.9%
1453SW	1.5	0.9%	0	0.3%	4.72	2.9%	3.81	2.3%	0	0.0%	3.83	4.9%	1.9%
2553 HW-Non Nasik (For 2220m DF)	142.36	82.8%	126	85.1%	149.18	90.3%	157.94	95.8%	164.24	84.0%	62.12	79.1%	86.2%

7. Based on received % ratio distribute the forecast data style wise.

Customer	Denier	Last 6 months Avg %	Feb`22 (Order Qty)	Mar`22 (Order Qty)	Apr`22 (Order Qty)
Ceat	840	17%	104	156	173

8. Based on received Average % ratio distribute the forecast data style wise.

Style wise Ratio %	Average %	Feb`22 (Order Qty)	Mar`22 (Order Qty)	Apr`22 (Order Qty)
840	**100%**	104	156	173
1453-HW	11.9%	12	19	21
1453SW	1.9%	2	3	3
2553 HW-Non Nasik (For 2220m DF)	86.2%	90	134	149

9. Sales team will be provide segregate GF, DF & Yarn forecast data.
10. Current Month Production Plan get from the PPC application and next 2-month sales forecast will be entered manually.

	11. If any case we are going to increase our yarn production (it more than our GF production) in that case user will enter the yarn sales forecast or increase the yarn stocking norms. 12. Update details gets saved in the database of Oracle.

Post-Conditions	1. Forecast and Sales details gets saved in Oracle database. 2. Forecast for up to 6months can be predicated.

Validations	1. An alert should be displayed in case invalid details is entered. 2. An alert message is displayed in case of any error / invalid activity.

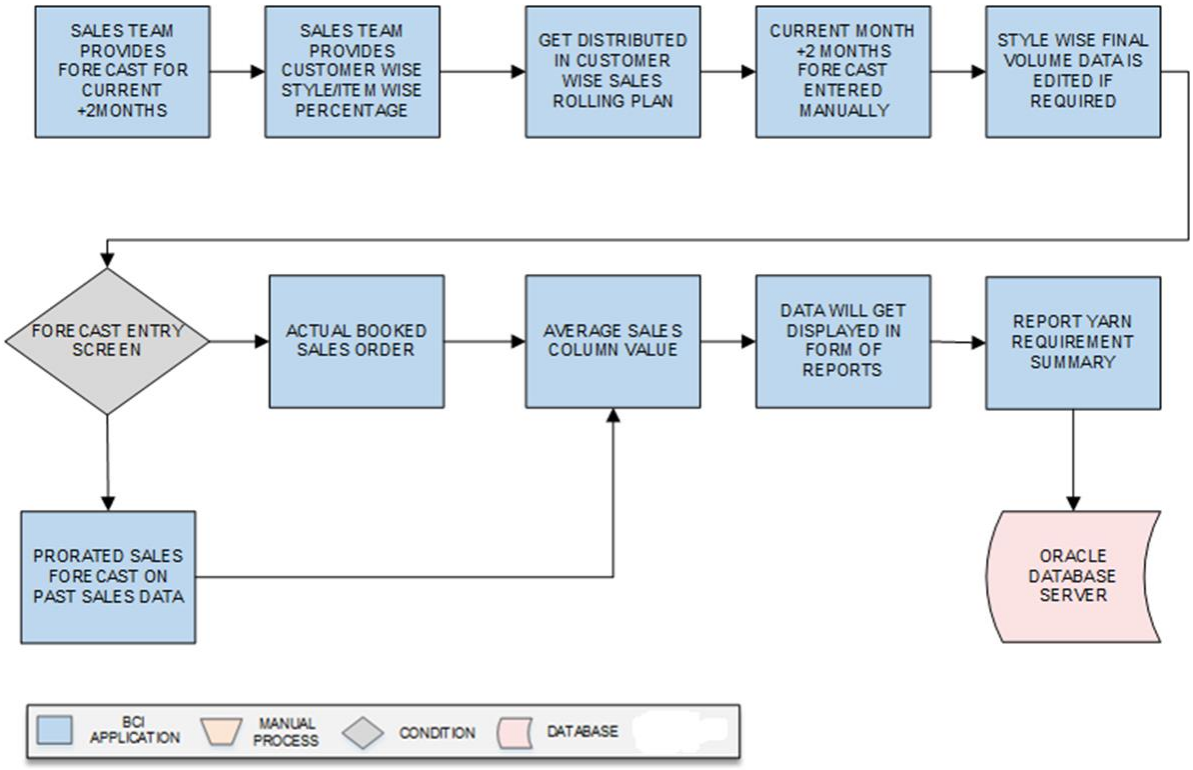
Sample Screen

Forecast Entry Screen For TCF

Business Segment :	Tyre Cord Fabric	LOV	**Date :**	25-Mar-22
Item Type :	N66/N6/PTCF		**Month**	Apr-22

Customer (LOV)	Quantity (GF)	Quantity (DF)
MRF Limited	150	130
Ceat Limited	200	180
Total	350	310

7.4.2 FORECAST PROCESS FOR BELTING FABRIC (BF)



Activities

Module Description	This module will be used to provide the forecast for the Belting Fabric and sales requirement order. ***This activity will be done using Web Application.***

Pre-Conditions	1. Authorized access to the application.

Process Steps	1. Sales team will provide the forecast current+2 month.

Shared Sales Rolling Plan

Customer	Apr'22				May'22				Jun'22			
	EE	EP	NN	Total	EE	EN	NN	Total	EE	EN	NN	Total
ORIENTAL RUBBER INDUSTRIES PVT.LTD.	50	50	40	140	50	50	60	160	30	60	30	120
ANIL RUBBER MILLS PVT LTD	30	40	30	100	40	50	50	140	20	25	35	80

2. Sales rolling plan will be N+2 month (customer + Product wise (EE, EP etc.) sales quantity and get Customer wise Style/item wise Percentage (%) based on last 6 Month GF.

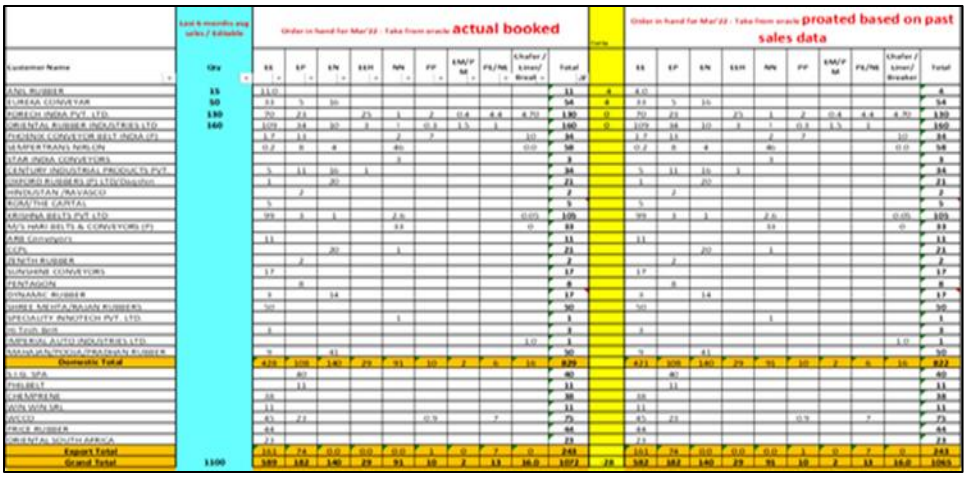
Sr. no.	Style	Customer	Percentage (%)
1	EE 113317P/182	ORIENTAL RUBBER INDUSTRIES PVT.LTD.	40
2	EN 113260/240	ORIENTAL RUBBER INDUSTRIES PVT.LTD.	25
3	EE 113317P/92	ORIENTAL RUBBER INDUSTRIES PVT.LTD.	35
4	NN 350D2/142	ANIL RUBBER MILLS PVT LTD	60
5	EE 200D7/197	ANIL RUBBER MILLS PVT LTD	40

3. Further this customer wise & style wise percentage can be distributed based on shared customer wise sales rolling plan.

