Dealer process efficiency, revenue generation and customer satisfaction utilizing gamification models: An empirical study- With special emphasis on Skoda Auto Volkswagen India Private Limited

Dr Renuka Deshmukh, Assistant Professor, Dr Vishwanath Karad MIT World Peace University, Pune.
Dr Subbarao Pasumurti , Dean, Dr Vishwanath Karad MIT World Peace University, Pune.
Dr Dhanashri Tharkude, Assistant Professor, Dr Vishwanath Karad MIT World Peace University, Pune.
Mr. Rajsingh Jadhav, Student, Assistant Professor, Dr Vishwanath Karad MIT World Peace University, Pune.
Ms. Meenal Mool, Student, Assistant Professor, Dr Vishwanath Karad MIT World Peace University, Pune.

ABSTRACT

Purpose: The purpose of the study is to investigate the interrelationship and the impact of Utilization, Customer Satisfaction and Revenue in company authorized service dealership and to examine the relationship between these factors and demographics.

Design/Methodology: For this research, a structured questionnaire survey is used to collect data from service managers and other dealership employees such as floor manager, customer relations manager, inventory manager. Analysis of data is done using a multivariate technique like relative importance index and factor analysis.

Findings: The most significant top five attributes/variable of the study are; interrelationship between the three key performance areas of automobile dealership i.e. Utilization, Customer Satisfaction and Revenue and how one KPA (key performance area) impacts the others. To establish an equilibrium between KPA's to achieve profit maximization. Furthermore, the factor analysis produced 7 constructs such as; tangible, reliability, empathy, experience, courtesy & responsiveness feedback and productivity explained a variance of 65.5%.

Practical Implications- This research study will generally help the service managers to increase efficiency and profitability of the dealerships. It will contribute to improve the operational as well as the managerial perspective via a gamification-based approach.

Limitations: The study has been conducted on the data acquired from the service managers and training department of the dealerships and the company respectively and the findings may not be generalized for all the dealerships because of socio-economic and demographic differences. A key limitation of this study is the sampling frame. Some respondents do not share their dealership data for their data integrity purposes. The information provided by the respondents may not be considered accurate. The primary data collected is from Pune city. Future studies should replicate this study in different contexts.

Keywords: Customer satisfaction, resource utilization, profitability and reliability.

Introduction

Economically and demographically, the Indian automobile has been well positioned and is showing sustainable growth due to rising prosperity, increasing affordability and easy accessibility to finance. The automobile industry has undergone significant changes after liberalization and has played a significant role in the Indian economy in the most recent decade. The industry produced a total 25,316,044 vehicles including passenger vehicles, commercial vehicles, three wheelers, two-wheelers and quadricycle in April-March 2017 as against 24,016,599 in April-March 2016, registering a growth of 5.41 percent over the same period last year. The Indian market opening its wings to MNC's, the competition has become intense and the dealers have turned out to be serious regarding service quality and organisation which have become a significant element of differentiation to enhance customer relationship which is important for service quality, productivity and customer satisfaction. According to Oliver (1997) The most well-known perspective of consumer satisfaction in the scholarly world is that consumer satisfaction is the judgment

borne out of the examination of pre-buy desires with post buy assessment of the product or service encountered. Consumer satisfaction can come about because of any measurement (regardless of whether it is quality related) and its judgements may emerge from non-quality issues (e.g. necessities, value and impression of 'reasonableness') and require involvement with the organisation or supplier (Howard and Sheth, 1969; Taylor and Baker, 1994). Solid linkages have been obvious between service quality measurements (e.g. rapid reactions to enquiries) and general consumer loyalty (Anderson and Sullivan, 1993). Dealer service quality is a critical angle impacting consumer loyalty. A client who has a decent involvement with the concerned dealer may most likely utilize a similar dealer again while the client who encounters issues with a dealer may not utilize a similar dealer next time. Hence enhancing service quality is critical for existing client and for pulling in new clients.

In today's automobile industry, dealerships play a vital role equivalent to the actual manufacturer of the vehicles. Basic objective of the manufacturer majorly includes manufacturing the vehicles while conducting research and development with the help of latest technology and create a brand image of the company. But the most important task of sales, revenue generation, customer interaction and ultimately providing customer satisfaction, etc. all depends upon the dealership. The dealership has two major sections i.e. Sales and Services (also known as Post/After Sales).

Service Dealerships are the authorised partners of the manufacturer which function as per the guidelines laid down by the manufacturer company. The Service Manager heads the service dealership outlet and is responsible for the performance of the dealership. The Service Manager and his team plays a significant role in the output of the dealership which ultimately leads to the growth of the manufacturer company.

In order for the dealership to perform and the manufacturer company to grow, the three golden parameters viz. Utilization, Customer Satisfaction and Revenue need to be followed diligently and with utmost consideration.
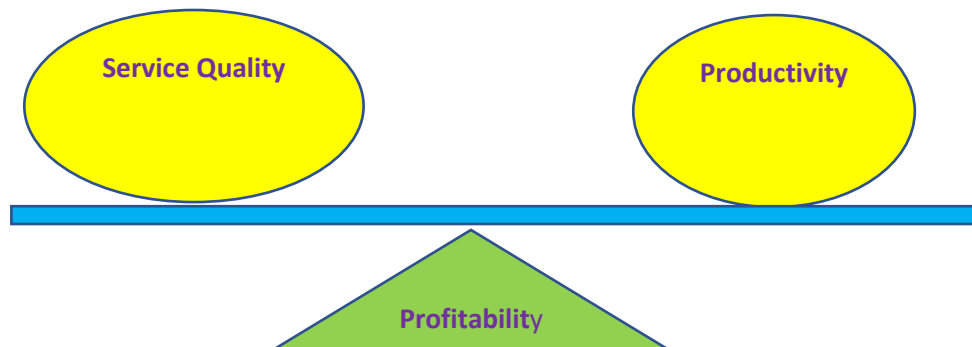

Figure 1: Relationship between service quality and productivity

This research study analyses the impact of service quality over productivity and customer satisfaction level from 299 car dealers situated in Pune city of different brands. This gives knowledge on how consumer satisfaction level for service segment like Automobile Industry is figured. Consumer satisfaction levels and productivity are being measured by converting the attributes into measurable targets giving a simple approach to screening the estimation of characteristics. This thus will help in the change of consumer satisfaction level. Reactions to questions are assembled under five-point Likert scale that has been given weight in agreement to need of the client provided by the service dealer. The three key parameters selected for the study are: 1. Service quality 2. Productivity 3. customer's satisfaction

1.1 Service productivity Service productivity has been defined and analysed by a number of researchers in literature with few exceptions (Gummesson, 1992a; Lovelock and Young, 1979; McLaughlin and Coffey, 1990). Productivity is defined as the ratio of output to the input (Dixit, Pandey, Mandal, & Bansal, 2017). The more we can produce in terms of output is beneficial and vice versa. There is a trend of increase in productivity of manufacturing industry on the other hand productivity of service is not performed as compared to the manufacturing sector.

1.2 Service quality Development in quality starts in early 1970's and from now it became the centre of attraction for the researcher because of its impact on the overall performance of the organization, customer's loyalty, brand image and customer's satisfaction. The driving force for quality came from Japan. In service quality, the convention is

distinctive Japanese rivalry has not yet been especially noted for productivity and quality in services. The main thrust was fair that service quality got under substantial fire from disappointed customers and nationals.

1.3 Customer's satisfaction Customer satisfaction is the key driver for any business. Automobile consumers are more concerned with the delivery of service that needs to be performed by dealers with a high degree of productivity/efficiency and effectiveness. The dealer in India is not only responsible for the satisfaction of consumer's need but have to exceed their expectation. Many researchers opine that customer satisfaction has positive impact and effect on the profitability and growth in revenue generation of organizations.

The authors studied and analysed the case of **Skoda Auto Volkswagen India Private Limited** to understand the practical applicability of the interrelationship between dealer service quality and productivity and its impact on customer satisfaction and revenue. The authors developed various business case studies which were adopted in the official trainings of the managerial personnel of the company and also developed various simulations which would be leading to the gamification.

To reach fruitful conclusions the authors underwent in-depth discussions with the industry representatives with the help of various theories, case studies, brain storming sessions, live demos, corporate trainings, team interactions, business simulations, etc. The basis of this research was supported by observations, interactions, analysis, validations, etc. at the manufacturing plant, training academy and various authorised dealership outlets.

Literature Review

To comprehend the study subject more accurately, it is essential to explore enough resources along with a goal of obtaining sufficient understanding about the study subject. We referred to numerous papers published in journals, websites, and conferences for this subject. We have also referred various internal training documents and company standard guidelines of Skoda Auto Volkswagen India Private Limited (SAVIPL) during our Summer Internship Program which was a research-based project for the company.

KPI Sheet (Skoda Auto Volkswagen India Private Limited, NA): To understand the key performance index for a dealership based upon various parameters like service bay productivity, parts revenue per service throughput, parts to labour ratio, parts absorption ratio, labour absorption ratio, after sales department gross profit % and sales department net profit % which are benchmarked and described in brief in this internal document helped me to benchmark the performance and identify the performance by segments of a dealership.

SCP Sheet (Skoda Auto Volkswagen India Private Limited, NA)**:** It is very essential to understand the process flow and correct stages where initiation, execution, planning and quality checks are required in-order to maximize the overall dealership efficiency and productivity to ensure customer satisfaction which directly impacts the revenue and profitability margin of a dealership for which company standard protocols are devised and followed by the service & sub-ordinate managers in dealership.

Business Acumen (Skoda Auto Volkswagen India Private Limited): In order to be able to clearly and quickly understand the dealership back-end process it is essential to understand the various SCP, and three key areas' namely utilization, revenue and customer satisfaction and its dependent activities and functionalities.

Customer attrition has severe effects on profitability and organizations incur high costs acquiring new customers while existing ones generates more profits. Hence it is essential for a dealership to retain their customers. (Akaeze, 2017, pp. 1-22) Previous studies have paid much attention to customer loyalty factors such as product quality and customer satisfaction, but none have. Qualitatively examined factors associated with New York City car dealership transactions. Or the purpose of this study was to fill a research gap. Based on the theory of rational behaviour, this multi-case qualitative study aims to examine several factors that influence customer loyalty Car dealer after the first purchase. Data were collected from 50 participants.

