

STREAMLINING THE PRE-PRODUCTION
PROCESSES USING VARIOUS TECHNIQUES

*A dissertation submitted in partial
fulfilment of the requirement for the
award of Degree in*

***Bachelor of Fashion Technology (Apparel
Production)***

Submitted By

APARAJITA KUMAR

BHARGAVI PANWAR

*Under the
Guidance of*

MR. JOMICHAN PATTATHIL

*Department of Fashion
Technology*

National Institute of Fashion Technology, Mumbai

May, 2016

CERTIFICATE



April 30, 2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Aparajita Kumar, fourth year student of National Institute of Fashion Technology, Mumbai has successfully completed her Industry Internship at **Blackberrys (Mohan Clothing Co. Pvt. Ltd.)**.

The internship duration was from 18th January, 2016 to 21st April 2016, under the guidance of Mr. Ratnesh Jaiswal, Dy. General Manager- Outsourcing. The topic of her project was “Streamlining the Pre-Production processes by developing computer aided applications and using various other techniques”.

We found her sincere, hardworking, technically sound and result-oriented. We take this opportunity to thank her and wish her all the best for her future.

for Mohan Clothing Co. Pvt. Ltd.

A handwritten signature in blue ink, appearing to read "Malabika Bose", is positioned above the printed name.

Malabika Bose
Vice President- HR

CERTIFICATE



April 30, 2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Bhargavi Panwar, fourth year student of National Institute of Fashion Technology, Mumbai has successfully completed her Industry Internship at **Blackberrys (Mohan Clothing Co. Pvt. Ltd.)**.

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Malabika Bose
Vice President- HR

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TABLE OF CONTENTS

CHAPTER NO.	TITLE	PAGE NO.
1.	About the company	5
2.	Background	6
3.	Introduction	8
4.	Objective	10
5.	Data collection	11
6.	Review of Literature	12
7.	Methodology	15
8.	Implementation and execution/experimentation	20
9.	Findings/Results	38
10.	Suggestions and recommendation	42
11.	Scope of the project in Future	44
12.	Conclusion	50
	Appendix	54
	Annexure	64
	Reference	67
	Bibliography	68

ABOUT THE COMPANY

Blackberrys is a premium menswear brand owned by Mohan Clothing Co. Pvt. Ltd. (MCCPL). Established in 1991, the company has been promoted by Mr. Nikhil Mohan and Mr. Nitin Mohan. MCCPL has a widespread and multi-channel distribution network covering more than 150 cities in India through a mix of Exclusive Brand Outlets (EBOs), Multi Brand Outlets (MBOs) and Large Format Retail (LFR).

‘Blackberrys’ is an established brand in the domestic market predominantly for menswear and is targeted at consumers in the age group between 25 and 40 years. MCCPL started operations with the introduction of men’s suits & jackets and over the years has expanded its product portfolio by offering complete range of men’s formal wear such as trousers, shirts, suits, jackets and accessories. Now it has a range of casual wear and party wear.

Tagline - *Go Sharp*

The company head office is situated in Gurgaon, Haryana. It has 4 production units situated in Gurgaon itself:

- KLPL-2 units (Suits)
- AVM-2 units (Shirts and Trousers)

Outsourcing is carried out for the remaining products.

There are four major departments in the Head Office of MCCPL:

- Design and Tech design
- Product
- Sourcing
- Sales

BACKGROUND

Evolving consumer preferences whose awareness levels of trends, fashion consciousness, disposable income and consumerism is high. This much consumer awareness wants different merchandise at even shorter intervals complimented with greater shopping experiences, which is inducing product lifecycles to shrink dramatically, driving the needs of even more new products. So the goal is not only to deliver the product at low cost but most importantly in shorter time which can be achieved by ensuring proper coordination among different activities.

The processes that are done prior to start of bulk garment production are known as pre-production process. From sample development, approvals, research and development work for orders, testing of raw material to pre-production meeting are pre-production process. Pre-production processes are very important for the efficient production.

Garment industry is still facing lot of problems in pre-production processes. Like, in sample development, sample approval, development of trims and embellishment sourcing of materials, approval of trims and fabrics are taking much time than planned. Shipments get delayed due to delay in pre-production processes.

In today's scenario where lean is the buzz word, making the delivery quick and on time is the main objective of any retailer and manufacturer. Reducing the delay elements which are normally non value added elements and making the entire supply chain more efficient and agile are necessary. Hence entire pre-production, production and post-production activities need to be managed properly. This also leads to getting more order, more profit and good name in this competitive scenario. Pre-production delays are the extension of the days beyond standard and planned schedule for the activities starting from order enquiry to all approvals

required for bulk production. These delays increase the lead-time even more than the standard one and hence to survive in the global competitiveness is much more difficult for the manufacturers. In the absence of a standardized pre-production process network, elimination, concurrence and integration approach will be too specific to be applicable across industry.

Based on this the project is undertaken to explore generalized or standardized solutions/techniques that can be applied.

INTRODUCTION

Following are the key observations:

1. PRODUCT

- Excessive time and resources involved in sampling
- Absence of market surveys to understand the customers' requirements
- Inordinate time consumed in fabric selections
- Unidentified reasons of product failure
- Excessive discussion without conclusions

2. SOURCING

- Lack of coordination between Sourcing department and the garment vendors, in terms of data flow, communication and management which leads to unreasonable delays in delivery of goods and increased lead time.
- Simple methods employed for TNA monitoring system; done manually and ineffectively on excel sheets, data transfer through e-mails, telephone etc. ultimately leading to misinterpretation and numerous issues in data tracking.
- Difficulty in determining the status of the order
- Delays go unnoticed without the reason being recognised
- Increased quality failures and cost
- Launching a collection with multiple styles is not possible until all the POs are received on time
- Inefficient and time-consuming method used for evaluating vendors (manual)

Need

- Execution and delivery of goods as per the merchandising plan always gives an edge for the company in current cut throat competition.
- Delay in any of the process can adversely affect the further processes and it is observed that there are delays happening at pre-production stage.
- Further, the study gives focus on various internal causes, affects and suggestions to avoid delay in work processes.

Problems were discussed with the concerned person to find the appropriate solutions as mentioned below:

- To create new means for tracking pre-production activities using technological aspect.
- Find measures to reduce product failure
- Eliminate the non-value added elements from the fabric selection process
- Provide solutions for reducing time and cost involved in sampling process
- To create a standardised formats for business allocation process

OBJECTIVE

The overall objective of this project is to **streamline the pre-production processes.**

1. To streamline the product development processes using various techniques

This phase includes:

- To reduce cost of the product
- To reduce lead time of the entire product development process
- To identify reasons of product failure
- To implement lean product development

2. To develop a TNA application to track, follow up and improve various stages of calendar and accurately evaluate the status and the length of time for an order.

This phase includes:

- To reduce lead time
- To successfully trace out the reasons of delays and finding solutions

The analysis is based on:

- Order details and assortment
- TNA plan and its activities
- Major delays happening in time and action plan

3. To create standardised formats for automatic rating/scoring and evaluation of vendors.

This phase includes:

- Rating vendors according to their capacities and performance
- Quick and accurate selection of vendors

DATA COLLECTION

Secondary data is collected by understanding the process flows, time and action calendar, past records and departmental reports of orders executed by the company and vendor profiles in detail of the company, the on-going design and development processes.

Primary source of data will be the findings of the working environment from the company as well as analysis of the data from surveys conducted among internal and external customers.

REVIEW OF LITERATURE

In the literature it is clarified that vendor selection has a multi-objective nature implying that several criteria need to be considered in the supplier selection decision (**Dickson, 1966; Weber, Current, & Benton, 1991**).

Research of existing supplier selection literature mainly covers four areas: problem formulation, formulation of criteria, pre-qualification of potential suppliers and final selection of suppliers (**de Boer, Labro, & Morlacchi, 2001**). The first step when evaluating suppliers is to select what criteria should constitute basis for the evaluation. Poorly selected criteria often mislead the decision-maker when final decision for selecting the most suitable supplier will be conducted. Another negative effect deduced to poor criteria is the waste of time and resource (**Celebi & Bayraktar, 2008**).

A supplier of today often needs to fulfil requirements other than just those concerning material and service, such as requirements that prove the supplier's capability and suitability to live up to a company's long-term requirements and needs. It is vital to assure that the supplier can guarantee sustained continuity of supply and to be aware of its performance, strengths and weaknesses. Through implementing a structured approach gathering data of supplier performance strict agreements can be negotiated about improving reject rates, reducing total lead time and contributing to cost reduction. (**Van Weele, 2005**)

Procurement has direct connection with company profit. Every penny saved in purchasing is a profit, while every sale brings cost of sales. In fast fashion, purchasing activities play a critical role through supplier selection and product decision-making, and indeed, buying is arguably changing from purely operational to much more strategic (**Bruce and Daly 2006**)

Namkyung Jang, Kitty G. Dickerson, Jana M. Hawley, (2005) "Apparel product development: measures of apparel product success and failure", Journal of Fashion

Marketing and Management: An International Journal, Vol. 9 Iss: 2, pp.195 – 206

Qualitative research method was employed. Emergent themes were classified into Griffin and Page's "core success and failure measures" including customer acceptance, financial performance, product-level, and firm-level. Findings revealed that the performance measures for apparel products are multidimensional. The combination of consumer acceptance and financial performance measures, especially sales and profitability, served as critical measures for apparel product performance.