Calculate Customer wise Style wise Apr'22 forecast Quantity based on last 6 Month Production ratio (%)				
Sr.no.	**Style**	**Customer**	**Percentage (%)**	**Quantity (MT)**
1	EE 113317P/182	ORIENTAL RUBBER INDUSTRIES PVT.LTD.	40	56
2	EN 113260/240	ORIENTAL RUBBER INDUSTRIES PVT.LTD.	25	35
3	EE 113317P/92	ORIENTAL RUBBER INDUSTRIES PVT.LTD.	35	49
			Total	**140**
4	NN 350D2/142	ANIL RUBBER MILLS PVT LTD	60	60
5	EE 200D7/197	ANIL RUBBER MILLS PVT LTD	40	40
			Total	**100**

4. Current Month Sales Plan get from the oracle application and next 2-month sales forecast will be enter manually.
5. The style wise final volume must be with editable field so that required changes can be done.
6. Forecast Entry screen will be show the data into two parts.
   a. Actual Booked Sales Order (Data Fetch from Oracle Application)
   b. Prorated sales forecast based on past sales data (Data will be calculate based on last six month sales Avg.)
7. Average sales column value will be calculate based last 6 month average sales.

8. Entire data will be populate for N+2 month in reports.



9. In bottom of report yarn requirement summary should be populate.

10. Details will be saved in the Oracle database Server.

Post-Conditions	1. Belting fabric details will get saved in the Oracle database.

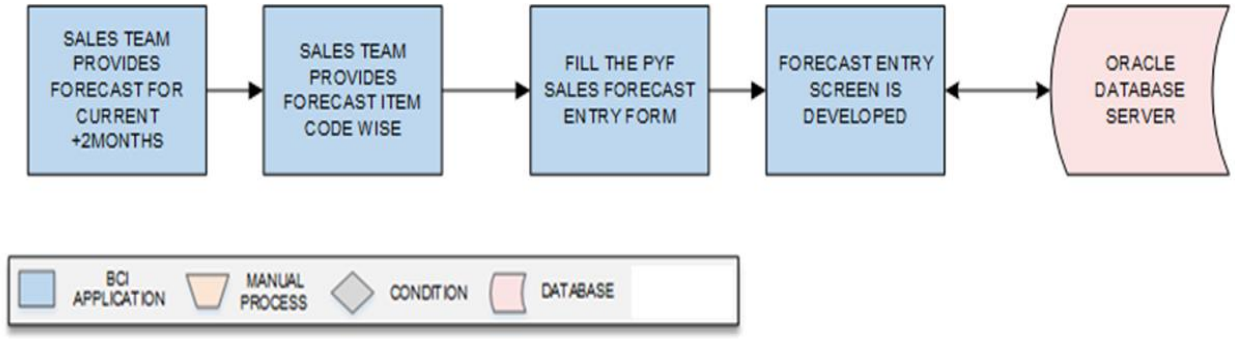
Validations	1. An alert should be displayed in case Calculation malfunction happens. 2. An alert message is displayed in case of any error / invalid activity.

Sample Screen

Forecast Entry Screen For	Belting Fabric		
Business Segment :	Tyre Cord Fabric	LOV	**Date :** 25-Mar-22
Item Type :	N66/N6/PTCF		**Month** Apr-22

Customer (LOV)	Quantity (GF)	Quantity (DF)
MRF Limited	150	130
Ceat Limited	200	180
Total	350	310

7.4.3 Forecast Process For Polyester Industrial Yarn (PIY)



Activities

Module Description	This module will be used to provide the forecast for the Polyester Industrial Yarn(PIY) and sales requirement order. ***This activity will be done using Web Application.***

Pre-Conditions	1. Authorized access to the application.

Process Steps

1. Sales team will provide the forecast current+2 month basis.
2. Sales team provide the quantitative forecast item code wise.

Date	Item Code	Item Description	Forecast Quantity (MT)
01-Apr-21	A001	1100 /192 HT-AA	110

3. Sales forecast get from the PIY PPC application.

PYF Sales Order/Sales Forecast Entry Form

Entry Type :	PPC/ Forecast	Date	01-Apr-22
Site :	PYF		
Customer Name	Auto Live	**Location**	Mysore

ITEMCODE (LOV)	Item Description	Quantity	UOM	Firm/ unfirms (Y/N)	Schedule Ship Date	PO Confirmation Date
YP11SS	PIY 1100/192, RR, NA, SLS, Packed	80	MT	Yes	25-Apr-22	31-Mar-22
	Total	80				

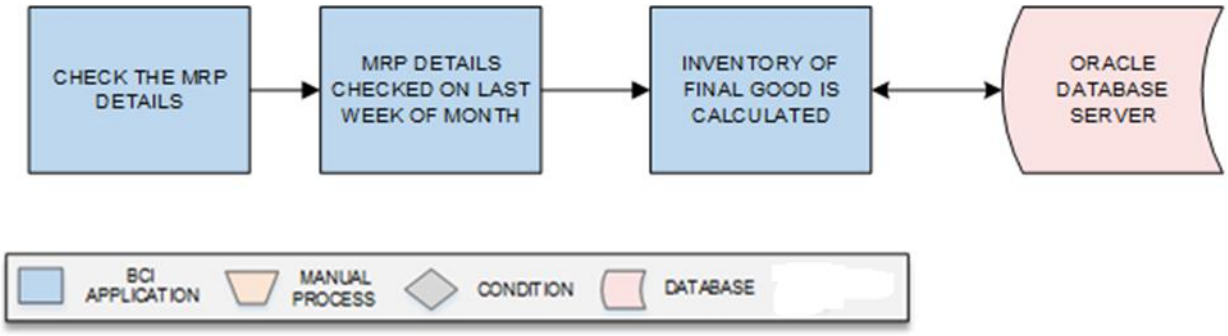
Note: 1. if Entry Type is PPC then Schedule ship date should be enable otherwise it should be disable.
2. If Entry Type is Forecast then header date should be copy in schedule ship date column.

	4. Forecast entry screen developed in PPC application. 5. Details gets saved in database and stored in Oracle.

Post-Conditions	1. Polyester Industrial Yarn details will get saved in the Oracle database.

Validations	1. An alert should be displayed in case Calculation malfunction happens. 2. An alert message is displayed in case of any error / invalid activity.