Vehicles purchased, leased or serviced from the same dealer for 60 months or more. Data analysis Includes thematic and content analysis. Three emerging themes in the final report were customer-related Satisfaction, product quality, and service quality influence consumer loyalty to retailers. Findings may lead to retention programs and strategies that auto executives can prevent. Increase turnover while reducing the negative impact on sales and profitability. This study is informative Automotive administrator, politician, scientist.

We had visited various Dealerships while working on Skoda Auto Volkswagen India Private Limited (SAVIPL) project which gave us the access to analyse the parameters and data of dealership to simulate various cases with certain scenarios to study its impact and effectiveness on dealership performance.

Workshop setup and Capacity:
Ideally dealership workshops are setup by the brand's manufacturing company recommendation, which is based on various factors such as demographics, sales of vehicles in that particular region, strategic location for ease of customers and interest of dealership partners (dealership principle). By analysing the German brands in India, we can observe in tier – 1 cities with very high to high density of vehicles (Mumbai, Hyderabad, Delhi, Bangalore) the company has permitted multiple dealerships of same as well as different dealership partners. Whereas in tier – 2 and tier – 3 cities (Tirupati, Visakhapatnam, Goa) where the sales density is moderate to high has only one dealership partner setup leading to monopolistic market where the customers do not have any other company authorised workshop alternative within his municipality or district limits. During the dealership visits undertaken during this research study we observed the following points.

Dealerships in tier – 1 cities where competition high tends to have high customer satisfaction and to retain their customer's dealerships go few steps ahead in providing complementary pick-up and drop facilities, compensating fuel for pick-up and drop, extending such services to tap customers up to 150 km away.

In case of monopolistic environment, it is observed that customer satisfaction is poor as low as 50% customer satisfaction (monthly average). Facilities such as pick-up and drop are provided at an additional charge to customer.

As customers are not satisfied in monopolistic dealership environment, they lose trust in the brand and are left with no alternative choice for their vehicle service as the company warranty is void if any major work is done by any authorized workshop.

Dealerships which own the land for setup tends to have higher profit before tax (PBT) margins.
Dealerships which lease the land for workshop setup tends to have impacted profit before tax (PBT) margins.
Dealership tends to maintain minimal inventory to lower its procurement expenses.

Low inventory affects the customers as work is put on hold until the parts are made available from some other dealership or ordered from OEM (original equipment manufacturer) which ultimately leads to carry overs of repair orders and under-utilization of workshop.

Attrition rate of technicians is high due to boom of automotive brands in India and a smaller number of skilled technician availability which directly leads to poaching of technicians by various inter – brand dealerships.
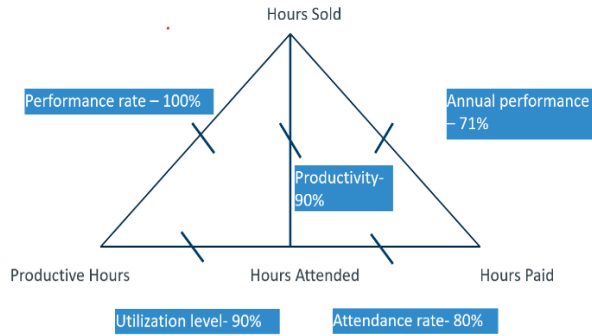
Exhibit 1.1: Ideal Utilization scenario for service dealership

Hours Paid: Hours paid is the Salary paid to the employees / technicians for the total hours they are present in the company. i.e., from 9 am to 6 pm is 9 hrs they are getting paid by the company.

Hours Attended: Hours attended is the total no of hours eliminating the lunch and other break time.

Productive Hours: Productive hours means the time for which the employee / technician has given his worth output. i.e., Exact time in hours worked to obtain required output.

Hours Sold: Hours sold is the total productive output (in the form of time) sold by the dealer to the customer and generate revenue through it.

Attendance rate: It is the ratio of hours attended by technician to the hours paid by company to technician.

Utilization level: It is the ratio of the productive hours of technician to the total hours attended by the technician.

Performance rate: Performance rate is calculated as the total sold hours by the company which is equal to the total productive hours work by the technician.

Productivity: Productivity can be defined as the ratio of the total hours sold by the dealer to the total hours attended by the technician.

Annual Performance: Annual performance is the performance calculated annually by the dealer based on how much dealer is paying to the technician as salary from the total hours sold by the dealer.

As shown in Exhibit 1 the revenue is directly dependent on utilization hence it is essential to ensure workshop efficiency is optimal in order to maximize the dealership profits.

Majority of dealerships aim to attain after – sales Net Profit also known as profit before tax (PBT) about 20-22% whereas vehicle manufacturing company benchmarks this to be around 15 % which could be also a probable reason for various malpractices taking place in dealerships for increasing the revenue.

How to enhance utilization to optimal level for profit maximization?

For optimizing workshop utilization to maximize profits the Service Manager of the dealership must be a well trained and experienced person who can delegate the tasks and responsibilities on time to his subordinates and constantly monitor the overall workshop performance.

He must ensure there is a healthy work environment and people are timely motivated and encouraged to work and reward them for their achievements.
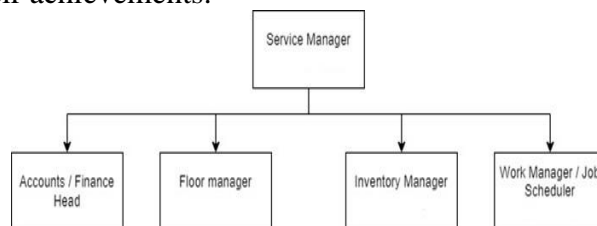

Exhibit 1.2: Point of Contacts for dealership service manager to carry out day to day operations.

As shown in the exhibit 1.2 the Service Manager must delegate the issues to concern department and get it resolve on time. The service manager must ensure the company guidelines are strictly followed and work done is in accordance with it.

Customer satisfaction must be the priority for a dealership to be able to maximize the profits in long run. Inventory management is very important stock must be replenished on time and it must be as per the ABC-FMS complaint to minimize the issue of parts not available which will help to reduce carry overs and improve customer satisfaction. A suitable technician buffer must be maintained in order to overcome unplanned leaves, carry overs, high demand, peak season rush at workshops.

Must provide company recommended services such as free pick-up and drop, mobile maintenance vans and promotional offers to the customers. Service manager must coordinate with CRM (customer relation management) team to forecast the demand and pitch aggressively at the times of low demand. Dealership must ensure parts pre-picking is done at the time of booking. Technician throughput, bay throughput and parts to labour ratios are within the benchmark range of company.

Parts Absorption Ratio =Total sales of parts / (Parts Purchased + Opening Stock of Parts) must within the benchmark limits of 70-90% as to avoid over stocking issue as well as under stocking of parts.

VAS (Value added services) must be near about 15-20% of monthly revenue of dealership to achieve this VAS pitch must be done at correct stages. Dealership must ensure maximum transparency in operations and replaced parts must be displayed or returned to the customer to build trust.

Research Objectives

1. To study and analyse key performance areas (KPA's: revenue, utilization and customer satisfaction) and diagnose productivity & efficiency bottlenecks.
2. To understand overall dealership functionality and process and identify areas of improvement for revenue maximization.
3. To understand role & responsibilities of service manager and role in enhancing customer satisfaction and brand experience based upon the research develop business case study.
4. To validate the business case studies and test gamifyability.
5. To prepare gamification scripts, models, flowsheets and co-ordinate with development team.

Research Methodology

Data collection method

For case study analysis of Skoda Auto Volkswagen India Private Limited., primary data was also collected through questionnaires (refer appendix 1) filled by the employees of the dealerships, visits to various dealers, interacting with dealership management personal, attending "All India Service Managers training program" and workshops. Secondary data was collected from various sources like annual reports, audit reports and monthly / quarterly performance reports. Quantitative data was collected like number of average R/O per day, number of technicians, number of bays, cost of labour etc. and how all of these can be put to its optimum utilization.

BUSINESS CASE STUDIES

1. **Sinking Profits! (Case study based on Revenue Aspect):** The inflation is the root cause of increase in expense by 10% with respect to previous month as data given in Fig. 3 and annual data given in Fig. 2 where the revenue is constant. Reducing the profit before tax by 8% per month and is projected to further decline if corrective measures are not taken immediately. Above mentioned Referential are the ideal scenarios/ guidelines given by Victoria Motors to dealerships whereas Fig.s are the actual observations of ABC Auto dealership. If you were the service manager for ABC Auto, what approach would you take? What action plan will you execute to control and restore the profit before tax?
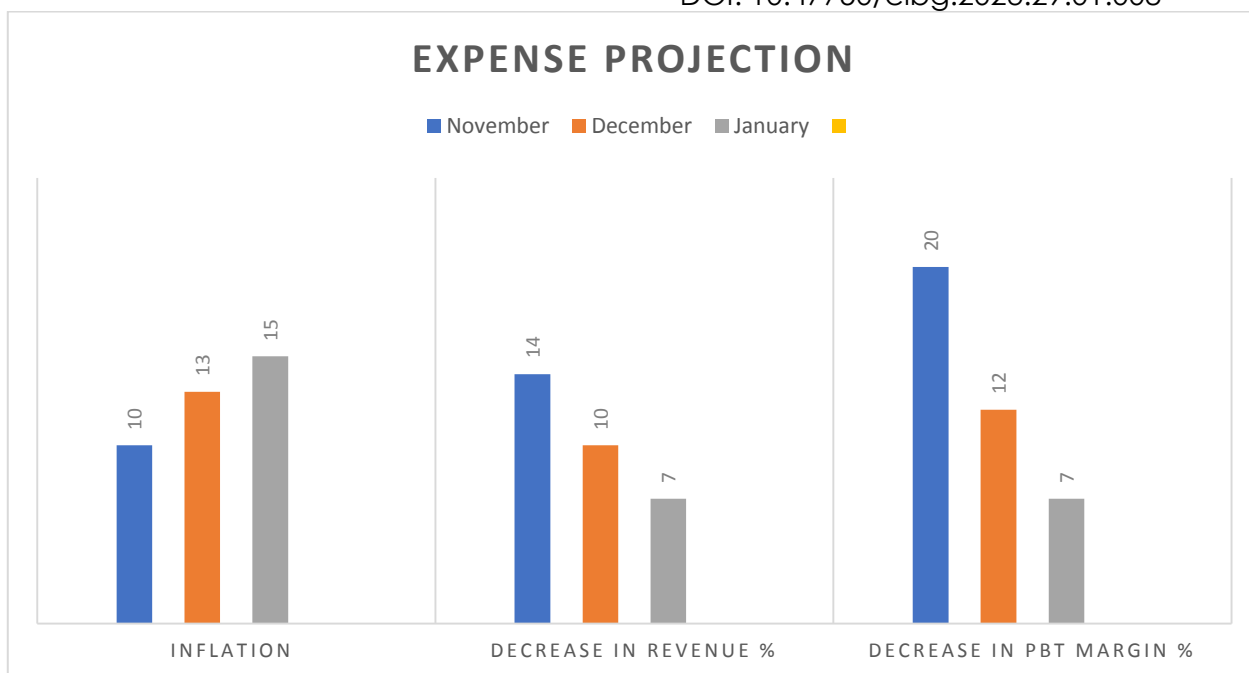
Fig. 1.1 Expense Projection