A Time and Action calendar is a calendar which shows the ideal date/ time period within which the major activities or tasks are supposed to occur against a scheduled delivery window. (**Kothari 2013**) It is a regular review system to track progress of the project(s). A smart merchandiser maintains critical path to identify the critical tasks, which if not attended to could impact delivery schedules for his styles. (**Islam 2013**)

They never work on trend prediction like others which is done 12 months prior to the actual sales (**Barnes and Greenwood 2006**). The only place where Zara is predicting heavily is ordering its fabrics. Fabrics are considered raw materials and need to be present before the season starts due to long lead times. Anyhow, there is still efficiency applied in this process. The fabrics are ordered uncoloured and this gives flexibility to change the color depending on the trends. Majority of stock is held as "work-in-process" awaiting configuration instructions. (**Case study: Zara's agile supply chain**)

D'Aveni (1994) and Lance et al (1998) highlight that very few firms can develop and master the wide range of knowledge and skills needed independently to be competitive. In relation to the knowledge needed, **Szulanski and Rosella (2003)** stress the importance of motivation in the transfer of knowledge by both from the source and the recipient of the knowledge. The role of the organizational structure related to knowledge and NPD is further explored by Kim

(1993) describing that learning often is rooted in the knowledge structure of top management and the organizational structures and processes (**Kim, 1993**)

Ellie Kennedy, Workshop Task: Coke Case Study, 2011

In 1985 the Coca-Cola Company decided to terminate its most popular soft drink and replace it with a formula it would market as New Coke. This is known as the “Biggest Marketing Blunder of All Time”. It can be concluded from the case study that product perception is as important as product itself, never underestimate the emotions attached to a brand, imitating competitors can never be a long-term strategy, save your market research from strong biases and have courage to accept your mistake and correct it.

Dimensional analysis model proposed by **Willis et al. (1993)** is a supplier evaluation technique with the purpose to resolve some of the drawbacks of the other approaches. The model combines several criteria of different dimensions and relative importance into a single entity for each supplier. Then the supplier performance index is calculated based on the supplier performance against the standard performance for a set of criteria and the relative importance of the criteria. Each supplier is evaluated according to the performance index created in this way. Criteria may have either positive or negative weight. For example, quality represents positive weight criterion while price represents negative weight criterion. In conclusion, the dimensional analysis model is used to measure each supplier against a standard set of criteria. The main disadvantage of this model is that it requires the highest costs to implement and to provide training in its operation to the related personnel comparing to the other three (**Teng and Jaramillo, 2005 and Humphreys et al., 1998**).

METHODOLOGY

Detailed study of the departments mainly concerned with the pre-production activities.

Area of Focus-

1. Product Development Department
2. Sourcing Department

The detailed department-wise description of the above mentioned project is mentioned below.

SOURCING

TNA Application

Key activities of TNA calendar to be included in the system:

- BOM
- PR run
- PIE
- Proto
- Proto report
- Fabric PI receive date
- PO date
- FPR yardage In-house
- FPR submit
- FPR report
- GPT (for particular styles)
- Bulk fabric In-house
- Fabric inspection report

- PCD
- Feeding date
- Washing start & end date (for particular styles)
- Output start date
- Output end date
- Finishing start
- Finishing end
- Final inspection
- Ex-factory
- Unloading date
- QCR at Warehouse
- GRN

This application is related to the Time & Action Calendar and its various activities.

The database will be created in MS Access and it will be linked with VB.NET.

Methodology

- Requirement Gathering and Analysis of the requirements and the data collected, i.e. brainstorming phase for feasibility check and defining the system (detailed blueprint) and the various phases of the application.
- Design – Creating the user interface and customizing the looks
- Coding - Add visual basic code
- Testing - Run and test the program prototype
- Implementation – Running the application in various systems to monitor the working and if the system generates error, corrections are to be made accordingly.

DESIGN PHASE:

Steps in development of database:

- Analyse data
- Categorise data
- Design tables
- Assign field names
- Identify data type
- Create table
- Primary key
- Develop relationships
- Enter data into tables
- Design forms
- Understand Queries
- Query criteria
- Generate report
- Design report
- Final assessment

Proposed Working Style

- Login page for admin, vendors and users within the department with separate user IDs and passwords.
- Access can be given to new users/vendor by signing up
- Vendors and admin have different user since the vendors only have limited access
- Data- collection, category, vendor, style and planned dates with activities will be entered manually according to the TNA calendar in a given format

- The order and its details will be entered to database through a GUI (graphical user interface) i.e. through forms. The data entered can be saved, deleted and updated easily.
- Planning can only be done for existing PO numbers in the system.
- For further monitoring, actual dates are required to be entered.
- Column for remarks which will be a mandatory field, in case of delay
- Report generation
 1. Summary – For planned dates v/s actual dates
 - PO number wise
 - Vendor wise
 - SFA month wise
 2. Status – list of the completed and delayed activities along with remarks
- Reports can be printed if required
- Vendors only have access to enter the actual dates of the activities and view the status of their orders.
- In order to ensure easy access and convenient maintenance, the chosen database **will have a user- friendly front-end suitable for retrieval and presentation of data** as well as a system for editing existing values and adding new records.
- All tasks previously recorded on files and excel sheets will be integrated into the new system by linking the application to the existing ERP system.

Suggestions on the basis of trial:

- Trigger e-mails in case of delay of more than 2 days to the concerned department head
- Colour coding for delays and completed tasks for better visual appearance and understanding
- The application will automatically generate pop-ups-
 1. RED - warnings for the work not completed on planned date
 2. BLUE – reminder for the work to get started
 3. GREEN – work completed on time
 4. YELLOW – on going activity

IMPLEMENTATION

Old system – Unorganised excel sheets, not necessarily filled on-time and acted upon,
ineffective tracking and communication leading to delays.

	A	B	C	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1					5140	14125														0
2	Category	Season	SfaMon	Style	SFA C	SCO Qt	SCO #	Proto. Iss	Proto Suf	Proto con	FPR Yrld	FPR ISS	FPR Su	FPR Com.	Fab. I/	Fab. Iss	Ex. Fa	Deliver	lo. Of I	
205	UT	SUMMER15	Apr-15M1	UT-DORIAN	640	640	SCO/004550/14-15	13-Feb	28-Feb	05-Mar										
206	UT	SUMMER15	Apr-15M1	UT-DORIAN	640	640	SCO/004550/14-15	13-Feb	28-Feb	05-Mar										
207	UT	SUMMER15	Apr-15M1	UT-EDWARD	800	800	SCO/004552/14-15	27-Feb												
208	UT	SUMMER15	Apr-15M1	UT-EDWARD	800	800	SCO/004552/14-15	27-Feb												
209	UT	SUMMER15	Apr-15M1	UT-REGGIE	250	250	SCO/004337/14-15	13-Feb	27-Feb											
210	UT	SUMMER15	Apr-15M1	UT-WILFRED	219	218	SCO/004336/14-15	13-Feb	28-Feb	03-Mar										
211	UT	SUMMER15	Apr-15M1	UT-JOSHUA	640	639	PO/006488/14-15													
212	UT	SUMMER15	Apr-15M1	UT-JOSHUA	640	639	PO/006488/14-15													
219	UT	SUMMER15	Apr-15M1	UT-FRANK	248	262	SCO/004330/14-15	23-Feb	02-Mar	03-Mar	04-Mar									
220	UT	SUMMER15	Apr-15M1	UT-FRANK	263	278	SCO/004330/14-15	23-Feb	02-Mar	03-Mar	04-Mar									

New system-

Features & Benefits

- Facilitate easy monitoring
- Providing Visibility and clear information for all the key processes from allocation to delivery
- Scope of improvement in lead time
- Provide clear priorities
- Reflects current performance including any slippage
- Provides early warning of potential issues and urgent actions required
- Cross check at frequent intervals whether the planning is being executed properly and on time
- Actual v/s Planned

Layout of TNA Solution

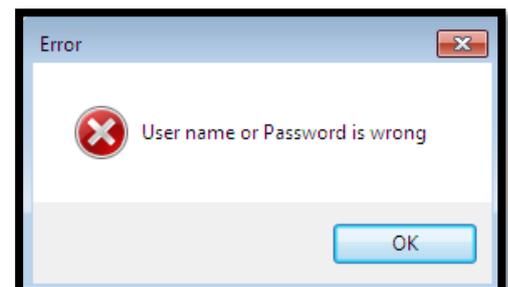
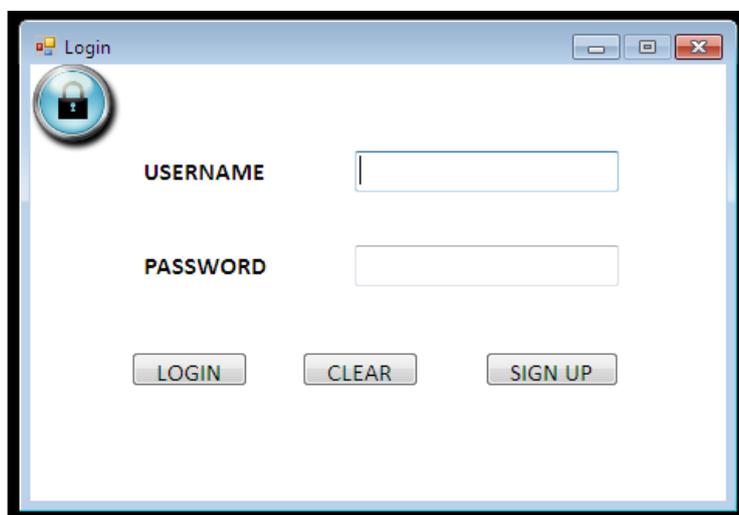
Splash Screen

- To notify the user that the program is in the process of loading
- Progress bar within the splash screen indicates the loading progress and disappears when the application's main window appears



Login form

- Correct User Id and Password to be inserted else error message will appear
- New User Id can be generated by registering/signing up