7.4.4 INVENTORY



Activities

Module Description	In these module it will help in Inventory Count and maintaining record for material in the warehouse. ***This activity will be done using Web Application.***

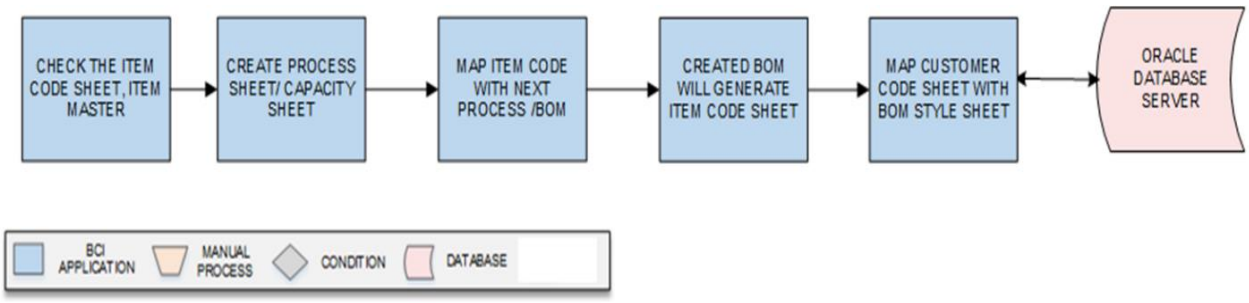
Pre-Conditions	1. Authorized access user to maintain the inventory. 2. Inventory to be not checked before last week of month.

Process Steps	1. Check the MRP will be run on 25th of the month for N+60 Days. 2. Inventory of Final Good requirement will be calculated on: *Note: 3 Month sales Plan - calculate opening stock of 1st Date of month from the oracle application i.e 1st date of opening Stock + Actual production up to 24th + Production Plan of till end of the month.* 3. Corresponding details will get updated in Oracle database.

Post-Conditions	1. Inventory Count and maintaining record to be saved in Oracle database.

Validations	1. In case not complete, an error / alert message will be displayed. 2. An alert message is displayed in case of any error / invalid activity.

7.5 MASTER PRODUCTION SCHEDULE



Activities

Module Description	In these module it states the process mapping of item details with customer schedule time and BOM details.

Pre-Conditions	1. Process details to be followed as per given Instruction.

Process Steps	1. Check the Item Code Sheet /Base Raw material (Input) Item Code sheet. 2. Create the Process sheet /Capacity sheet. 3. Map the Input Item Code with Next process /product in Bill of Material (BOM) 4. Created BOM will generate another Item Code sheet i.e Sales Item Master (Style Master Sheet). 5. Map the Created Customer Master /Customer Code Sheet with BOM/Style master Sheet. a. Item Code/ item creation screen (Formula Detail Sheet). b. Recipe Detail Sheet. c. BOM (Formula detail sheet) / Final product / Item Code mapped with Style sheet. d. Customer master creation sheet. 6. Details get saved in the database Oracle Server.

Post-Conditions	1. Process schedule to be on time and details to be saved in Oracle database.

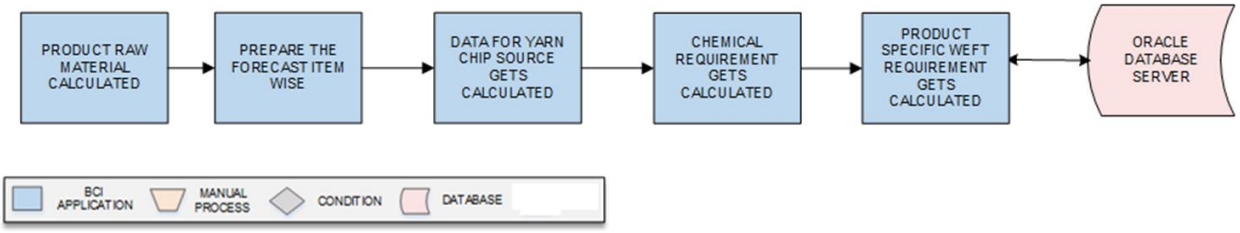
Validations	1. In case not complete, an error / alert message will be displayed. 2. An alert message is displayed in case of any error / invalid activity.

Screen

GIT Entry Screen

GIT Number:	101						Date:	10-Apr-22				
Vendor Name:	GSFC Limited						Location :	TTBG/TTBT/TTBM/TTBV				
PO.No. (LOV)	PO Date	Item_Code	Item Description	Quantity	UOM	Value	Need By Date	terms	source	GIT Inv.no	GIT Qty	UOM
Container.no.	B/L NO.	Shipping/Transporter	Currency	ETD Date	ETA Date	Responsible Person	CHA Agent	Attachment	Remarks			

7.6 BILL OF MATERIAL



Activities

Module Description	In these module it states the material used for stage of item. The material, quantity and chemical requirement used for making of material.

Pre-Conditions	1. Process details to be followed as per given Instruction.

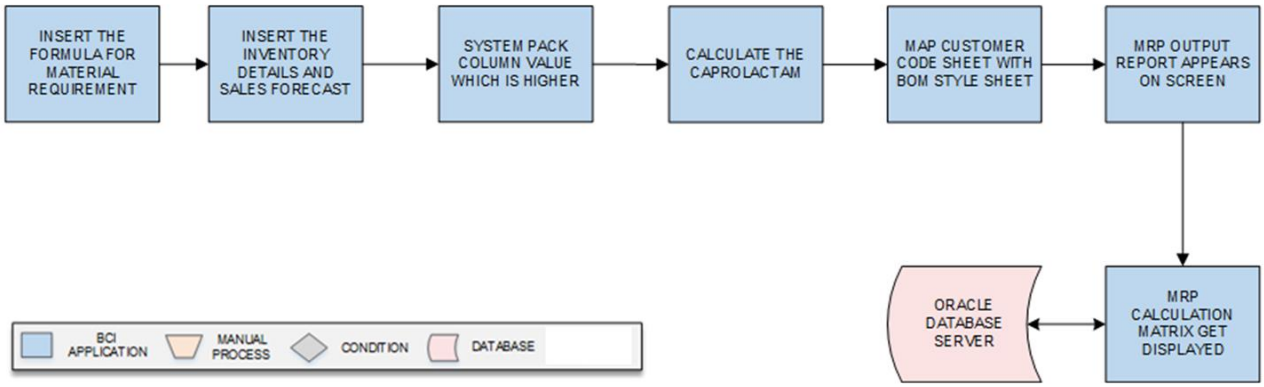
Process Steps	1. Product specific raw material requirement will be calculated through OPM formula. 2. The forecast item wise, we can use OPM existing BOM structure. 3. We get the Yarn Chip source from the OPM formula. 4. The chemical requirement will be calculate based on defined OPM formula. 5. Product specific Weft requirement will be calculated through OPM formula 6. Details get saved in the database Oracle Server.

Post-Conditions	1. BOM Material to be used for manufacturing the item.

Validations	1. In case not complete, an error / alert message will be displayed. 2. An alert message is displayed in case of any error / invalid activity.

8 TRANSACTIONS

8.1 MRP CALCULATION FORMULA & LOGIC



Activities

Module Description	In these module it states, the Calculation formula for the MRP creation after the material requirement of the product.

Pre-Conditions	1. Authorized access user to these process.