Monthly Revenue Data for September (prior to inflation)	
Revenue	₹ 3,00,00,000.00
Total Expenses	₹ 2,40,00,000.00
PBT	₹ 60,00,000.00
PBT %	20
Cost of Labour (Salary & wages + Admin & Infra)	₹ 31,22,000.00
Sales Revenue from Labour	₹ 90,00,000.00
Profit on labour (Revenue from Labour -Cost of Labour)	₹ 58,78,000.00
Labour Margin %	65.30%
Parts cost	₹ 2,05,50,000.00
Sales of Parts	₹ 1,50,00,000.00
Opening Stock[1]	₹ 10,00,000.00
Parts Absorption Ratio %	70%

Table 1.2: Data for the month of September (prior to inflation)

Components	Proportion
VAS (value added services)	20%
Parts	50%
Labour	30%

Fig 1.3: Proportion of Revenue components for ABC Auto

2. **Degrading Aspects (Case study based on Utilization Aspect):** Mr. Alan is the newly appointed Service Manager of ABC Auto who is currently facing issues at the service outlet in the parameters of utilization, and which need to be solved at the earliest. Three technicians have newly joined in place of two experienced technicians and these new joiners have lesser practical on-field experience. There is no pre-picking and requisition for parts done by the floor team on time. Also, sometimes

the required parts and tools are not available in the inventory. And the allocation of work is not as per the skill matrix of the technicians. These factors are leading to carry overs of vehicles and reduction in overall repair orders per technician due to which utilization of the resources is sub-optimal. If you were the service manager for ABC Auto, what approach would you take? What action plan will you execute to control and restore the overall utilization and performance output?

2) Sr.	Particulars	Expected Vehicles to be serviced (Avg. per day)	Q 1 (Avg. per day)	Q 2 (Avg. per day)	Q 3 (Avg. per day)	Q 4 (Avg. per day)
1.	Express Bay x 01	10	09	08	08	06
2.	Regular Bays x 10 (Vehicles per bay = 3)	30	28	28	27	25
3.	Washing & detailing	40	37	36	35	31
	Total Vehicles Serviced (per day)	**40**	**37**	**36**	**35**	**31**

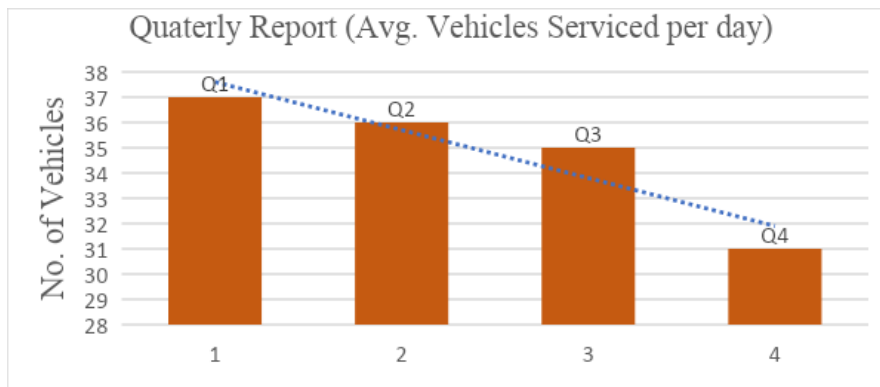**Fig. 2.1: Quarterly Service Utilization Report for the Year 2021-22**

Fig. 2.2: Graph showing the constant decline in the Service-Bay Utilization

3. **Restoring Faith (Case study based on Utilization Aspect):** Mr. Alan has been appointed as a service manager at the ABC Auto dealership of Victoria Motors. He recognises the problem and manages to categorise it into three groups: communication, experience/infrastructure and quality which allows him to investigate the scenario and address the customer satisfaction concerns. As the daily schedule was not planned effectively by the Job Scheduler, which was impacting the services and it was difficult for the staff to keep up for the day. It created issues for the dealership to complete the daily tasks, however unskilled labour struggled to complete daily tasks with fewer repair orders (R/O) per day. As customer satisfaction was in declining phase, the dealership suffered increasing income loss. Also, as the dealership has a high attrition rate and non-experienced employees are working for the dealership, it created a bottleneck in the operations. The brand will lose customers in the long term and the dealership may be forced to be abandoned in the competition.

If you were the service manager for ABC Auto, what approach would you take? What action plan will you execute to control and restore the best customer satisfaction at the dealership?

(i.e. 120) were highly not satisfied.

1☆	2☆	3☆	4☆	5☆
Highly dis-satisfied	Dis-satisfied	Somewhat satisfied and somewhat dis-satisfied	Satisfied	Highly satisfied

Fig. 3.1: Customer Feedback Ratings Parameters

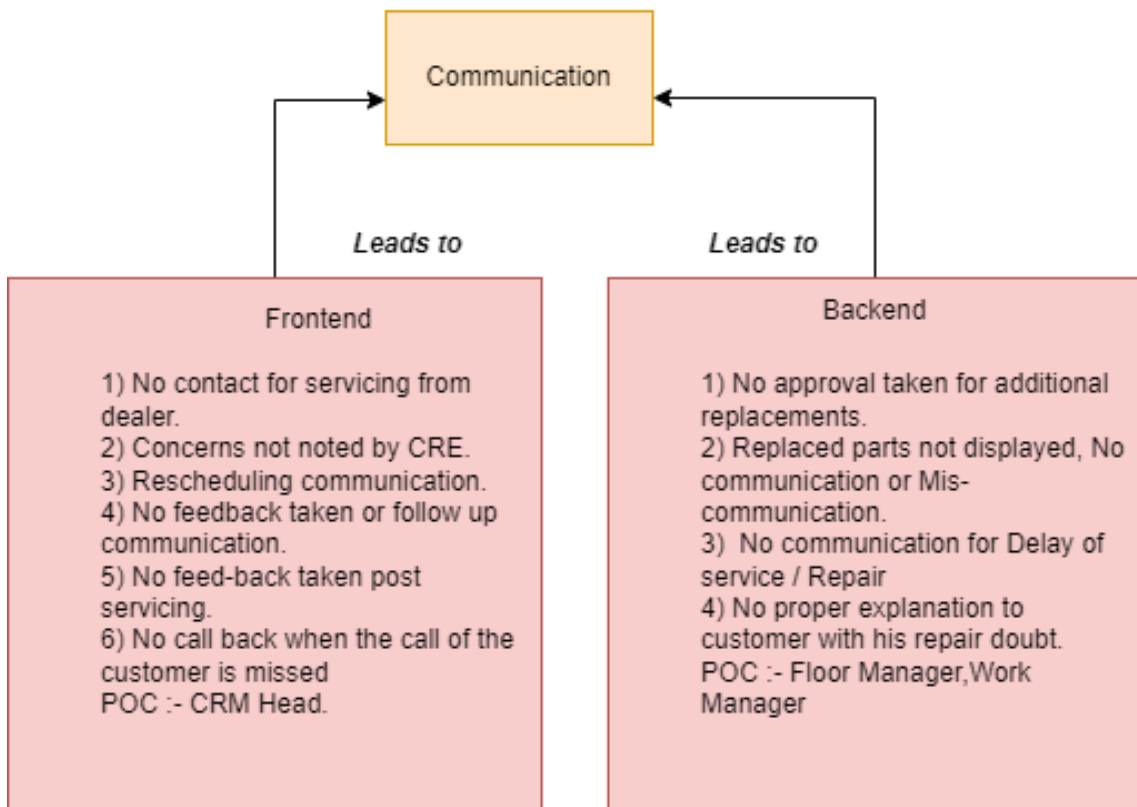**Fig. 3.2: Customer Feedback Ratings**

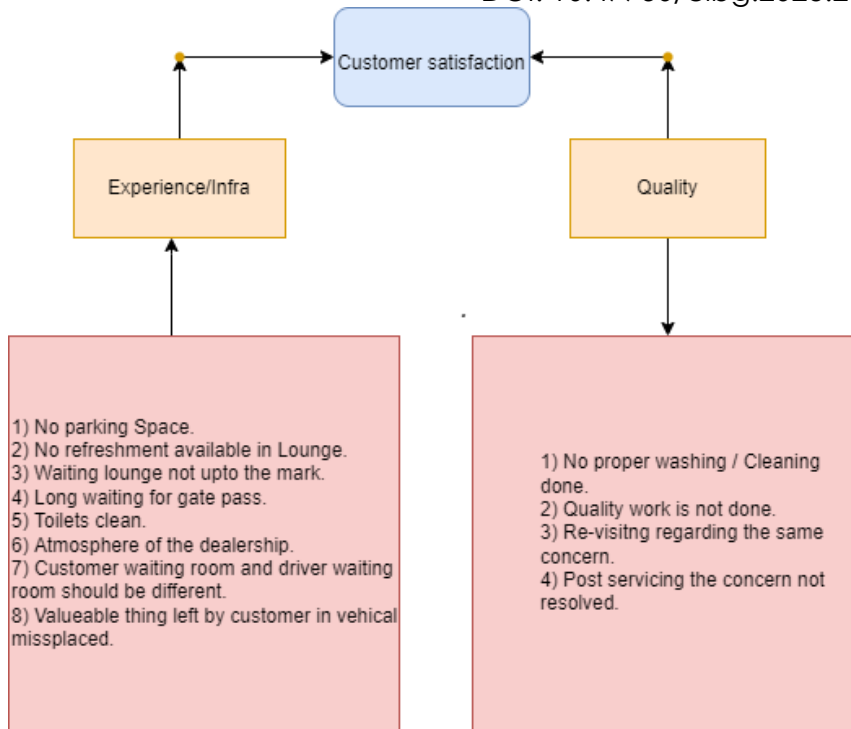**Fig.3.3: Customer Satisfaction concerns due to Communication Parameters**

Fig.3.4: Customer Satisfaction concerns due to Experience/Infra & Quality of Repairs

4. **Domino Effect (Case study based on Revenue and Utilization Aspect):** This is a perfect example of domino effect wherein one factor leads to another and impacts inter-disciplinary departments like non availability of toolkits per technician and low attendance of technicians lead to underutilization of workshop causing delays and carryovers which reduces the daily number of vehicles serviced thus the revenue reduces by 15% therefore sinking profit before tax to as low as 6% from 20%. If you were the service manager for ABC Auto, what approach would you take? What action plan will you execute to control and restore the utilization parameters while increasing the revenue?