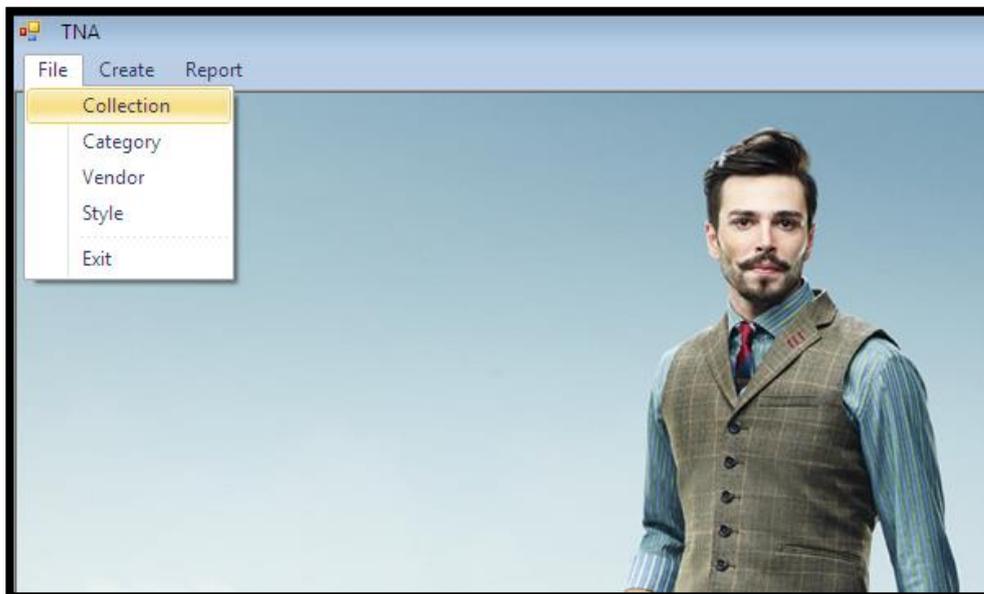


Home

- The landing page of the application
- Menu bar – File, Create, Report

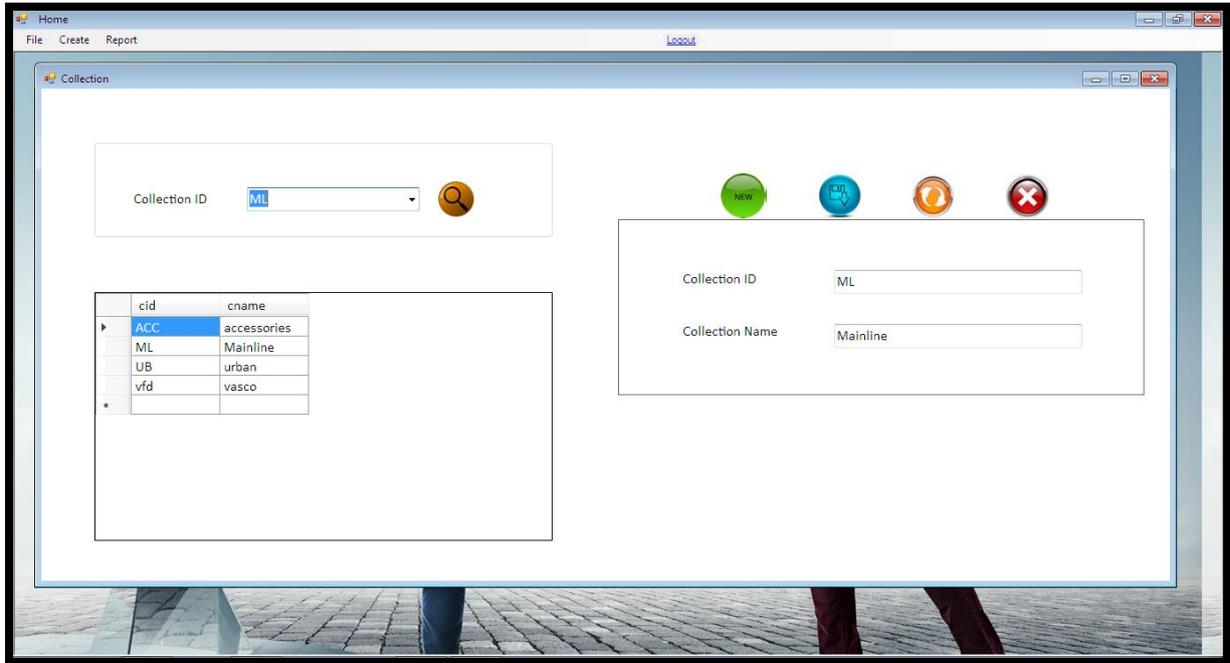


File



Collection

- Add new collection
- Entered data can be saved, updated and deleted

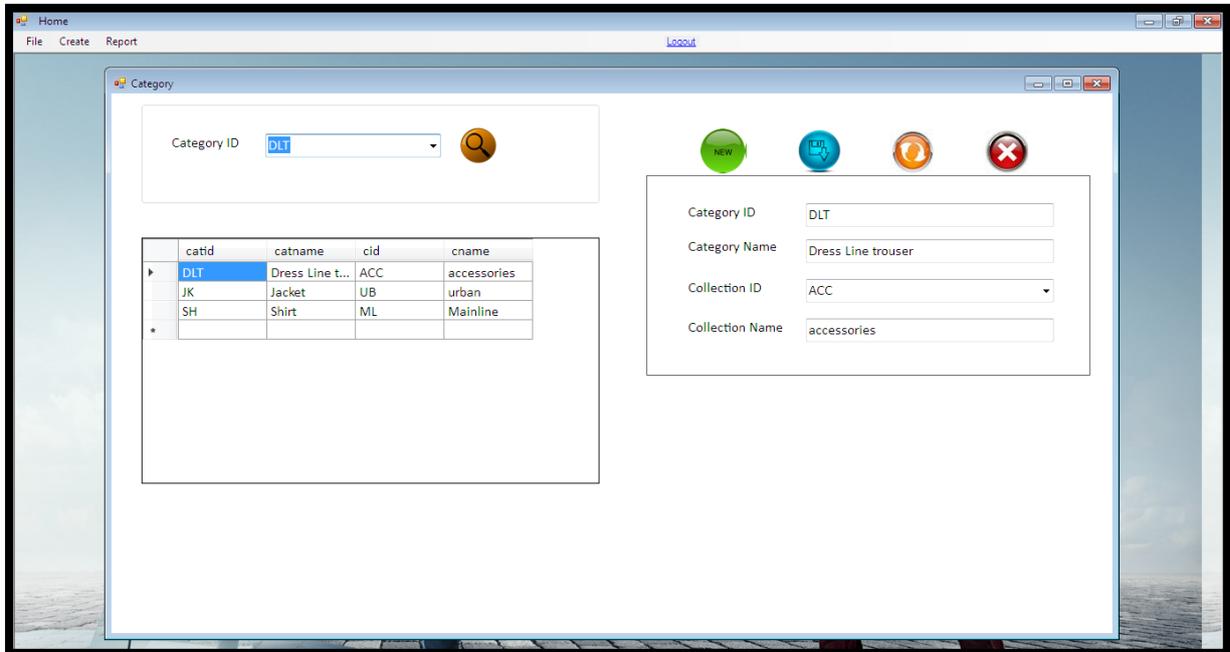


Category



Category

- Add new category
- Entered data can be saved, updated and deleted

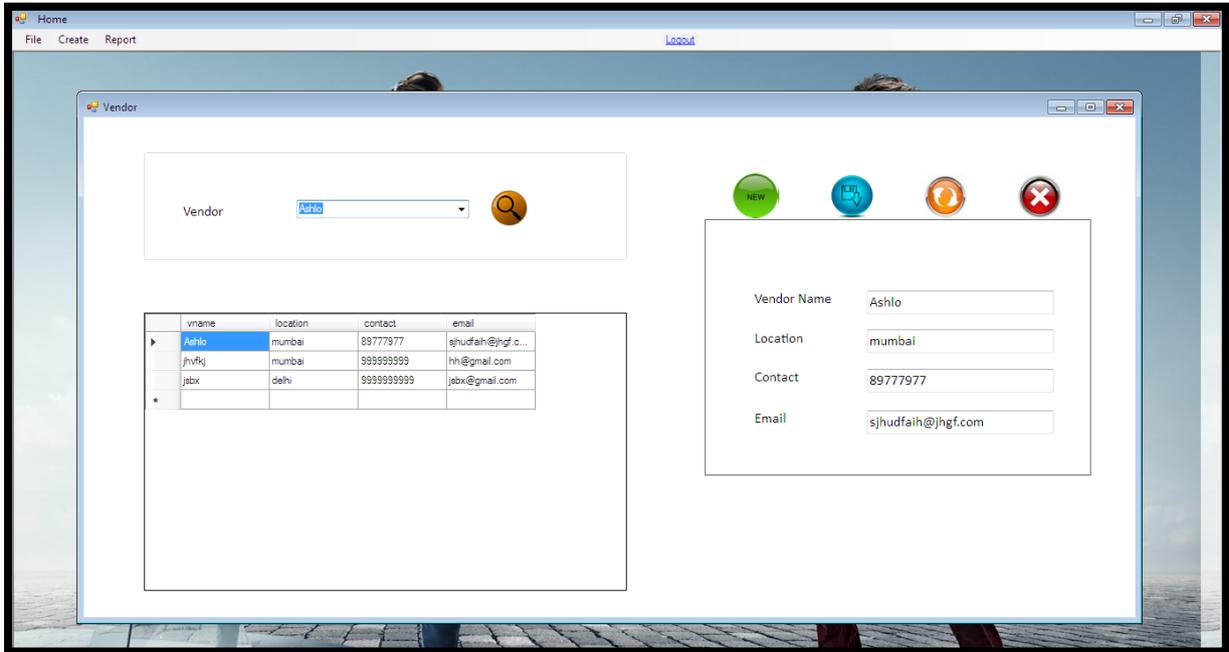


Vendor

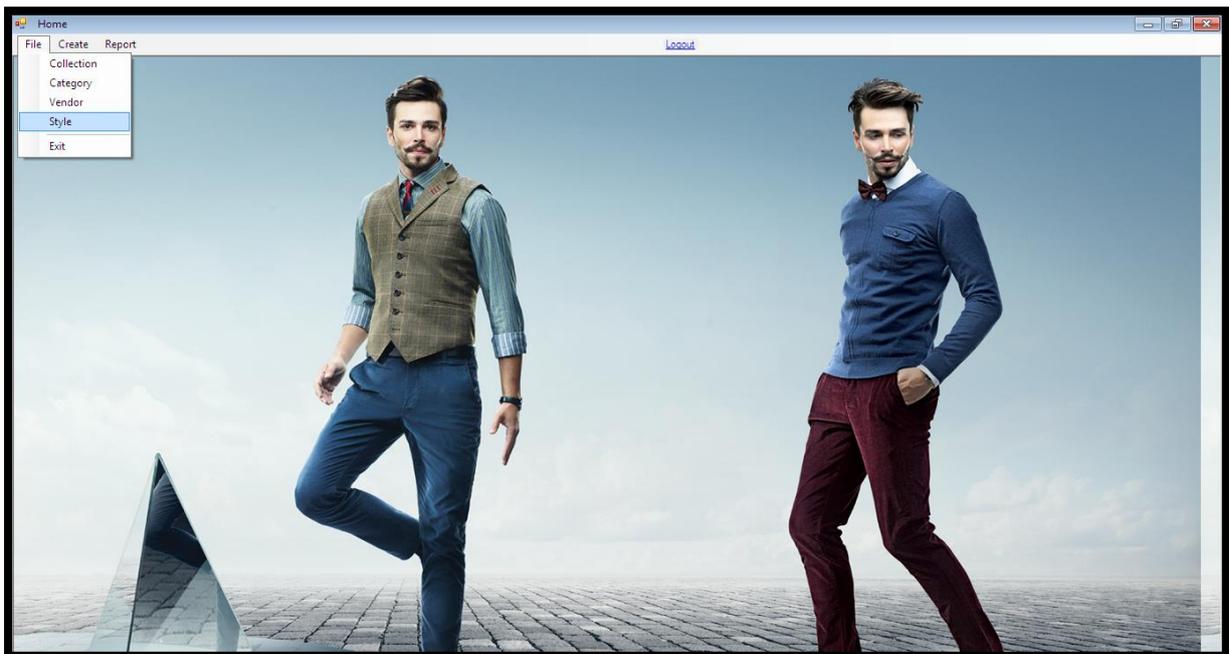


Vendor

- Add new vendor
- Entered data can be saved, updated and deleted

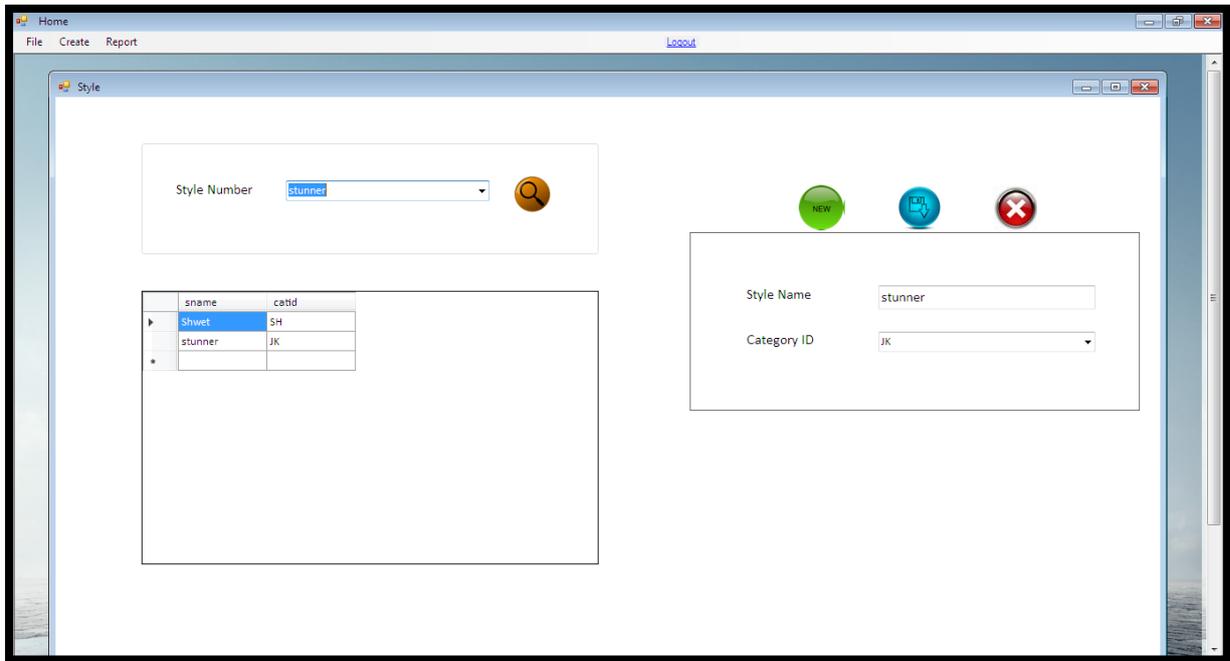


Style



Style

- Add new Style
- Entered data can be saved, updated and deleted



Create



Create

- Adding a new PO number by entering data in the required fields
- Data entered can be saved, updated and deleted

Home
File Create Report Logout

New Order

PO Number

Season	SFA_Month	Style	SFA_Quantity	Vendor	FPR_SCO
SS17	July-M1	Shwet	5000	jhvfkj	12345
SS17	July-M1	stunner	5000	Ashlo	12345
SS17	APRIL-M1	stunner	1000	jsbx	6789
AW 17	M1	stunner	1000	Ashlo	22
SS17	July-M1	stunner	5000	jhvfkj	12345
SS17	July-M1	Shwet	5000	Ashlo	12345
SS17	July-M1	stunner	5000	jsbx	12345
SS17	July-M1	Shwet	5000	jsbx	12345
SS17	July-M1	Shwet	5000	Ashlo	12345
SS17	July-M1	stunner	5000	jsbx	12345
SS17	July-M1	stunner	5000	jhvfkj	12345