Process Steps

1. Check the formula to calculate Material Requirement:

	Date: 01-02-2022	RSP-A	RSP-B	RSP-C
Column	Particulars	Feb	Mar	Apr
1	RSP (N+2) in MT	100	120	150
2	Calculate Chip Requirement As per BOM	99	118.8	148.5

2. Insert the Inventory details and Sales forecast details.

   Inventory Norms 30 Days

   Per Day Requirement 99/30 = 3.5 MT per day

Customer Name	LOC Name	Style	Denier	Ply	Mar-22 Tentative	Mar-22 Forecast	Apr-22 Tentative	Apr-22 Forecast	May-22 Tentative	May-22 Forecast	Jun-22 Tentative	Jun-22 Forecast
CAVENDISH INDUSTRIES LIMITED	HARIDWAR	2465L	1890	2	154	160	154	160	120	160		160
CAVENDISH INDUSTRIES LIMITED	HARIDWAR	2165L	1890	2	61	50	61	50	70	50		50
CEAT LIMITED	CHENNAI	2044HW	1260	2	13	11	50	10	10	11		11

3. System will picked those column value whichever is higher.

Customer Name	LOC Name	Style	Denier	Ply	Sales Order v/s Sales Forecast Data for MRP			
					Mar-22	Apr-22	May-22	Jun-22
CAVENDISH INDUSTRIES LIMITED	HARIDWAR	2465L	1890	2	160	154	160	160
CAVENDISH INDUSTRIES LIMITED	HARIDWAR	2165L	1890	2	50	61	50	50
CEAT LIMITED	CHENNAI	2044HW	1260	2	11	50	11	11
		Total			341	376	345	341

4. The Caprolactam Requirement is calculated.

Caprolactam I/O	Mar-22	Apr-22	May-22	Jun-22
1.02	347.82	383.52	351.9	347.82

5. After running the MRP plan if you run the MRP report output will come as be below logic:

Particulars	Mar-22	Apr-22	May-22	Jun-22	Net Requirement
Caprolactam I/O 1.02 %	347.82	383.52	351.9	347.82	1431.06
Within the month Inventory Consumed in 15 days	160	0	0	0	160
Net Required Quantity	187.82	383.52	351.9	347.82	1271.06
Stock as on date	187.82				
GIT-	0	390	300	0	690
Need to confirm the Material availability	0	-6.48	51.9	347.82	393.24

6. MRP Calculation Matrix:

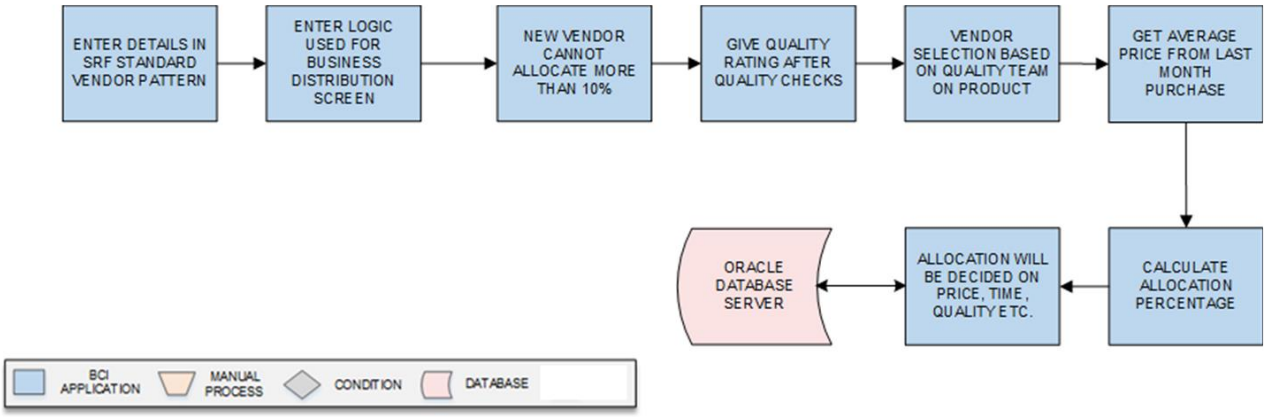
Column	A	B	C	D	E	F	G	H	I	J	K
Month	Opening Stock	Receiving (GIT)	Under Inspection	Issuance (RSP-A2)	Closing Stock (A+B+C-D)	Inventory Norms in Days	Inventory Qty (D+D*10%)	Current Month Purchasing Requirement (G-E)	MRP for Next Month (N+1) (RSP-B2 + G)	MRP for N+2 Month (RSP-C2 - G)	Total (K=H+I+J)
Feb-22	100	20	20	99	41	30 D	108.9	67.9	227.7	257.4	553

Post-Conditions	1. MRP calculation details to be saved in Oracle database.

Constraints	1. One style containing multiple item code. In such cases system will confuse to get which item code for drilldown to get the item ingredient (BOM). Because every item code using different yarn source like TTBG yarn or TTBM yarn or outside yarn.

	2. In yarn item code, denier mention in item description field. Need to be segregated denier in separate field in oracle application. 3. In case any forecasted item not defined in OPM. In that case how system will calculate the material Requirement.

8.1.1 Share of Business Allocation Logic for TCF



Activities

Module Description	In these module it states, Vendor wise order distribution (share of business) will be defined in RM application.

Pre-Conditions	1. Authorized access to the application.

Process Steps

1. The item wise approved supplier mapping screen.
2. As per SRF Standard vendor procurement pattern follow as under.

Item Category	Material Procure from Maximum number of Vendor
Class A	4
Class B	3
Class C	2

3. Logic for share of business distribution.

Share of Business Distribution Screen					
Quality Rating	**Vendor**	**Last Month Avg Procurement Price**	**Calculated SOB%**	**Proposed SOB%**	**Lead Time**
1	ABC	203.1	35	30	20
2	XYZ	205.5	25		30

3	BCA	204.8	30	20	30
4	XX (New Vendor)	201.1	10	50	45

4. In case of new vendor, Cannot allocate more than 10%. User can change ratio according to situation.
5. Quality Rating given by the quality department. This value can be change based on quality department.
6. Vendor Selection will be confirmed by the Quality team based on product quality approval.
7. Get average price from Last month purchase of specific vendor.
8. Calculate Allocation percentage as per below matrix:

Scenario	Number of Vendor	Vendor	Price	Allocation %
1	4	ABC	203.1	30
		XYZ	205.5	10
		BCA	204.8	25
		XX	201.1	35

9. This allocation % will be decided based on price, Lead time and Quality rating. More detailing given in SOB Allocation logic:

Sr. No.	Current Month	N+1 Month	N+2 Month
1	Priority domestic Vendor + minimum lead Time then complete order recommendation should be one vendor	first priority of Lowest cost of procurement then SOB as per L1/L2/L3/L4	first priority of Lowest cost of procurement then SOB as per L1/L2/L3/L4
2	if lead time is same for all domestic vendor, then Minimum **last Cost** of store procurement	If cost of procurement is same for all vendors, then SOB AS PER MINIMUM LEAD TIME LT1/LT2/LT3/LT4	If cost of procurement is same for all vendors, then SOB AS PER MINIMUM LEAD TIME LT1/LT2/LT3/LT4

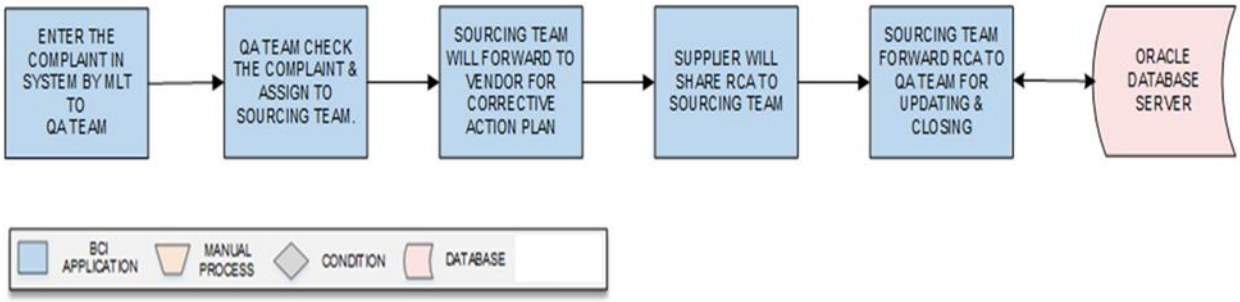
	10. Data get saved in the database of Oracle.