No. of Bays	No. of Technicians	Workshop Area (Sq. Fts)	Ownership Type	Inventory Cycle (Days)	Annual Turnover (crores)	Annual Expense (crores)	Parts Absorption Ratio	Labour Margin Ratio
12	27	28,000	Leased	45	36,00,00,000	30,24,00,000	64 %	61.8 %

Fig. 4.1: Data before existing scenario

No. of Express Bays	No. of Master Technicians	No, of Service Advisors	Ownership Type	Inventory Cycle (Days)	Workshop monthly capacity	Average monthly cars (R/O)	Technician Attendance Ratio	W/S Productivity Ratio
1	3	6	Leased	45	950-1050	712-787	69 %	71%

Fig. 4.2: Workshop Details at present

Summary	
Revenue	₹ 2,55,00,000.00
Total Expenses	₹ 2,40,00,000.00
PBT	₹ 15,00,000.00
PBT %	**6**
Cost of Labour (Salary & wages + Admin & Infra)	₹ 31,22,000.00
Sales Revenue from Labour	₹ 76,50,000.00
Profit on labour (Revenue from Labour -Cost of Labour)	₹ 45,28,000.00
Labour Margin %	**59.2**
Parts cost	₹ 2,05,50,000.00
Sales of Parts	₹ 1,27,50,000.00
Opening Stock	₹ 10,00,000.00
Parts Absorption Ratio %	**59%**

Fig. 4.3 Revenue Summary Details at present

5. **Collateral Damage (Case study based on Revenue and Customer Satisfaction Aspect):** The dealer principal had invested a huge amount in purchasing and setting up the dealership of ABC Auto which led to shortage of funds for his other venture. For which he insisted Service Manager Mr. Alan Lobo to increase the profits without compromising the quality and brand name. Initially, Mr. Alan was able to achieve this and was praised for the same but later on gradually this changed into negligence on the part of customer satisfaction where majority of the customers were not satisfied with the service as Mr. Alan's strategy to maximize profit was flawed and did unjust to the customers who slowly moved to unauthorised local service stations. This also took the advantage of the situation and aggressively worked upon to fulfil the shortcomings of ABC Auto which resulted in the horrendous situation where revenue dropped by 25% which directly impacted negatively on profit before tax which dropped down to -7% for the month of October. Followed by which Mr. Alan, the Service Manager was fired with immediate effect by the dealer principal as he admitted negligence on his part and ABC Auto publicly admitted the wrongdoing which had happened in last few months and apologised to the customers and new service manager was appointed by the dealer principal. If you were the newly appointed service manager for ABC Auto what strategy and action plan would you plan and execute to get ABC Auto back on the map? Also, what steps would you take to recover the revenue deficit caused by previous months performance?

6. No. of Bays 7.	No. of Technicians	Workshop Area (Sq. Fts)	Ownership Type	Inventory Cycle (Days)	Annual Turnover (crores)	Annual Expense (crores)	Parts Absorption Ratio	Labour Margin Ratio
12	**27**	**28,000**	**Owned**	**45**	**36,00,00,000**	**30,24,00,000**	**64 %**	**61.8 %**

Fig. 5.1: Revenue Data

Summary	
Revenue	₹ 3,00,00,000.00
Total Expenses	₹ 2,31,25,000.00
PBT	₹ 68,75,000.00
PBT %	**23**

Cost of Labour (Salary & wages + Admin & Infra)	₹ 22,47,000.00
Sales Revenue from Labour	₹ 90,00,000.00
Profit on labour (Revenue from Labour -Cost of Labour)	₹ 67,53,000.00
Labour Margin %	**75.0**
Parts cost	₹ 2,05,50,000.00
Sales of Parts	₹ 1,50,00,000.00
Opening Stock	₹ 10,00,000.00
Parts Absorption Ratio %	**70%**

Fig. 5.2 Revenue Base scenario.
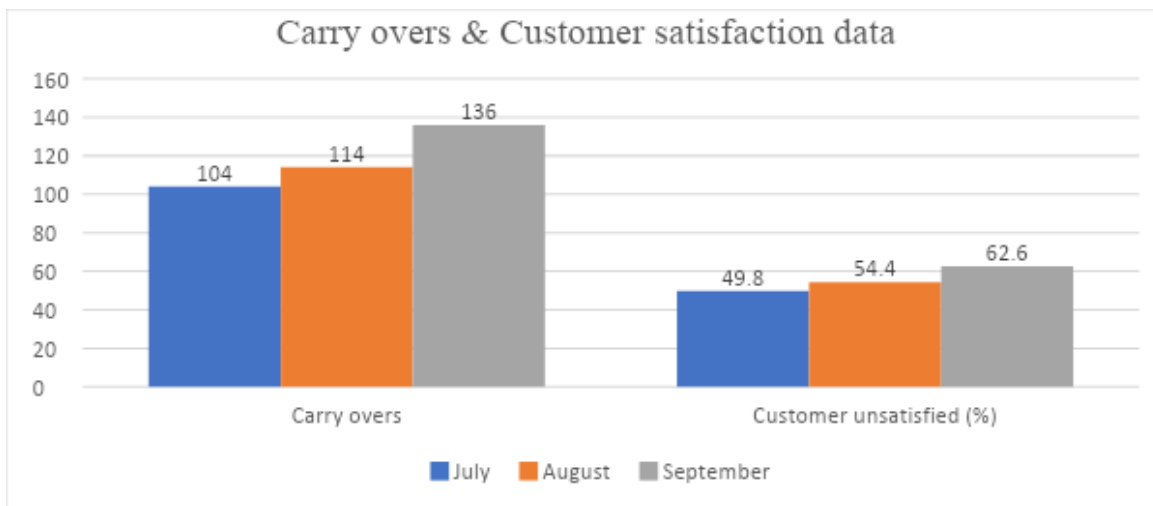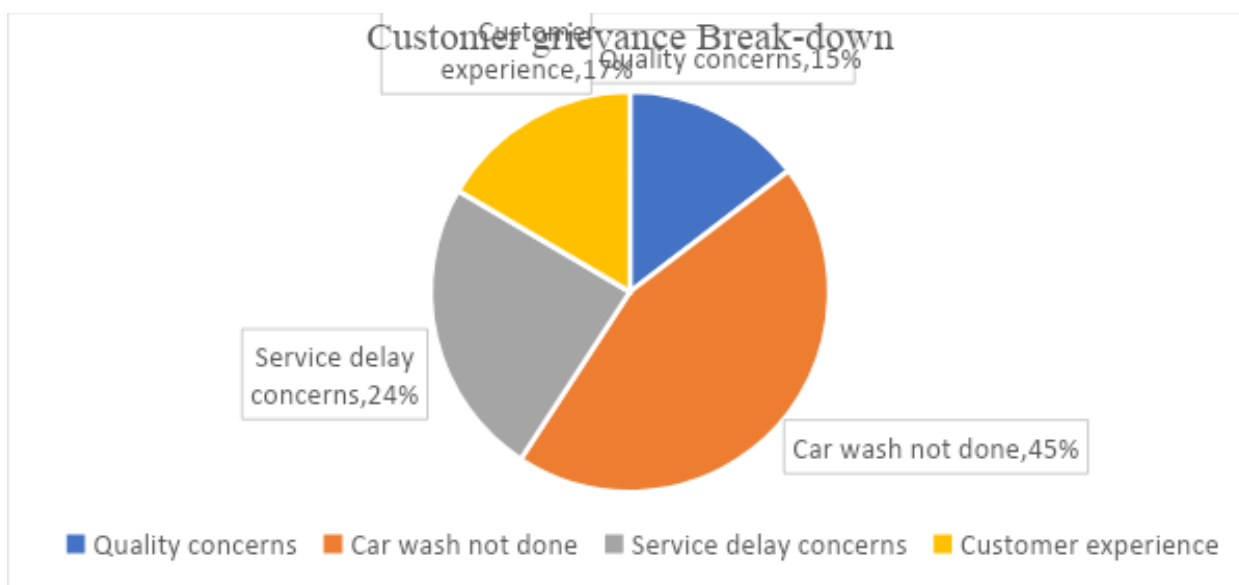

Fig. 5:3 Carry overs & Customer satisfaction data

Fig. 5.4: Customer grievance Break-down

Summary	
Revenue	₹ 2,25,00,000.00
Total Expenses	24000000
PBT	-₹ 15,00,000.00
PBT %	**-7**
Cost of Labour (Salary & wages + Admin & Infra)	₹ 31,22,000.00
Sales Revenue from Labour	₹ 67,50,000.00
Profit on labour (Revenue from Labour -Cost of Labour)	₹ 36,28,000.00
Labour Margin %	**53.7**
Parts cost	₹ 2,05,50,000.00
Sales of Parts	₹ 1,12,50,000.00
Opening Stock	₹ 10,00,000.00
Parts Absorption Ratio %	**52%**