SS17	July-M1	stunner	5000	jhvfkj	12345
SS17	July-M1	Shwet	5000	Ashlo	12345

Season:
 SFA Month:
 Style:
 SFA Qty:
 Vendor:
 FPR/SCO:
 PO No.:

Plan – Planned & Actual

TNA
File Create Report

Order
Plan Actual
Planned

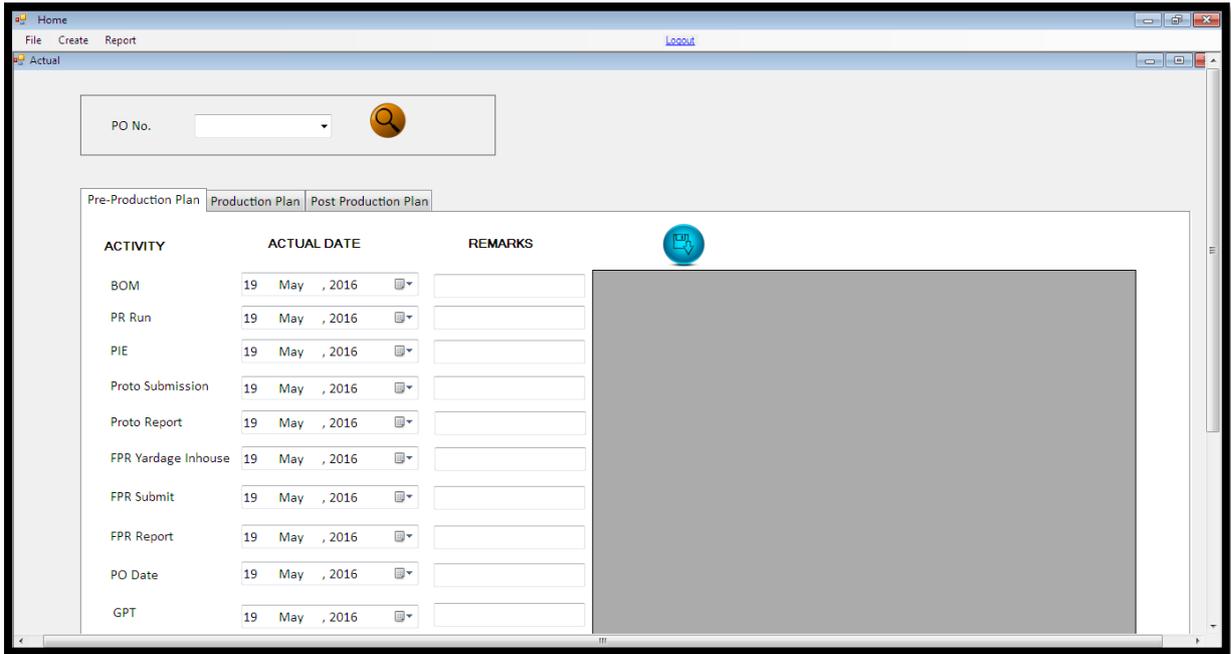
- Plan the activities and enter the dates accordingly for all the three stages

The screenshot shows a software window titled 'Home' with a 'Planned' section. It features a 'PO. No.' dropdown menu and a table with the following data:

PO_No	BOM_Planned	BOM_Actual	PR_Run_Planned	PR_Run_Actual	PIE_Planned
1	20 April, 2016	18 May, 2016	28 April, 2016	19 May, 2016	28 April, 2016
10	18 May, 2016	19 May, 2016	17 May, 2016	18 May, 2016	18 May, 2016
222	12 April, 2016	11 April, 2016	29 April, 2016	26 April, 2016	12 April, 2016
33	19 May, 2016	19 May, 2016	20 May, 2016	19 May, 2016	21 May, 2016
55	30 April, 2016	19 May, 2016	30 April, 2016	19 May, 2016	30 April, 2016
8	30 April, 2016	18 May, 2016	30 April, 2016	19 May, 2016	19 April, 2016
9	29 April, 2016	18 May, 2016	12 April, 2016	18 May, 2016	29 April, 2016
ky	29 April, 2016	17 May, 2016	12 April, 2016	17 May, 2016	29 April, 2016
s	20 April, 2016	20 May, 2016	25 May, 2016	18 May, 2016	17 May, 2016
sc32	17 May, 2016	20 May, 2016	17 May, 2016	18 May, 2016	17 May, 2016
yf	18 May, 2016	18 May, 2016	18 May, 2016	18 May, 2016	13 May, 2016