Post-Conditions	1. Details for Business allocation distribution to be saved in Oracle database.

Validations	1. In case not complete, an error / alert message will be displayed. 2. An alert message is displayed in case of any error / invalid activity.

8.2 VENDOR COMPLAINTS MANAGEMENT SYSTEM

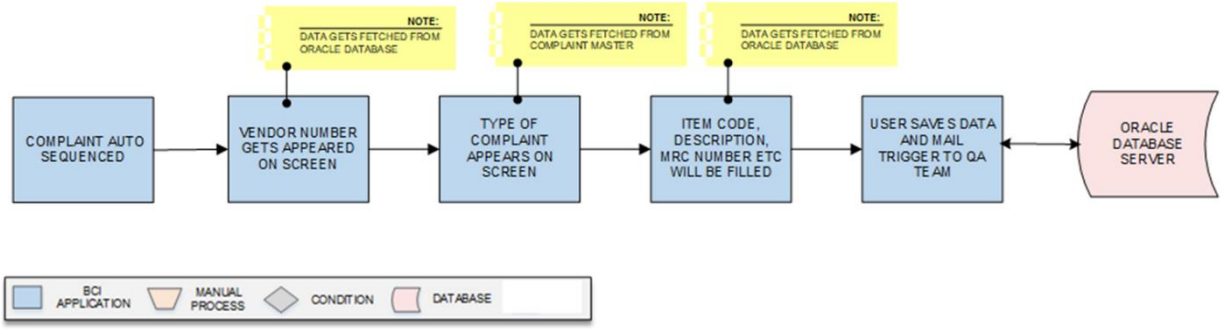
8.2.1 OBJECTIVES OF VENDOR COMPLAINT MANAGEMENT SYSTEM



The objective of the vendor complaints management system is to make complaints easier to coordinate, monitor, track and resolve, and to provide company with an effective tool to identify and target problem areas, monitor complaints handling performance and make business improvements.

1. Record issues and all related information.
2. Automatically notify various responsible person/groups.
3. Enforce the business process to manage the complaint through to resolution.
4. Develop a history of issues against each supplier to assess performance.
5. Improve supplier performance.

8.2.2 PROCESS TO ENTER THE COMPLAINT



Activities

Module Description	In these module it shows the process to enter the Complaint for the Vendor products and for Vendor.

Pre-Conditions	1. Authorized access to the application.

Process Steps	1. Complaint no will be auto sequence. 2. Vendor Name (LOV) will be get from oracle application. *3.* Type of complaint master Required. **Data gets fetched from Complaint Master* 4. Item Code , Item Description , MRC Number, Date, PO number, PO Date, Qty. Rec & Qty Rejected will be get from oracle 5. When user save this data one mail trigger to the QA team with complete complaint detail.

Post-Conditions	1. Details for complaints to be saved in Oracle database.

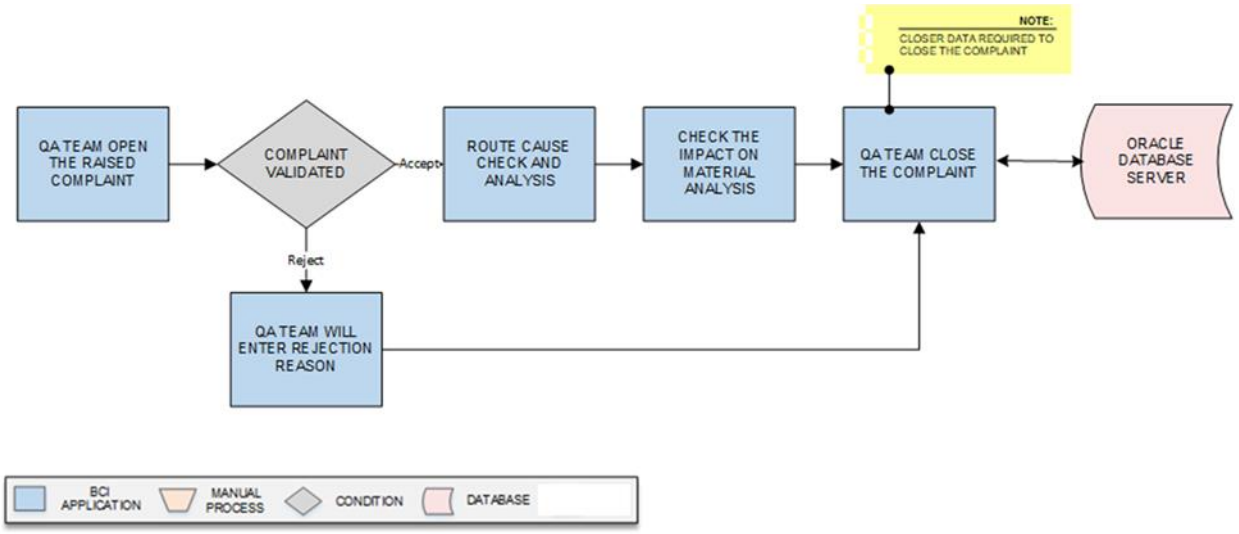
Validations	1. In case not complete, an error / alert message will be displayed. 2. An alert message is displayed in case of any error / invalid activity.

Sample Screen

Vendor Complaint Entry Screen Required

Complaint No.	1001		Type Of Complaint	Material/ /Service			Date :	10-Apr-22
Vendor	GSFC Limited		Complaint Status	Open/Close			Unit:	TTBG/ TTBM
Location	Gujrat							
MRC Number	MRC Date	PO Number	PO Date	Item Code	Item Description	Quantity Received	Quantity Rejected	Remarks

8.2.3 Assessing & Analyses the Complaint by QA Team



Activities

Module Description	In these module it states, the Complaint testing process by the QA team and approving the request or rejecting after testing.