Fig. 5.5 Revenue Summary Details at present

1. **Misapplication (Case study based on Customer Satisfaction and Utilization Aspect):** Mr. Alan is the newly appointed Service Manager of ABC dealer whose revenue has declined in the quarter-4 and he has to act upon with the help of some strategy to increase the revenue margins. Also, the CRE team has recently joined, and they are not able to pitch sales due to lack of communication skills. And as per the reports, the dealership is facing a lot of issues regarding the customer satisfaction aspects due to poor utilization and repair quality maintained by the floor team. The technicians have to complete their jobs quickly due to the excessive allotment of vehicles by floor manager on them because of increased daily inputs to increase revenue without any upgradation in the infrastructure or manpower. The Floor team is changing parts without any permission from the customer due to a communication gap between the Floor team and Service Advisor. Due to all these issues more than 70% customers are dissatisfied and these customers have started approaching the local service outlets and avoiding the dealership for servicing.
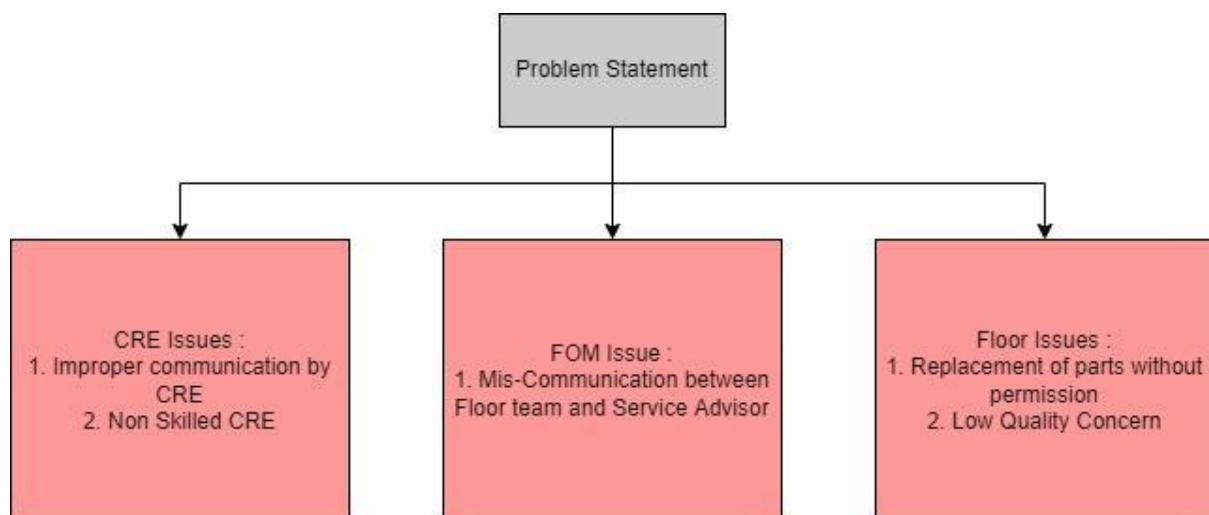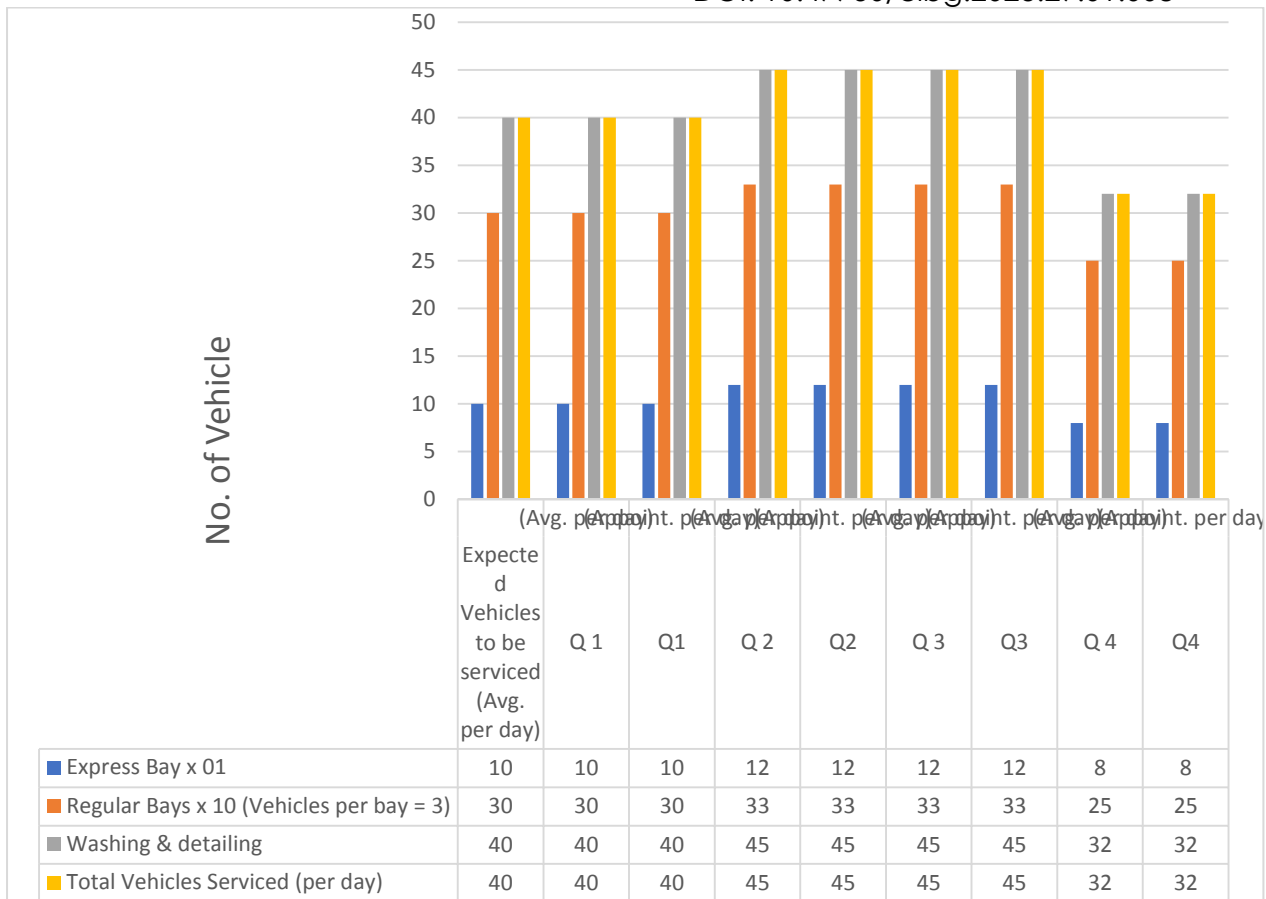

Fig. 6.1: Problem Statement

	Expected Vehicles to be serviced (Avg. per day)	Q 1	Q1	Q 2	Q2	Q 3	Q3	Q 4	Q4
Express Bay x 01	10	10	10	12	12	12	12	8	8
Regular Bays x 10 (Vehicles per bay = 3)	30	30	30	33	33	33	33	25	25
Washing & detailing	40	40	40	45	45	45	45	32	32
Total Vehicles Serviced (per day)	40	40	40	45	45	45	45	32	32

Fig. 6.2: Quarterly vehicle report of Shop floor

2. **Triple trouble (Case study based on Revenue, Utilization and Customer Satisfaction):** ABC Auto having more than 15 years of experience has faced various challenges in past and proved itself by overcoming them to pioneer their services. The Service manager who was retiring was serving his notice period where he did not explicitly monitor the situation. Slight delay was done in recruiting the new service manager, who after joining realised the current reports were not aligned with the past report and investigated the issues where he noticed the reduction in inventory resulted in various utilization problems. Problems like parts were not available, delays in delivery, increased carry overs causing rescheduling of planned services which all together negatively impacted the customer satisfaction and customers and caused a major issue with customer retention.

Along with this the third-party contract for housekeeping was not in order which led to further customer dissatisfaction as cleanliness was questioned in reception and waiting lounge area, inappropriate hospitality and communication gap resulted in the increase in customer dissatisfaction. As service advisors & CRE failed to note customer concerns on the job cards, the concerns were left unaddressed whereas replacement of parts without taking approval of customer was done which resulted in billing disputes and customer satisfaction was negatively impacted. This situation was worsening and its repercussions on revenue were significantly harsh and the profit before tax had reduced to -10% in the month of April. Mr. Alan, newly appointed service manager took series of meetings to get inputs to device an action plan to overcome this situation.

If you were in the place of Mr. Alan Lobo, what action plan would you have planned? According to you in how much timeframe this situation could be restored back to normal? As we can see the revenue has been impacted in the period of January – April what measures would you take to fill in the deficit? What are your projections for the dealership by end of this present fiscal year?