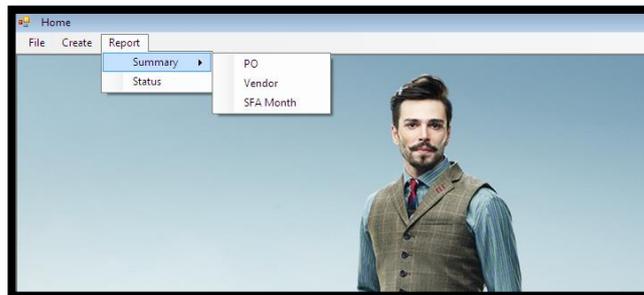


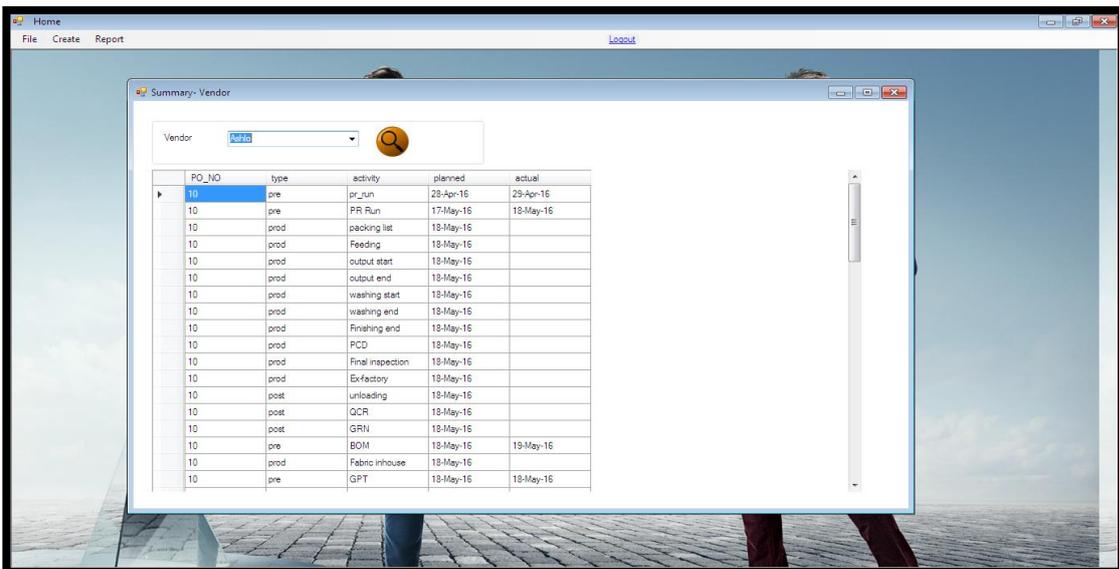
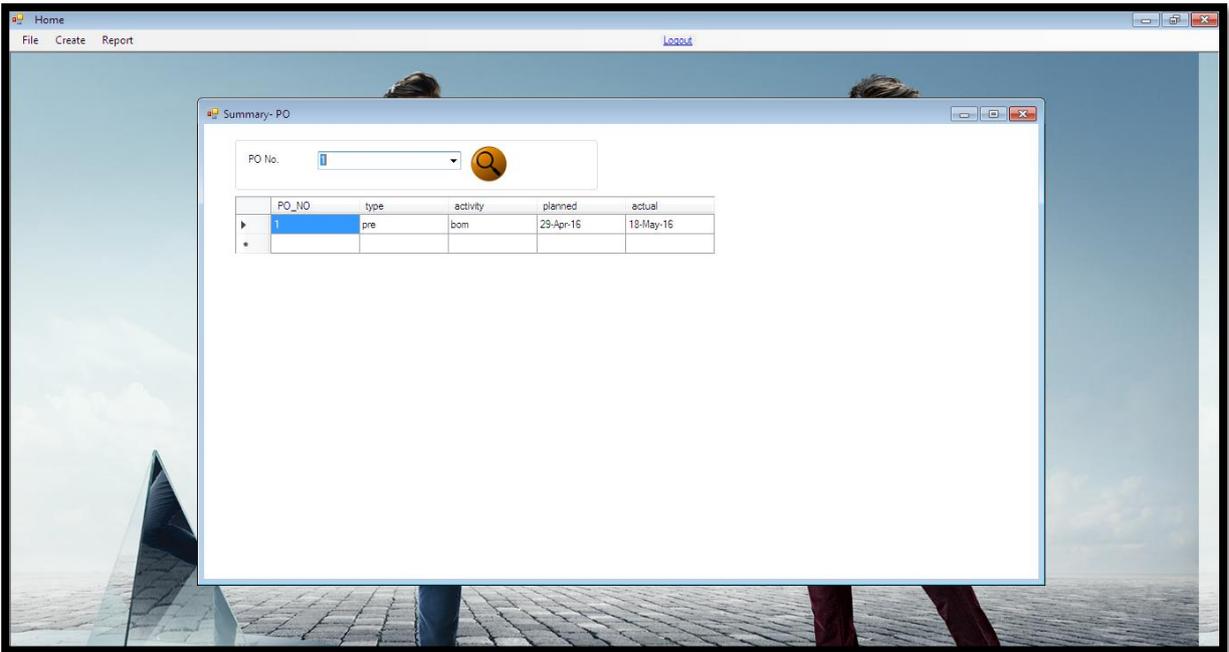
- Actual dates are required to be entered as soon as an activity starts and ends

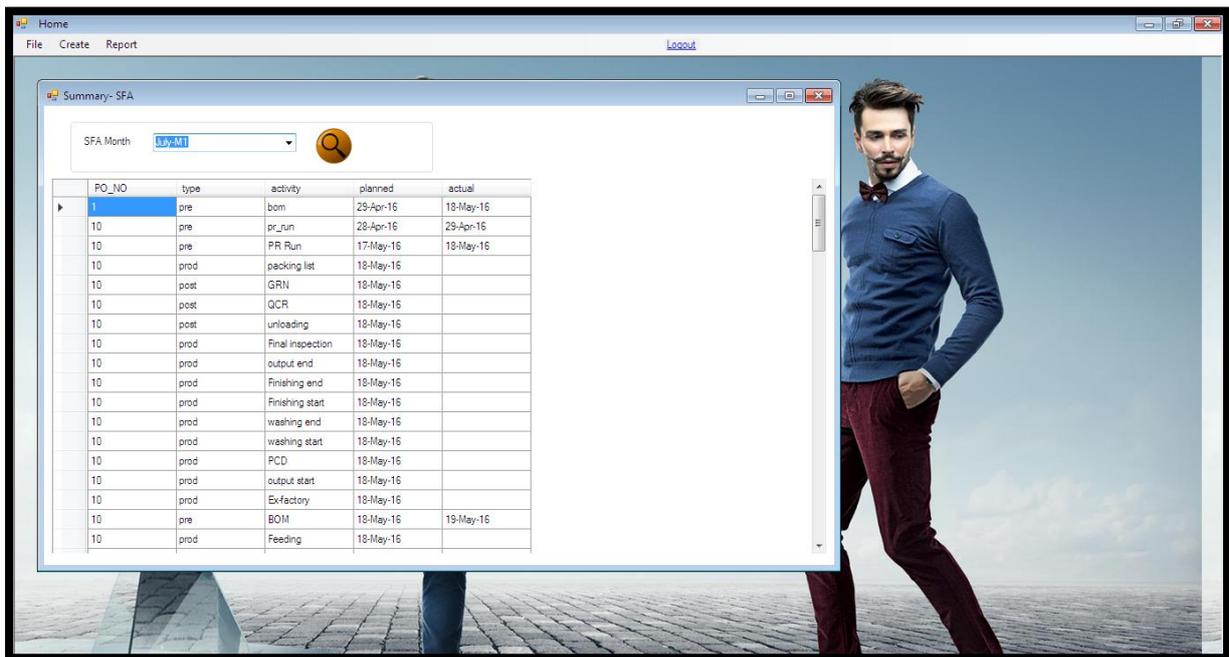
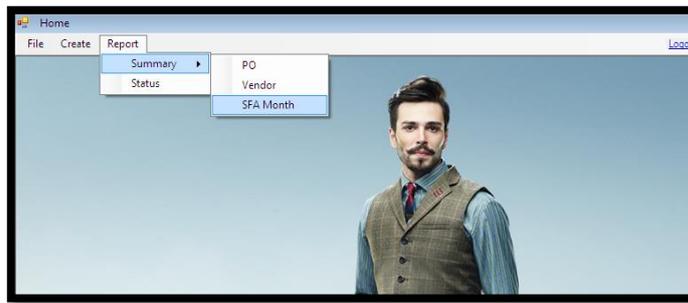