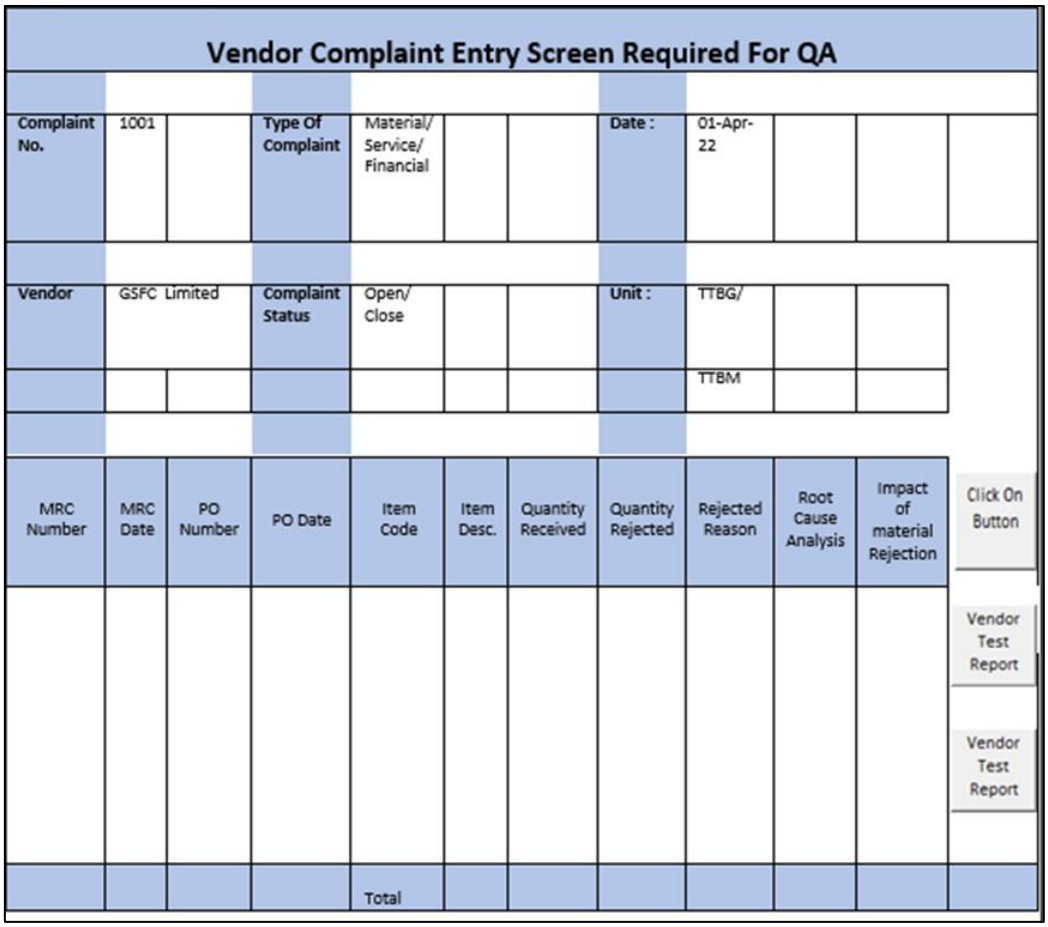
Pre-Conditions	1. Authorized access to the application.

Process Steps	1. QA Team will select the complaint Enter/Open complaint. 2. QA team will enter the rejected reason. 3. Route cause analysis & Impact of material analysis will be putting manually by QA user. 4. QA user can able to close the complaint in that case closer date required.

Post-Conditions	2. Details for complaints to be saved in Oracle database.

Validations	3. In case not complete, an error / alert message will be displayed. 4. An alert message is displayed in case of any error / invalid activity.

Sample Screen



Vendor Complaint Entry Screen Required For QA

Complaint No.	1001		**Type Of Complaint**	Material/ Service/ Financial			**Date :**	01-Apr-22			
Vendor	GSFC Limited		**Complaint Status**	Open/ Close			**Unit :**	TTBG/ TTBM			

MRC Number	MRC Date	PO Number	PO Date	Item Code	Item Desc.	Quantity Received	Quantity Rejected	Rejected Reason	Root Cause Analysis	Impact of material Rejection	Click On Button
											Vendor Test Report
											Vendor Test Report
				Total							

8.2.4 Corrective and Preventive Action Format

Activities

Module Description	In these module it states, Once vendor complete the RCA Analysis then QA team will make the Corrective & Preventive Action entry in below format:

Sample Screen

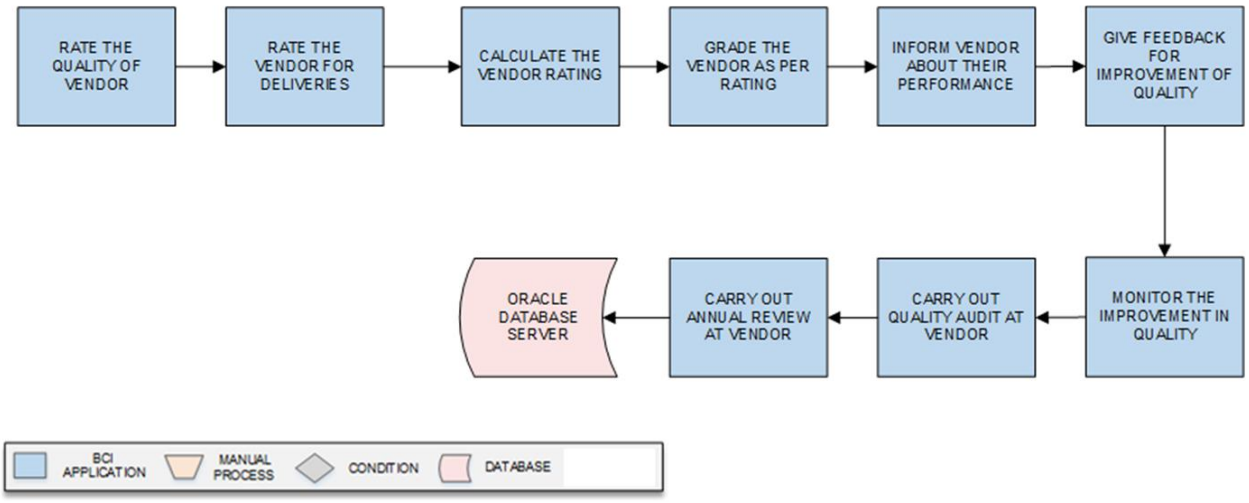
Corrective & Preventive Action Entry Screen Required

Complaint No.	1001	Type Of Complaint	Material/ Service/ Financial		Date :	01-Apr-22	
Vendor	GSFC Limited	Complaint Status	Open/ Close		Unit :	TTBG/ TTBM	
Identification of problem :							
Corrected /Containment Action :							
Why Why Analysis							
Why-1			Ans.				
Why-2			Ans.				
Why-3			Ans.				
Why-4			Ans.				
Why-5			Ans.				
Implementation of Action Plan :							
Corrective Action			Target Date		Respons ibility		
Preventive Action			Target Date		Respons ibility		
Verification of Implemented Action Plan							

8.3 VENDOR RATING MANAGEMENT SYSTEM

8.3.1 OBJECTIVES OF VENDOR RATING MANAGEMENT SYSTEM

Vendor evaluation is a system for recording and ranking the performance of a supplier in terms of a variety of issues, which may include delivery performance and the quality of the items. A process of vendor rating is essential to effective purchasing.



Activities

Module Description	This module will be Vendor rating is when the suppliers are provided with a status or a title based on several factors like delivery time and quality of the goods supplied, and a set of such mixed variables

Pre-Conditions	1. Authorized access to the application.

Process Steps	1. Rate the Vendor for quality of the products supplied. 2. Rate the Vendor for Deliveries of their products during the period. 3. Calculate the Vendor rating for the period. 4. Grade the Vendor as per the rating during half yearly. 5. Inform vendors about their performance and ask for improvement plans. 6. Monitor for improvement in subsequent period. 7. Carry out quality audit at vendor site. 8. Carry out annual review audit 9. Corresponding details will be updated in database.

Post-Conditions	1. The Vendor Rating details to be saved in the Database of Oracle. 2. Vendor to be rated every monthly, quarterly and yearly on quality.

Validations	1. An alert/ error message will be displayed in case invalid. 2. An alert message is displayed in case of any error / invalid activity.