No. of Bays	No. of Technicians	Workshop Area (Sq. Fts)	Ownership Type	Inventory Cycle [2] (Days)	Annual Turnover (crores)	Annual Expense (crores)	Parts Absorption Ratio [3]	Labour Margin Ratio [4]
12	27	28,000	Leased	45	36,00,00,000	30,24,00,000	64 %	61.8 %

Fig. 7.1: Previous financial year data

Monthly Revenue Data for September (prior to inflation)	
Revenue	₹ 3,00,00,000.00
Total Expenses	₹ 2,40,00,000.00
PBT	₹ 60,00,000.00
PBT %	20
Cost of Labour (Salary & wages + Admin & Infra)	₹ 31,22,000.00
Sales Revenue from Labour	₹ 90,00,000.00
Profit on labour (Revenue from Labour -Cost of Labour)	₹ 58,78,000.00
Labour Margin %	65.30%
Parts cost	₹ 2,05,50,000.00
Sales of Parts	₹ 1,50,00,000.00
Opening Stock [5]	₹ 10,00,000.00
Parts Absorption Ratio %	70%

Fig 7.2: Data for the month of December 2020

Components	Proportion
VAS (value added services)	20%
Parts	50%
Labour	30%

Fig 7.3: Proportion of Revenue components for ABC Auto

---

[1] Inventory Cycle: Time interval in days in which parts are procured for dealership.
[2] Inventory Cycle: Time interval in days in which parts are procured for dealership.
[3] Parts Absorption Ratio = Total sales of parts / (Parts Purchased + Opening Stock of Parts)
[4] Labour Margin Ratio = Total sales of Labour / (salaries & wages overhead + admin & infrastructure overhead)
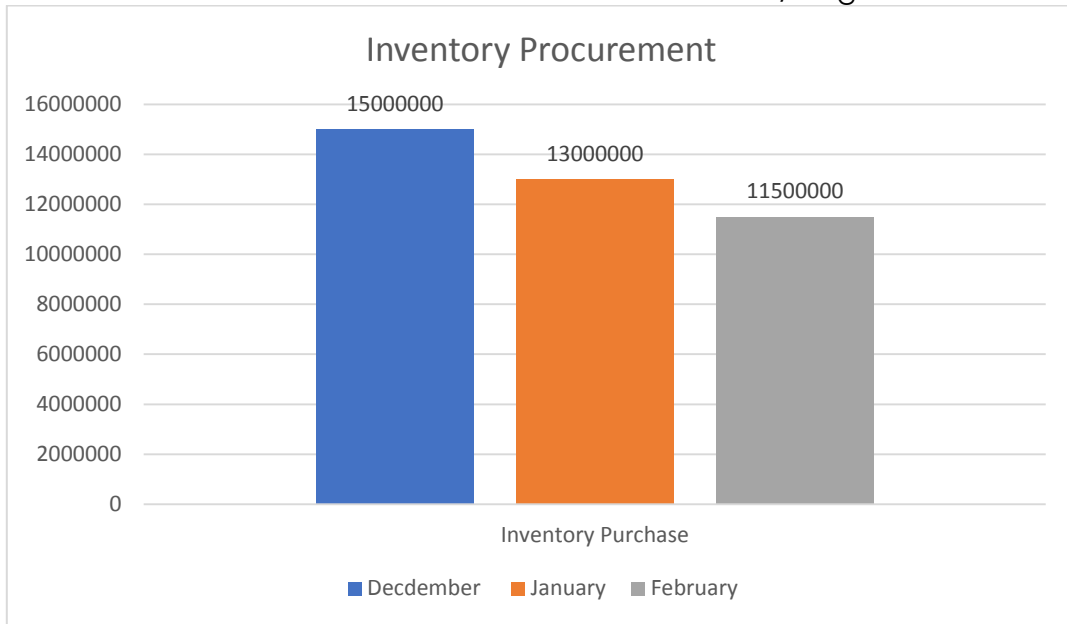[5] Opening Stock: stock balance of previous month which is carry forwarded to next month's balance sheet.
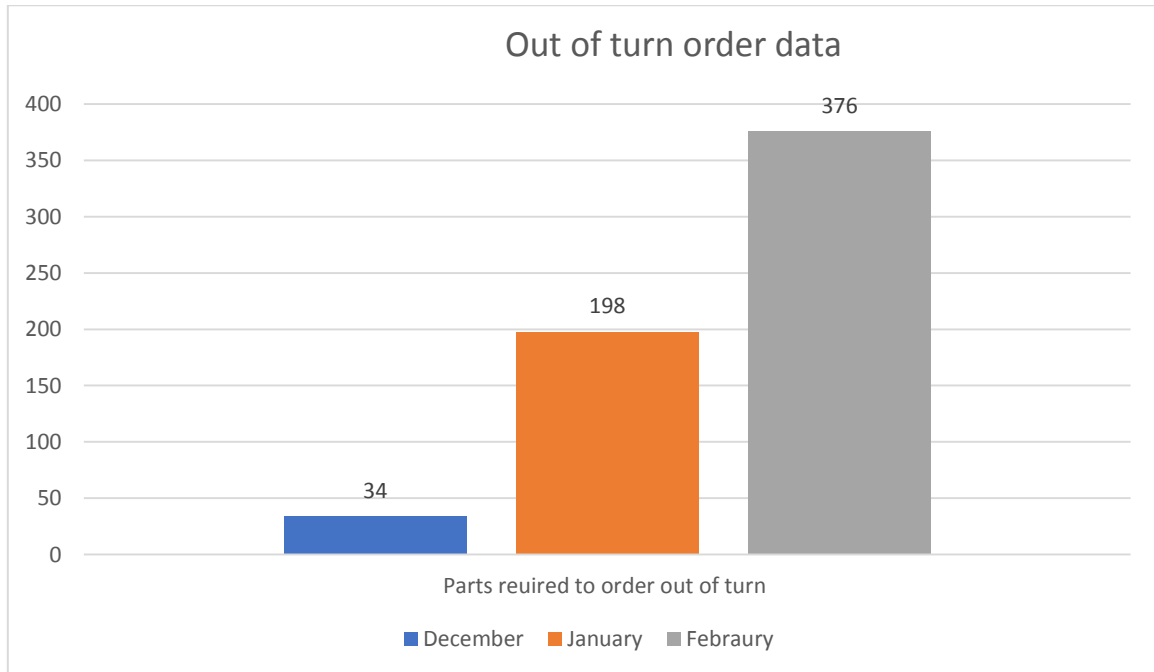
Fig. 7.4: Inventory procurement record

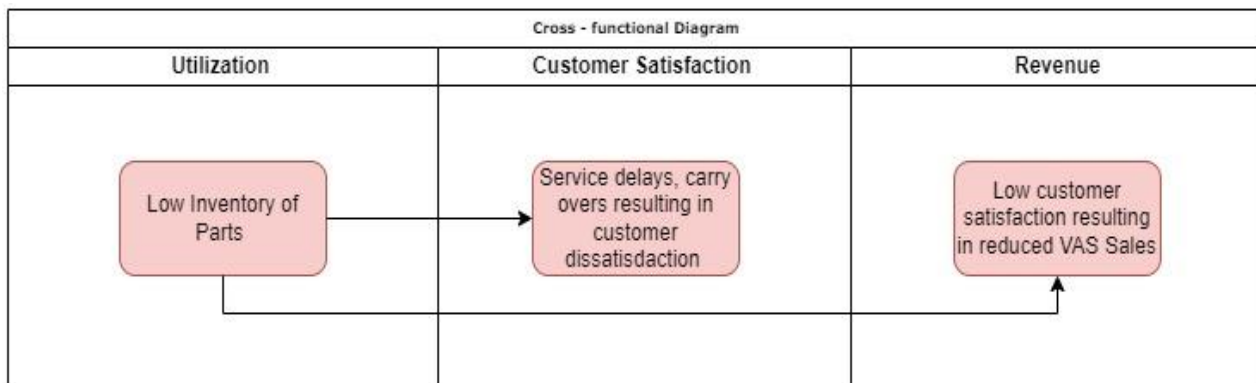**Fig 7.5: Number of times parts were ordered out of turn**