Report

1. Summary – For planned dates v/s actual dates
2. Status – Completed and delayed activities along with remarks

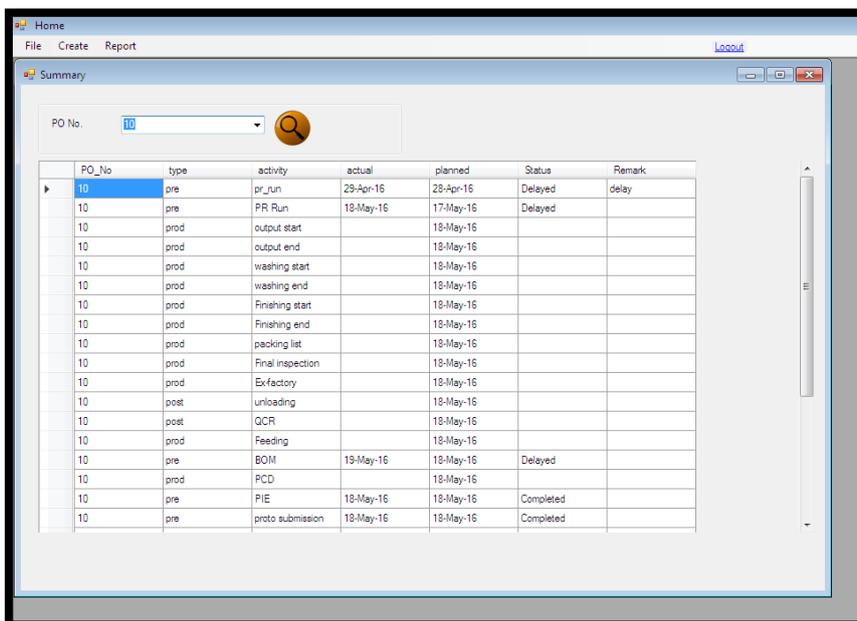




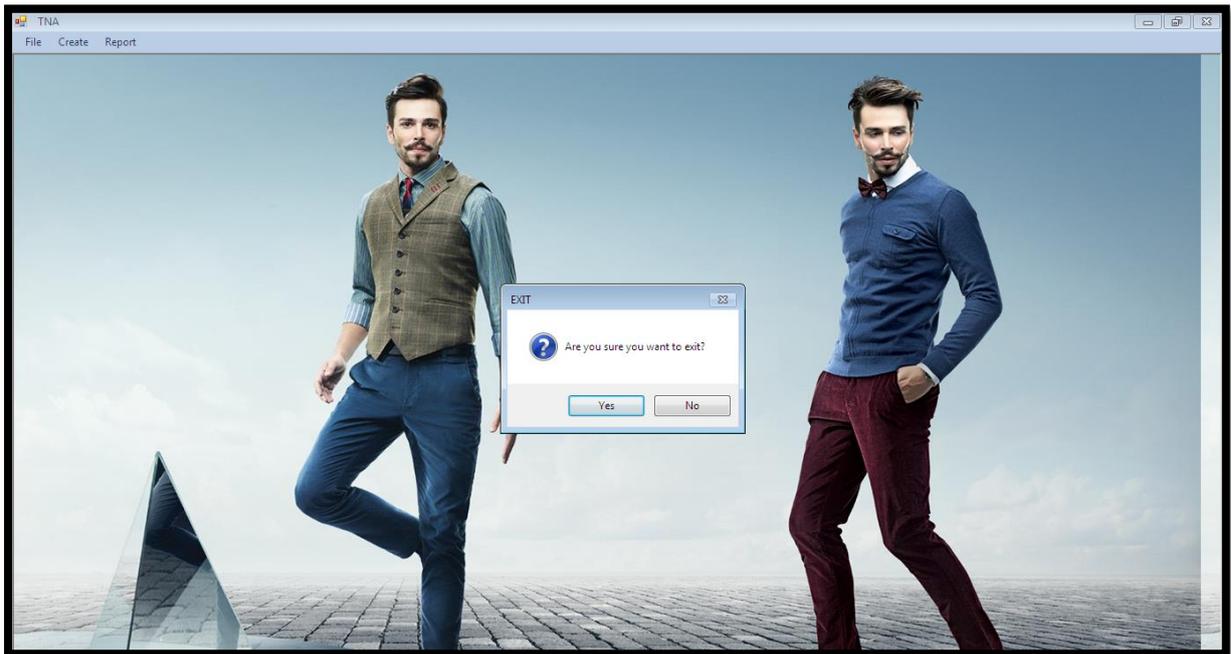


Summary for Vendors

For planned dates v/s actual dates as well as the status and remarks of the activities



Exit



Current style v/s proposed style:

The comparison between the two styles can be understood best based on the following categories:

- 1) TIME
- 2) MONEY
- 3) MANPOWER
- 4) EFFICIENCY

TIME:

The current system takes lesser time to enter and store data when compared to the database system. Finding the required data takes no time. Also the proposed system reduces delays and ultimately the lead time.

MONEY:

The amount of money spent is minimal when it comes to making of the application, training the user, setting up and implementation.

MANPOWER

Manpower remains constant but the manual work will be eliminated

EFFICIENCY:

The proposed system is highly efficient than any normal excel based tracking and it also acts as an effective communication platform.

Vendor Evaluation

Methodology



Working Style

- The study of various existing functional procurement strategies, defining sourcing and performance evaluation criterions and their weights and scores based on the significance of each.
- Evaluating vendors (quantitatively) on basis of a format
- The criteria, weightage and the ratings will be pre-defined based on which the evaluation is to be carried-out.
- Values, according to the criteria, quoted by various vendors and from previous data will be entered manually into the system. The application will use the data which is already stored, then generate scores automatically for each vendor, compare them and display the most suitable vendor for each order by reference to their overall scores.
- The vendor's overall score will be computed taking into account the weighted scores awarded for each criteria.

IMPLEMENTATION

Refer Annexures I to VII

Criteria for evaluation:

- **Price (base CMP)**

Competitive

Reasonable

Offering best possible price

Weightage – 15%

- **Quality (QCR @ warehouse)**

To the excepted level

Consistent

Weightage – 25%

- **Delivery/Lead Time**

On-time

Weightage – 20%

Bulk lead time

Weightage – 15%

FPR lead time

Weightage – 10%

- **Quantity delivered V/s PO/SCO quantity**

Weightage – 15%

- **Performance history**

Features & Benefits

- Identifying the best-in-class suppliers and weeding off the non performing suppliers
- Organized way for evaluation vendors
- Making evaluation and comparisons easier and efficient
- Gauge the performance & reliability of vendors
- Facilitate monitoring of existing relationship
- Subjective impressions and judgements can be eliminated
- Benchmarking of vendors

Calculating points against each KPI

- Defining slabs for points given
- Following up an order and giving points for that order.
- Collecting Data about the vendors against each KPI from previous order reports
- Calculating KPI for each Vendor

Scope

- The measurement and calculation process needs to be further investigated.
- The formats can be standardized further
- Identification and calculation of KPI's for new vendors can be done

PRODUCT DEVELOPMENT

ROLES OF PRODUCT DEVELOPMENT DEPARTMENT

What to showcase to customer?

- In sync to forecast- Trap trends and forecast which suit the brand look.
- Trendy yet commercial acceptance has positioned the brand as most fashionable brand.
- Interpretation of trends as per market desire resulting in maximum contribution of all channels for achieving best results.

What to produce?

- Developing Range Architecture- Based on past Data, sell thru analysis, market trend, Competition mapping & wish list from various channels.
- Formulating business numbers based on channels requirement before trade show.
- Reinforcing designs concepts.

How much to produce?

- VALIDATION- Post trade show numbers, orders are validated on the basis of previous season's stock flow and inventory.

- Channel wise/ Month wise validation to ease the process.
- Inventory management and Stock turn.

When and where to produce?

- Format wise/ Month wise validation helps in maximizing the production capacity.
- Stock Flow- Keeping an eye on the stock flow (Inward and outward) to optimize the warehouse capacity.
- SFA release with capacity plan with manufacturing team.

CATEGORIES (MAINLINE)

Suits & Jackets - Leading the position in domestic market

Khakis – Refers to Casual Trouser or Chinos, Blackberrys is pioneer for this Category

DLT (Dress-line Trousers) - Refers to Formal Trouser, BlackBerrys is maintaining first position in domestic market

Shirts - Fastest Growing Category and has potential to reach at first position, BlackBerrys shirt fit is the USP

LUXE - Premium Range of all the categories

NOS - New Introduction of Never out of Stock is a new initiative of BlackBerrys to Generate additional business

NEED

Importance of Good Product Development

- Good product development is a potent competitive advantage.
- Product design establishes the feature set and, hence, the marketability of the product.
- The design determines 80% of the cost and has significant influence on quality, reliability and serviceability.
- The product development process determines how quickly a new product can be introduced into the market place.
- The product design determines how easily the product is manufactured and how easy it will be to introduce manufacturing improvements like just-in-time and flexible manufacturing.
- The immense cost saving potential of good product design.
- True concurrent engineering of versatile products and flexible processes determines how well companies will handle product variety and benefit from Build-to-Order and Mass Customization.

Product Definition clarifies product requirements, which are the base-level functional elements necessary for the product to deliver its intended results. This eliminates the waste associated with developing unimportant or quality-compromising features.