8.3.2 Quality Rating (QR)

Activities

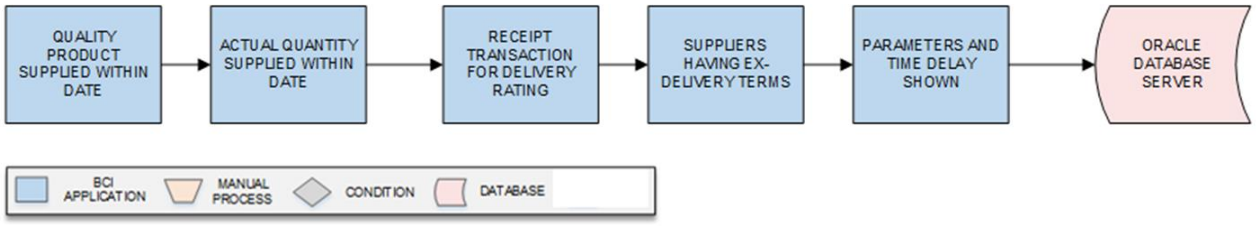
1. Parameters of the Quality Rating of Material.

Parameter	Operational definition	No of lots conforming (C)	Weightage (W)	Weighted score ∑ (C x W) / N	Data extraction for Quality parameters	
Release test (approval)	Product characteristics and/or dimensions of receiving items meeting requirements as per the quality plan	Data Available in Oracle	30		OPM (MRC approval status)	With GRN
Packing Quality	Product not exposed to atmosphere, identification of product is not lost and packing material and marking meeting SRF requirements	Data Available in Oracle (add DFF to enter the comment.)	10		-	With GRN (comment)
Test Certificate	COA accompanies all consignments and contains characteristics required by SRF at the time of receipt	Data Available in Oracle (Same as Applicable)	10		(Supplier test certificate/ System based)	With GRN (comment)
Processing performance	Entire lot is free from processing troubles in the SRF manufacturing process	Data Available in Oracle	30		-	For usage lot
Product and service complaints	Response to complaints and effectiveness of corrective actions	Not Available in oracle (Already Design Vendor Complaint System)	No complaints = 20 If complaint, then follow: {No response = 0, Complaint acknowledged = 5, Complaint acknowledged + corrective action report = 10}		Manual (Entry window can be provided)	For usage lot

2. Parameters of the Quality Rating Report Format:

Vendor Name			**Ms. KLJ Resource**			
Product Supplied			**KLJ Oil**			
Duration			Oct'20 to Mar'21			
1 Quality Rating			**94.5**			
Quality Rating			**Number of lots received N =**		**11**	
Sr.	**Parameter**	**Operational definition**	**No. of Lots Conforming (C)**	**Weightage (W)**	**C X W**	**Weighted Score = Σ(C X W) / N**
1	Release Test (Approval)	Product characteristics and/or dimensions of receiving items meeting requirements as per the quality plan	10	30	300	
2	Packing Quality	Product not exposed to atmosphere, identification of product is not lost and packing material and marking meeting SRF requiements	11	10	110	
3	Test Certificate	COA accompanies all consignments and contains characteristics required by SRF at the time of receipt	11	10	110	**95**
4	Processing performance	Entire lot is free from processing troubles in the SRF manufacturing process	10	30	300	
5	Product and service complaints	Response to complaints and effectiveness of corrective actions	11	20	220	
				Σ =	**1040**	

8.3.3 DELIVERY RATING



Activities

Module Description	This module will be Delivery rating is when the suppliers are provided with a status or a title based on several factors.

Process Steps

1. Quality product to be supplied within need by date.
2. Actual quantity supplied within need by date.
3. Receipt transactions for given period for Delivery rating.
4. For suppliers having ex- delivery terms or CIF delivery terms, can be calculated by following formula:

ORDERED QTY (Requested)	DELIVERY SCHEDULE (Need by date)	DELIVERY (Reciept) DATE	DELIVERED QTY	On time Delivery (OTD index)
				$\frac{(1.0 \times Q1) + (0.75 \times Q2) + (0.50 \times Q3) + (0.25 \times Q4)}{\text{Total receipt Qty.}}$
Stores receipt data for each supplier in given period irrespective of item types.			**Delivery rating of Period =**	**∑ OTD index x100 (%age)**

5. The parameters and time delay as shown below:

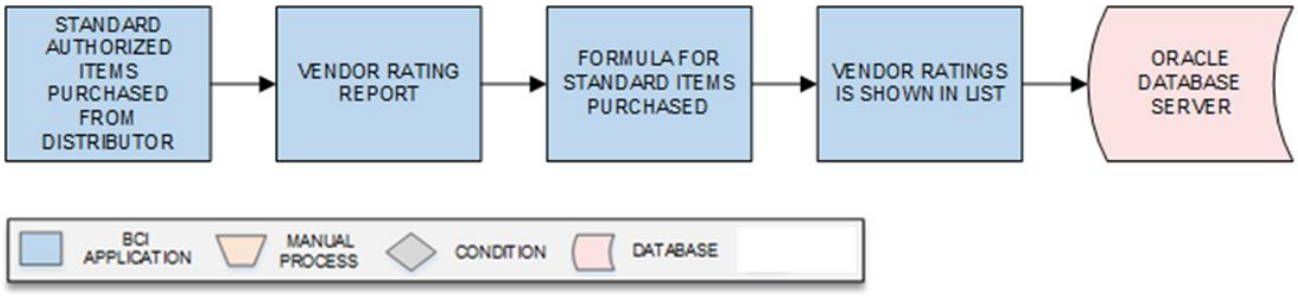
Parameter	Operational definition	Receipt quantity Q	Delay period	
			Domestic *	Imported
On time delivery (OTD)	Quantity Received On Time /Need by date (difference between actual MRC date & Need by date)	Q1	+ 3 Days	+ 7 Days
		Q2	4 to 6 days	8 to 11 Days
		Q3	7 to 10 days	12 to 14 Days
		Q4	> 10 Days	> 14 Days

6. The data gets saved in the database.

Post-Conditions	1. Details for Delivery Rating to be saved in Oracle database.

Validations	1. In case not complete, an error / alert message will be displayed. 2. An alert message is displayed in case of any error / invalid activity.

8.3.4 VENDOR RATING (VR)



Activities

Module Description	This module will be Vendor rating is when the suppliers are provided with a status or a title based on several factors.

Process Steps

1. For Standard available items purchased from authorized distributors/stockiest (interchangeable supplies, A class Items).

VR = [0.65 x QR + 0.35 (DR)] x 100

2. Non standard Items a per special make to drawing or SRF specifications. (B Class, Process chemicals and process consumables, Packing stores)

VR = [0.65 x QR + 0.35 (DR)] x 100

NOTE:- Each unit MLT to revise and update Purchase orders with agreement of Shipment dates with suppliers to avoid later Need by date issues.

2. Vendor Rating Report Format:

Vendor Name	**Ms. KLJ Resource**
Product Supplied	**KLJ Oil**
Duration	**Oct'20 to Mar'21**
3 Vendor Rating	**82.14**
Quality Rating	94.5
Delivery Rating	59.1

3. For standard Items purchased from authorized distributors/Stock list.

1. For Standard availble items items purchased from authorised distributors/stockists (interchangeable supplies, A class Items)

VR = [0.65 x QR + 0.35 (DR)] x 100

2. Non standard Items a per special make to drawing or SRF specifications. (B Class, Process chemicals and process consumables, Packing stores)

VR = [0.65 x QR + 0.35 (DR)] x 100

4. The grading of Vendor to be classified on the following factors:

Rating	Grading	Implications
> 90	Excellent	Most preferred.
80 - 89	Very Good	Preferred. To work for improving to higher rating
70 - 79	Good	Acceptable. Needs monitoring
< 70	Poor	Based on Improvement plan, monitor progress and plan vendor assessment if necessary.

5. The data to be saved in the database of Oracle.

Post-Conditions	1. Details for Vendor Rating to be saved in Oracle database.