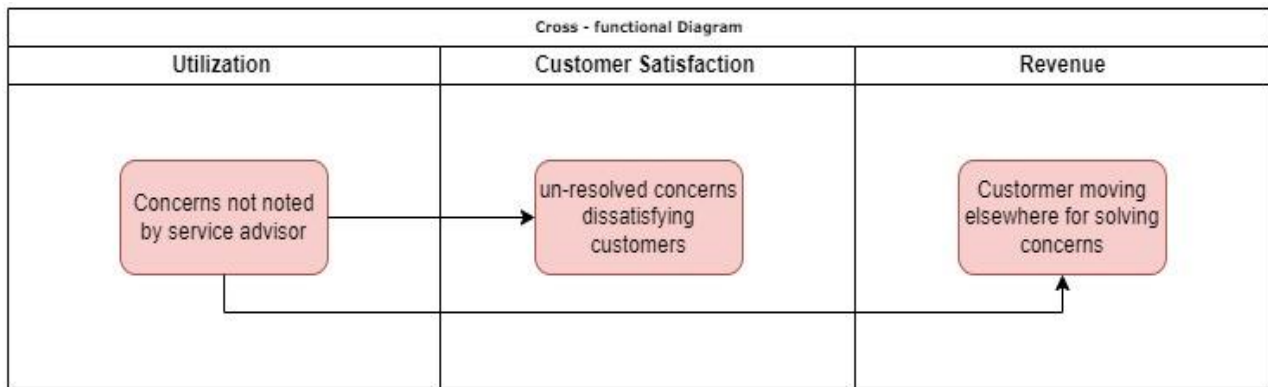**Fig. 7.6 Cross functional diagram**

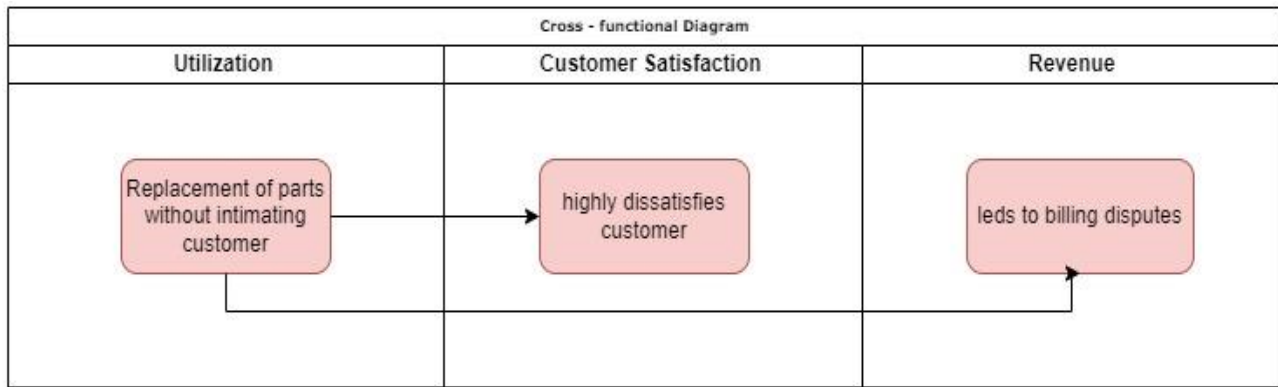**Fig. 7.7 Cross functional diagram**

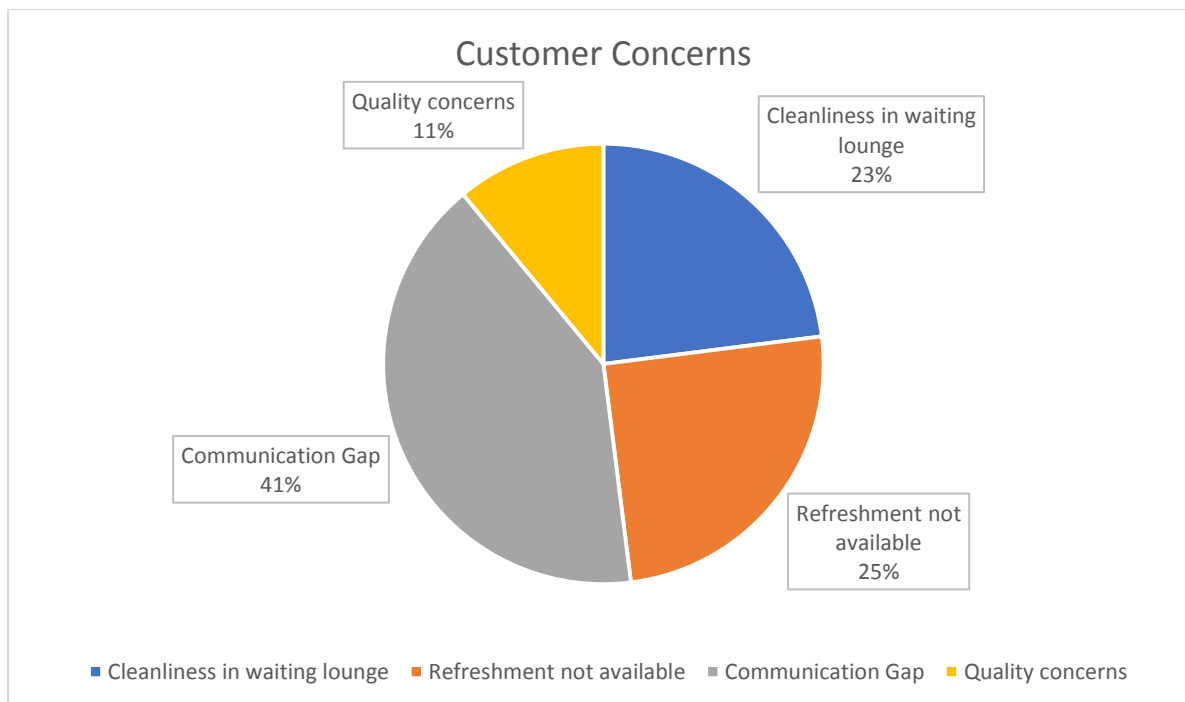**Fig. 7.8: Cross functional diagram**

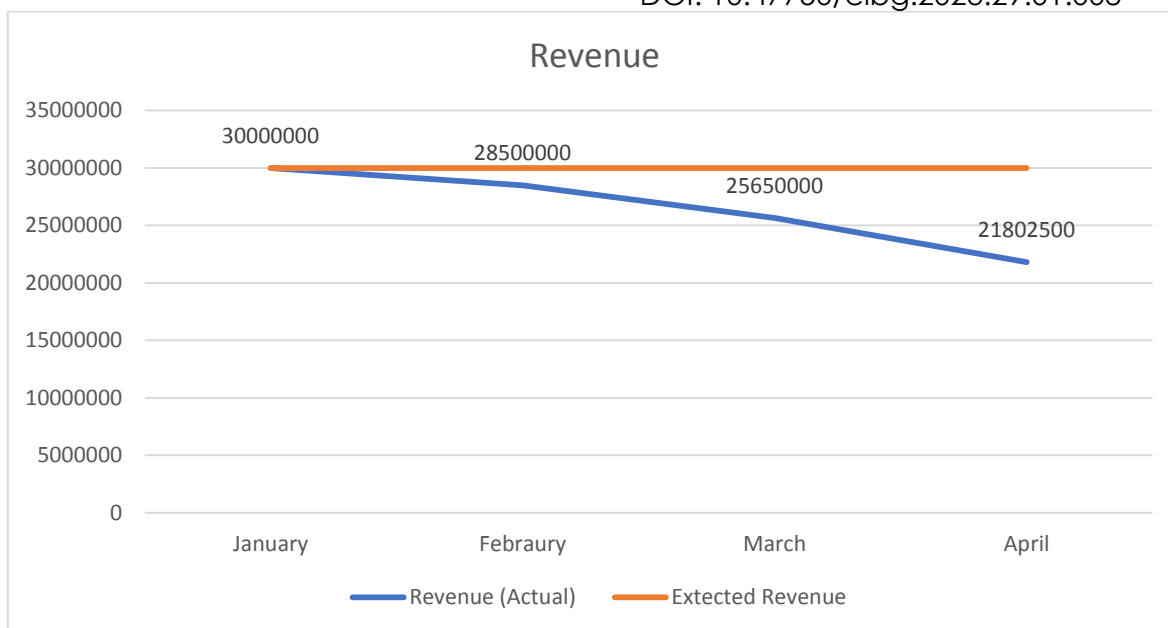**Fig. 7.9: Customer concerns**

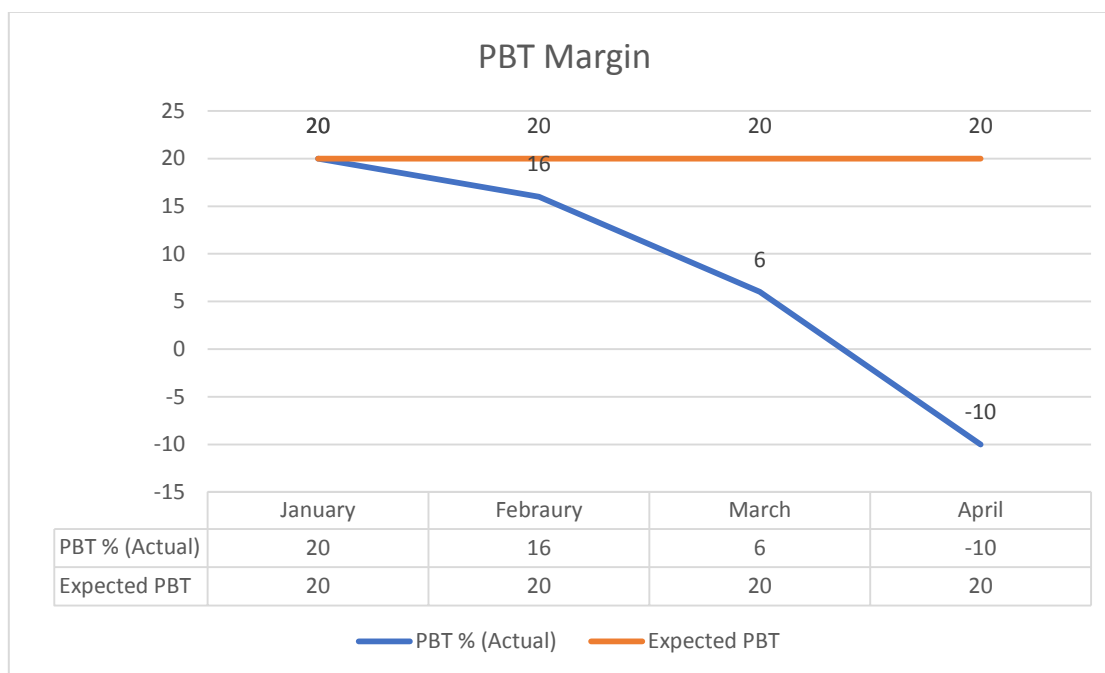**Fig 7.10: Revenue Projection (expected vs actual)**

Fig 7.11: PBT Projection (expected vs actual)

GAMIFICATION SCRIPTS

To develop game based on Business Case Studies it is crucial to convert the case studies to gamification script as to cover n-1 possibilities in move and select virtual world gaming model.

To achieve this, we have transformed our business case studies into gamification scripts which cover all the possibilities in the game world that and end user can perform while playing the game.

As the main intended goal of this gamification is imparting learning and decision-making ability to Service managers of the dealerships it is necessary to have an assessment algorithm which evaluates end users' performance. For which our recommended algorithm tracts the moves of end user and awards points on selecting appropriate step in game world and deducts fractional points when chosen wrong step which leads to a grand score evaluation if the end user is able to pass the minimum percentage criteria only then he can

proceed to the next gaming levels. The levels in game are based on the KPA's and they combinations and integration.