The following are the competitive dimensions typically associated with product development:

- Time-to market
- Low development cost

- Low cost producer/low cost, high value products
- Innovation and product performance
- Quality, reliability, eases of use, serviceability, etc.
- Agility

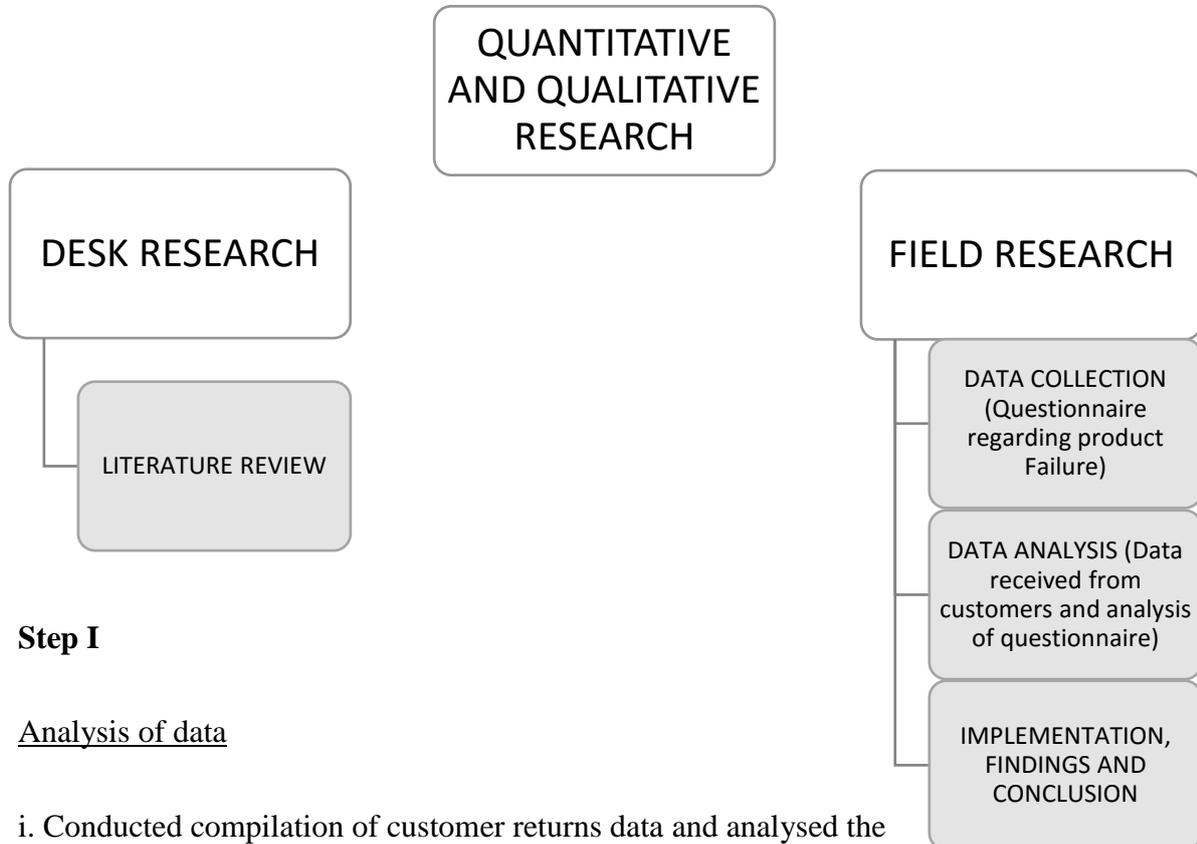
Product failure reasons

Products fail for many different reasons. The roots of failure can be found at any point in the product development cycle. Failures happen because information is overlooked, taken for granted, misinterpreted, or acted upon inappropriately or with insufficient resources. Properly navigating the product development cycle always comes down to obtaining solid information, accurately interpreting it, developing viable options, and forming the right conclusions to facilitate one's own actions, or to favourably influence those of another.

Cost Reduction Opportunities

- Product development determines 80% of product cost. The concept/architecture phase alone determines 60% of cost.
- Top 5 design strategies to lower cost: breakthrough concepts, designing out quality costs, eliminating change orders, vendor-partnerships, and designing to minimize part cost and material overhead.
- Cost is very hard to be reduced after products are designed.

METHODOLOGY



Step I

Analysis of data

- i. Conducted compilation of customer returns data and analysed the same.
- ii. Figured out from customers' responses their satisfaction level, what the brand showcases and what they actually desire.
- iii. Reasons for failing of some products.

Step II

Identification of weak areas

- i. Prepared questionnaire for sellers for internal customers to identify the product failure issues.

ii. Compared internal and external customers' responses.

Step III

Implementation and analysing the results

i. Determined areas that need special attention in order to increase customer satisfaction and eliminate product failure and provided suggestions for the same.

Lean product development (LPD)

The focus is on eliminating NVA activities at each step without impacting quality. It is estimated that more than 50% of these elements could be eliminated in the product development cycle.

Avoiding analysis paralysis

Analysis paralysis is an anti-pattern, the state of over-analysing a situation so that a decision or action is never taken, in effect paralyzing the outcome. A decision can be treated as over-complicated, with too many detailed options, so that a choice is never made, rather than try something and change if a major problem arises.

Although it is possible to iterate at each step in the product development cycle, doing so contradicts the objective of moving quickly to save time and money, and to preserve executive commitment. The worst-case scenario is when any step, particularly the early steps, in the product development cycle degenerate into a war of attrition, in which time, money and patience are exhausted in an endless loop of iteration and indecision.

Understanding the actual need

Considering whether to retire an existing product or begin developing a new one is a critical juncture. Sometimes it is concluded that a new product is needed, when the circumstances really warrant a renovation of their existing product.

At the highest level of triage, product opportunities tend to fall into two categories:

- Making the right product relates to properly defining the very essence of the product, i.e., the purpose it is intended to serve, and the functionality required to best provide that service.
- Making the product right relates to properly initially designing or later improving, the usability of a correctly defined product.

Kill a few new ideas

Our organization carries all the new ideas through the development cycle when some should have been left behind. This is often because commitments have been made, or because no one wants to be the bearer of bad news. But carrying new ideas too far tends to waste resources. To avoid this, it should be made sure there are comprehensive parameters to screen new product ideas.

Price for customers

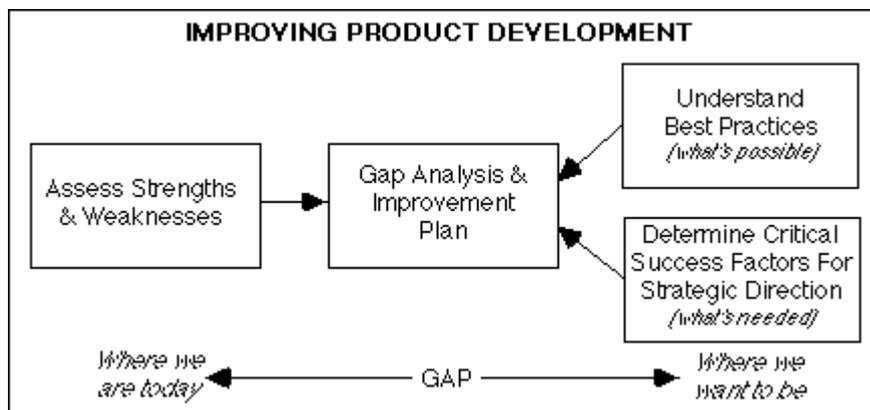
Cost-based pricing is often used in order to validate an acceptable ROI for the business case when pricing should be developed based on their customer's cost threshold to ensure that price does not become a barrier to purchase for people who truly want the product.

Consider life after launch

After a new product is launched, the only people interacting with customers are the sales and service teams. Not only should there be a detailed plan as to how this new product will be supported by the product development team, extensive training and education should be available internally to staff. It is better when the development team and sales teams work in tandem.

Time and money allotment in stage zero

It becomes necessary to allow the time and money to be allotted to a particular product in stage zero, i.e., during the range architecture phase. If done otherwise, it leads to resource drain.



COST REDUCTION

- **Business Consolidation:** Using same fabric for more than 1 style(with similar fabrics) to prevent order MOQ (1.5 times surge if below MOQ).
- Implementing 3-D sampling in order to eliminate the direct and indirect costs involved in the production of samples.

- Approx. sampling cost per season for C/S category(based on AW16 data):

Rs. 7,90,000 (excluding factory overhead)

LEAD TIME REDUCTION

- Automation of various activities such as Range planning, SFA.
- Reducing the delay elements/non-value added elements.
- Implementing 3-D sampling in order to eliminate the time involved in production of samples.

Average lead time for C/S sampling- 11 days

- Integrating sourcing and development activities by developing a system to track the activities and internal performance of the calendar for reducing lead times to accelerate time-to-market (TNA Application).

3D-SAMPLING

- 3D technology at the design stage can help reduce cost and time-to-market, contributing to a more efficient and profitable process by reducing the number of samples required and their associated costs.
- Making Prototyping Cost-Effective
- Simulating Fabric Hand
- Full-motion simulation
- Better Pattern Modelling
- Virtual fit checking has proven to be an efficient way of improving fit quality
- Eliminating physical samples not only saves apparel companies time, but also money. Many of the samples never make it to production — not for reasons relating to fit or

construction, but as a result of the natural selection process designers go through in creating a collection. However, by utilizing 3D samples, the software user can make any necessary changes to the garment, saving on sample fabric costs, shipping costs, fit model costs, and related expenses.

Vendors for brands such as **Maggy London, Tesco, Phillip Van Heusen, Abercrombie & Fitch, and Jones New York Intimates** use 3D sample-making software.

- Tukatech, Optitex, Reach tech etc. offer the 3D sampling features.
- Approximate price for OPTITEX 3D SUITE:

15000USD= Rs.9,90,000

PRODUCT FAILURE ANALYSIS SURVEY

Objective:

To identify the reasons of product failure and to understand customer needs

Sub- objectives:

- What are the reasons of product failure (general & specific)
- Rating of various aspects that affect the buying preferences
- Customer satisfaction
- What customers actually want
- Scope of improvement

Research Design & Methodology:

Population

- I. Internal – The target population for the study was employees from various departments – Product, Design and Sales
- II. External – The target sample consisted of Male respondents (random selection) and Retailers from MBOs and LFRs.

Data collection:

Primary research was carried out through well-structured questionnaires and personal interview. The nature of the questions was such that it avoided ambiguous responses from the respondents and it also helped in quick analysis of the data collected.