Validations	1. In case not complete, an error / alert message will be displayed. 2. An alert message is displayed in case of any error / invalid activity.

9 REPORTS

9.1 RAW MATERIAL REPORT

Business Process Identification

Module	Report Generation
Description	Below module will be used for generating the report of the Raw Material.

Proposed Process

Sr. No	Topics
1.	**Proposed Process Explanation**
	Below is the snap shot of the module which will be used for generating the report of the logs.  Below is the list of activities needed to be followed for generating the report. 1. User will select the report name from dropdown. All the list of log name will be shown in the selection field. 2. After selecting the log name its report generating filters will populate for selection on the basis of selected report, in the above screen filters are shown for log i.e., “Raw Material Report”. 3. User will select the filters. 4. User need to click on **Generate** button. 5. Application will generate the log report in the associated format.

Sr. No	Topics
2.	**Validations**
	1. Report generation filters should be populated based on the report name selection. Shown in the image is just an example. 2. User can download the populated report in the PDF/Excel format.

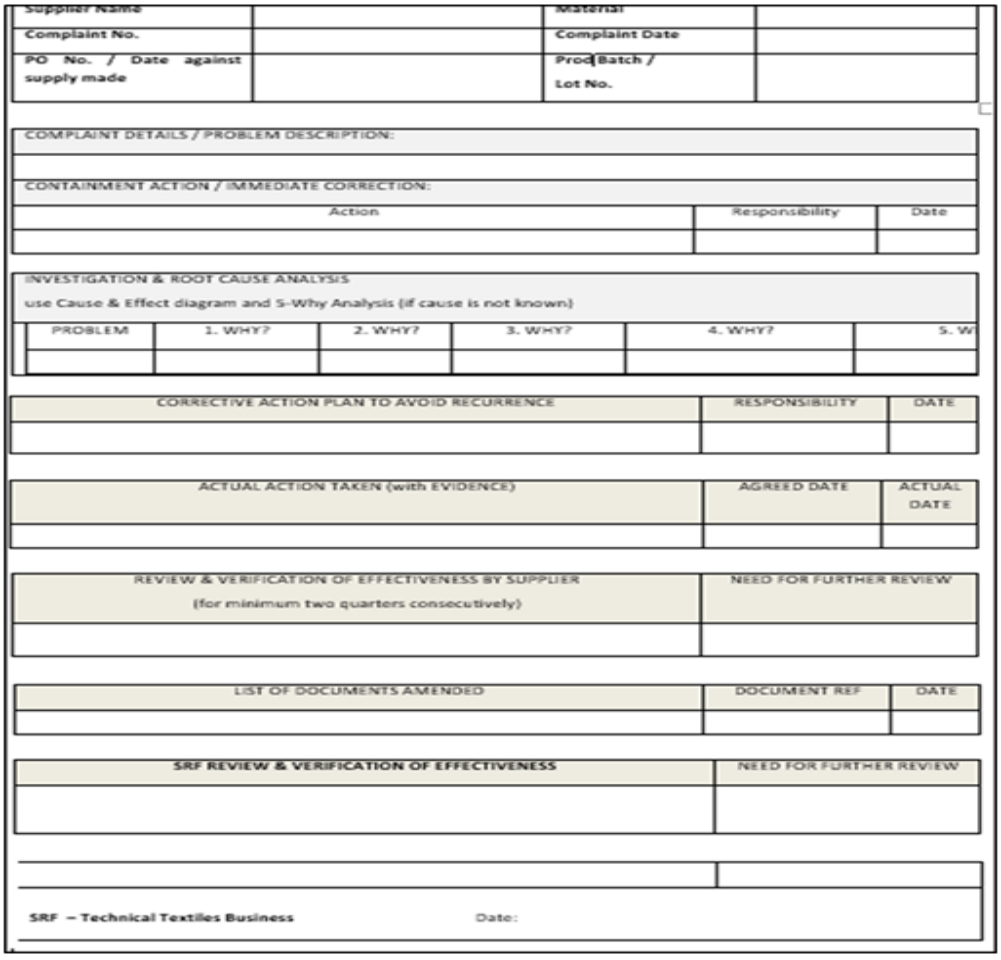
9.2 CAPA REPORT

Business Process Identification

Module	Report Generation
Description	Below module will be used for generating the report of the CAPA Report.

Proposed Process

Sr. No	Topics
1.	**Proposed Process Explanation**
	Below is the snap shot of the module which will be used for generating the report of the logs.



Below is the list of activities needed to be followed for generating the report.

1. User will select the report name from dropdown. All the list of log name will be shown in the selection field.
2. After selecting the log name its report generating filters will populate for selection on the basis of selected report, in the above screen filters are shown for log i.e., “CAPA Report”.

	3. User will select the filters. 4. User need to click on **Generate** button. 5. Application will generate the log report in the associated format.

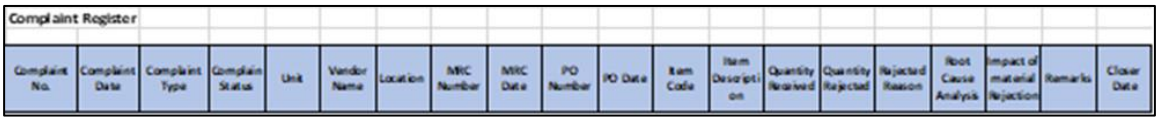
Sr. No	Topics
2.	**Validations**
	1. Report generation filters should be populated based on the report name selection. Shown in the image is just an example. 2. User can download the populated report in the PDF/Excel format.

9.3 COMPLAINT REGISTER

Business Process Identification

Module	Report Generation
Description	Below module will be used for generating the report of the Complaint Register.

Proposed Process

Sr. No	Topics
1.	**Proposed Process Explanation**
	Below is the snap shot of the module which will be used for generating the report of the Complaint Register.  Below is the list of activities needed to be followed for generating the report. 1. User will select the report name from dropdown. All the list of log name will be shown in the selection field. 2. After selecting the log name its report generating filters will populate for selection on the basis of selected report, in the above screen filters are shown for log i.e., "Complaint Register Report". 3. User will select the filters. 4. User need to click on **Generate** button. 5. Application will generate the log report in the associated format.

Sr. No	Topics
2.	**Validations**
	1. Report generation filters should be populated based on the report name selection. Shown in the image is just an example. 2. User can download the populated report in the PDF/Excel format.

10 SRS Scope Change Process

10.1 Before Sign Off

Any changes in SRS need to be informed in writing by SRF Ltd. It will be incorporated / confirmed only after doing detailed feasibility study by BCI.

- If any change is out of scope then this would be done as a CR post feasibility and priority will be decided based on mutual agreement.
- Once the change is developed , any further change in the same would be considered as a CR

10.2 After Sign Off

Any changes in proposed solution after approval of this document by SRF Ltd. are subjected to confirmation from BCI, taking feasibility constraints into account. These changes will be incorporated (if any) into the solution only after delivering proposed solution & may be charged as extra.

- Any change in the proposed solution due to customer system design or process will be considered as CR
- Any process which is not mentioned in this document will not be considered as “mutual understanding or default presence or standard practice”.

The changes in proposed solution before & after acceptance will be mutually agreed and duly signed and accepted by SRF Ltd. & BCI Ltd.

10.3 SRS Acceptance

Agreed and Accepted by SRF Ltd. and Bar Code India

For SRF Limited	**For Bar Code India (BCI)**
Name:	**Name:**
Designation:	**Designation:**
Department:	**Department:**