Methods of approaching the respondents for the data collection were:

- ✓ Person Assisted – The responses were collected by personal interviewing. This helped in better understanding and it ensured authentic and spontaneous replies from the respondents. (Booking Event)
- ✓ Web Assisted – The responses were collected through an online survey

Based on the surveys conducted among the internal and external customers of Blackberrys, the following results were obtained:

External Survey

- <https://aparajita1.typeform.com/report/dW0jaM/WjVd?typeform-print=1&typeform-cache=0>

Internal Survey

- <https://aparajita1.typeform.com/report/pVrKfv/U5S8?typeform-print=1&typeform-cache=0>

Findings and inferences:

BOOKING EVENT

- Zone-wise preferences of the customers in terms of size, fit, styles, fabrics and colours for each category
- Need for Product-Gap analysis
- Lack of promotion

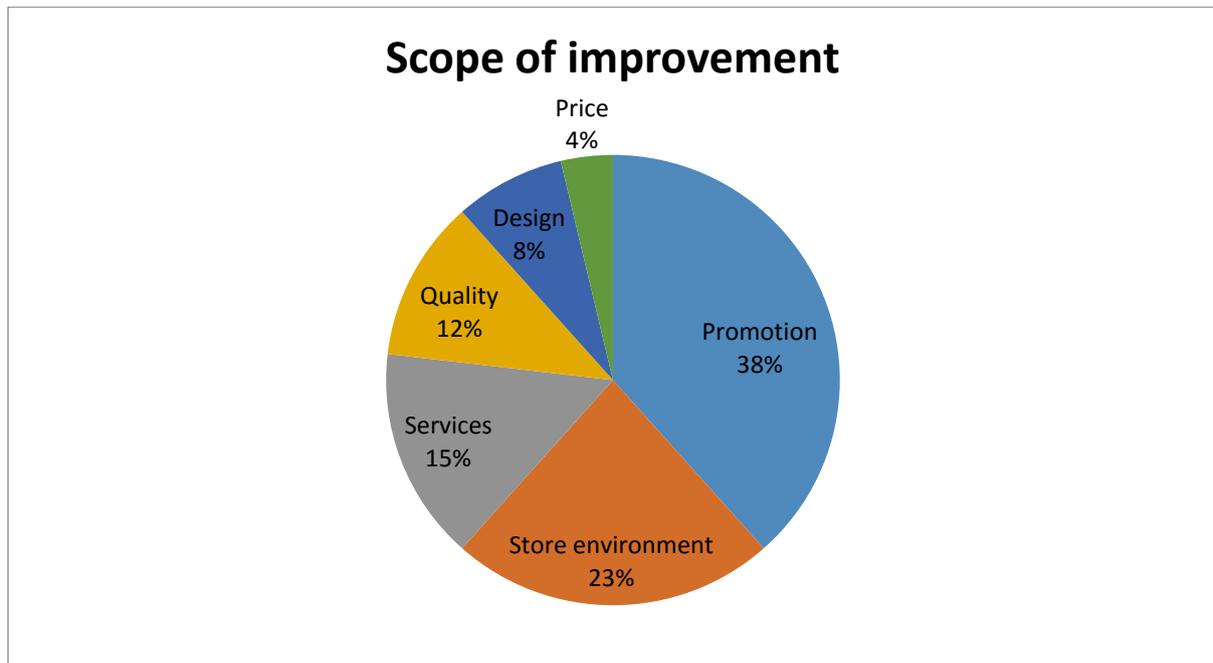
INTERNAL SURVEY

Promotions

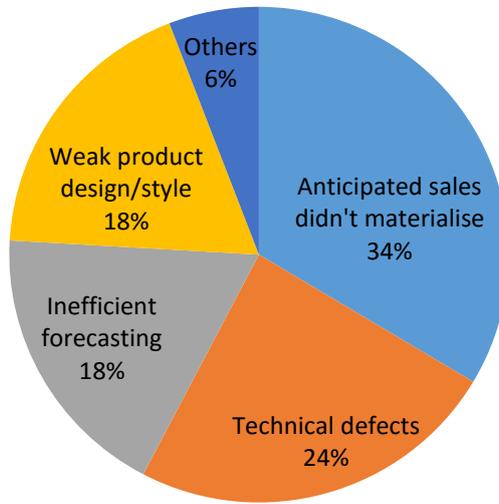
Sales promotions are marketing strategies companies use to increase sales and as a competitive strategy to undercut competition.

Brands which are highly active in terms of advertisements and promotions:

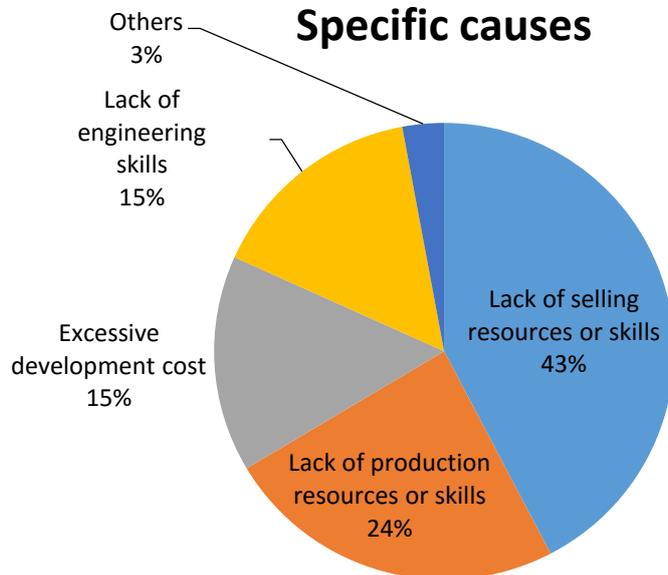
- Ralph Lauren
- GAP
- Michael Kors
- Gucci
- Raymond



General causes



Specific causes

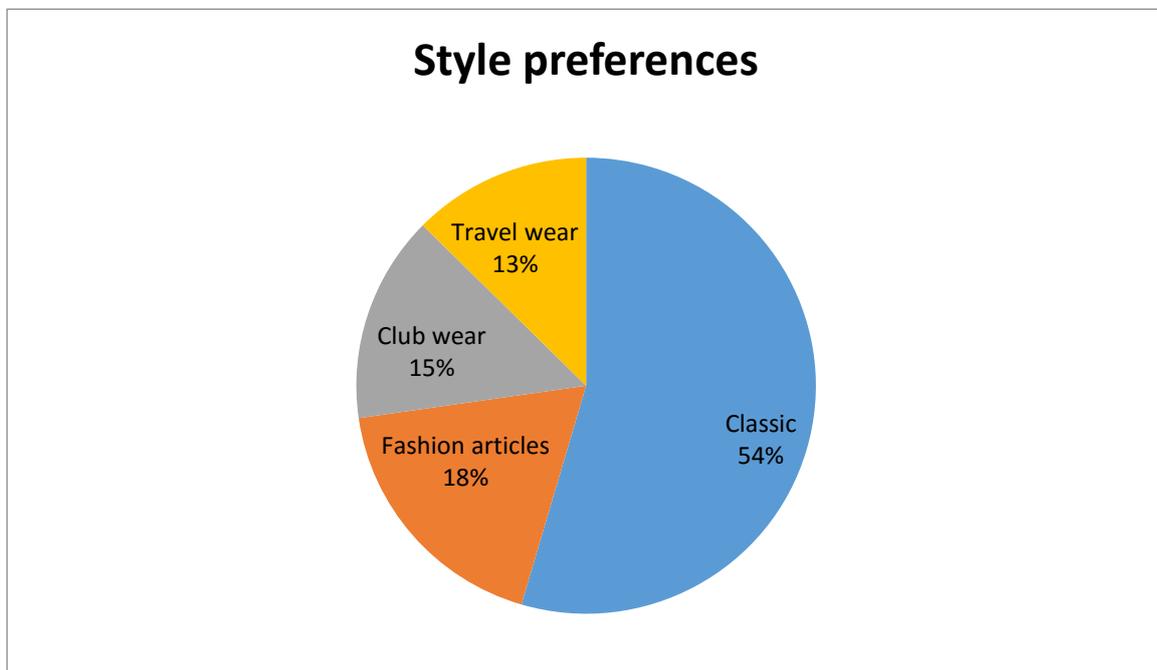


EXTERNAL SURVEY

Losing what its name once stood for

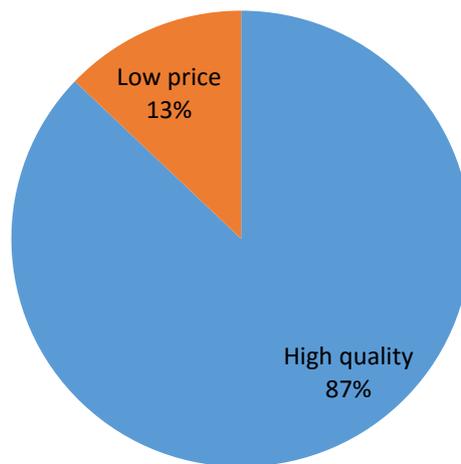
The company was known for its Classic styles but is now shifting more towards fashion articles and club wear whereas customer is still expecting more of classics.

Blackberrys is making what they think that customer wants and not what they actually want because they don't perform regular market surveys.

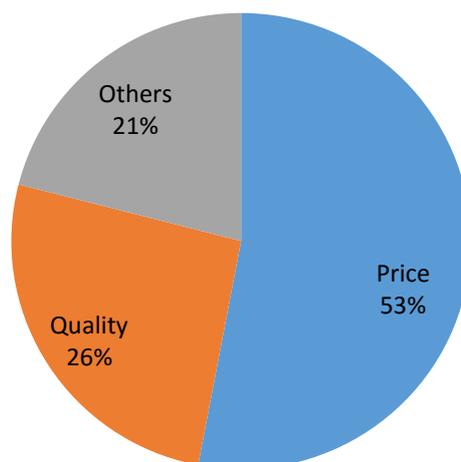


The company focuses on quality more than price but the customer wants Blackberrys to focus more on the price of the product than quality.

Company's focus



Customers' focus



Conclusion:

- TNA monitoring results in reduced lead-time of the entire supply chain
- Efficient and systematic vendor performance management system avoiding poor quality and delays
- Lean product development leading to reduced sampling cost and lead time
- Internal and external survey helped in identification of product failure reasons and customer preferences

APPENDIX

ANNEXURE

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