It is also essential to give proper guidelines to the end user as our aim is to educate the end user not just evaluation for which we have prepared separate guiding notes which we converted to pop-ups and hints in gamification script. In order to convert business case studies to gamification sheet and flowsheets for the development team to clearly understand the flow of the game and concept we used the concept of object-oriented analytical diagrams (Component diagram, cross functional diagram, flow charts etc.) which provides information and process stages very fluently and efficiently to the development team.
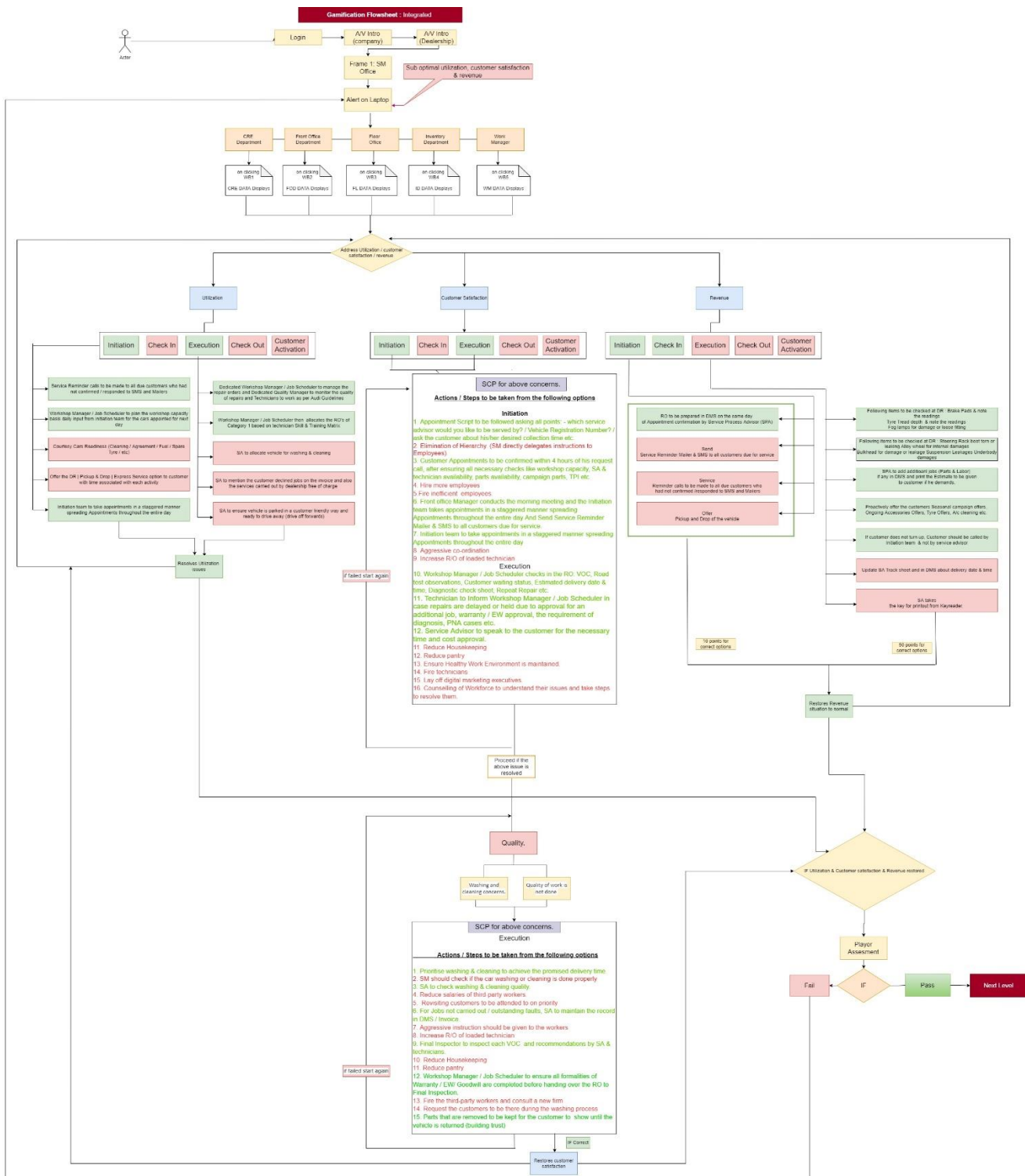

Fig. 8.1 Gamification Flowsheet

PROCESS MANAGEMENT

To manage the research project team consisting people of various specialisations and domain backgrounds as well as effectively track and monitor our work to ensure deadlines were met on time and maintain track record. I implemented agile – scrum process management methodology having prior experience of handling agile environment in IT industry gave me more confidence to implement this method in our summer internship project. Trello was used as a tool for process management which further smoothened the process and team communication whereas tracked our performances, team efficiency and productivity.
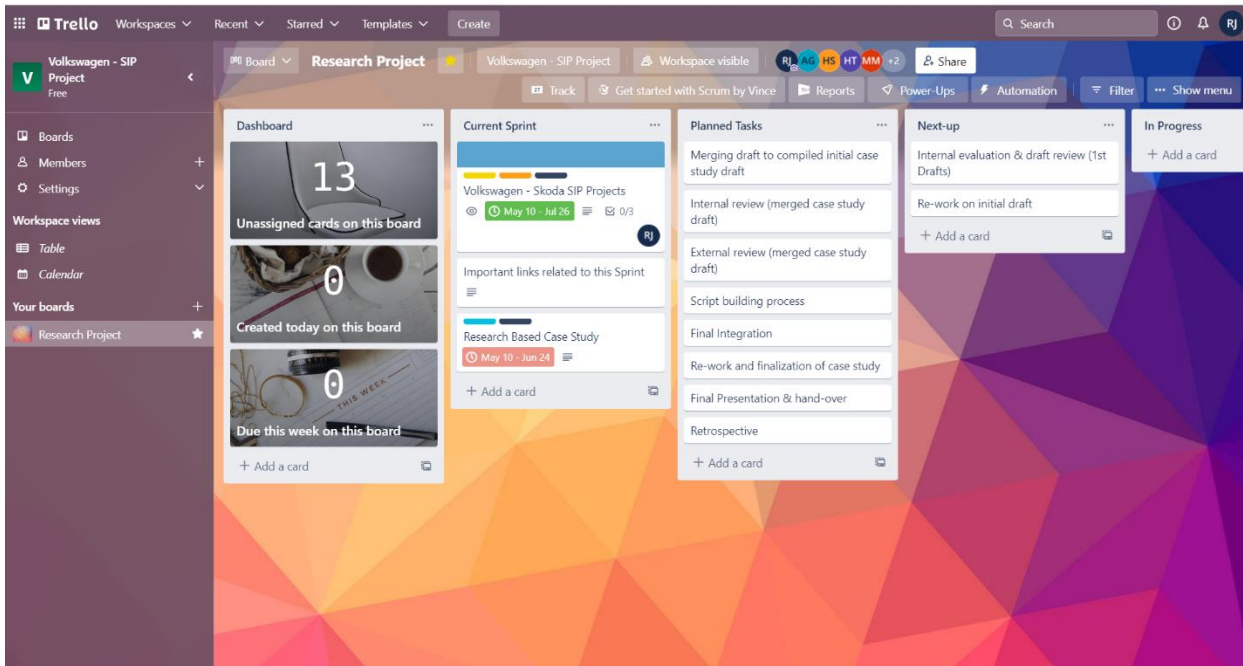

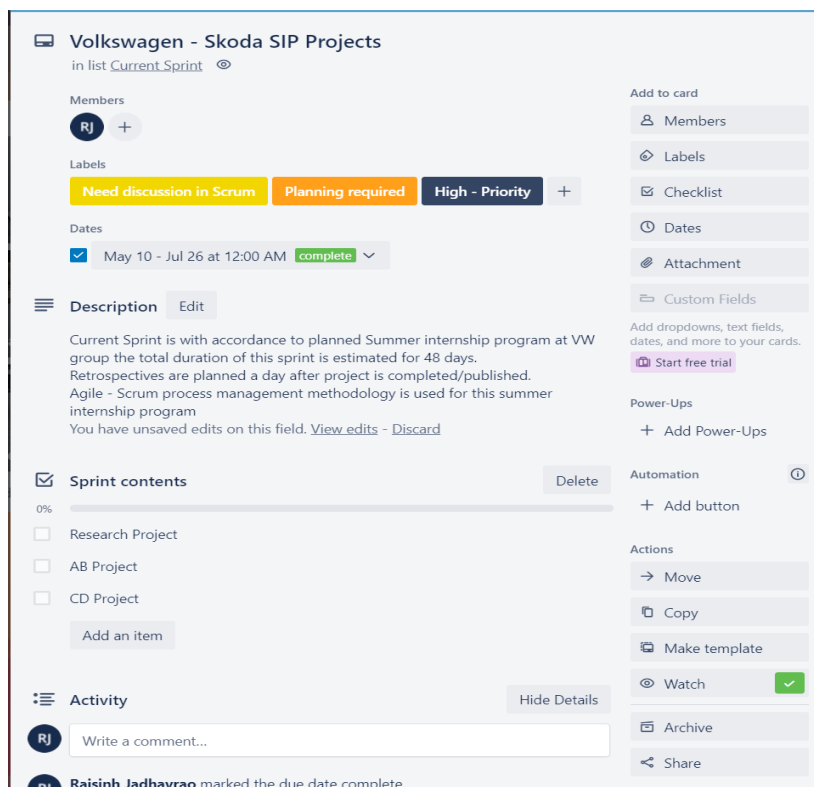**Fig. 9.1 Trello Dashboard (agile process management tool)**

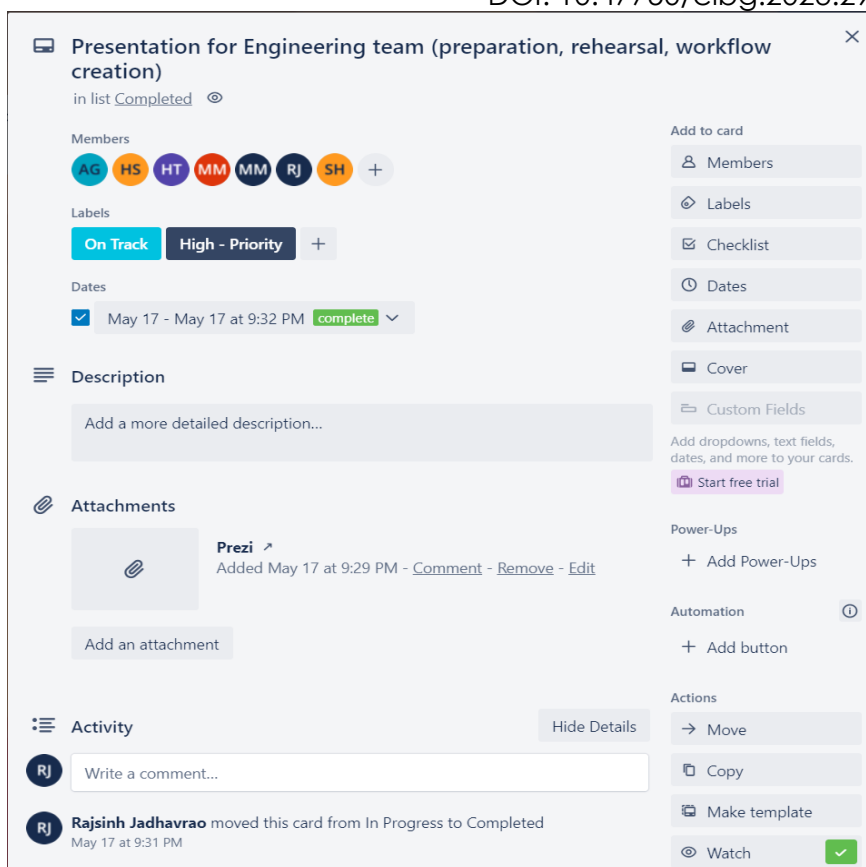

Fig. 9.2 Sprint Planning Trello

Fig. 9.3 Assigned Task Card (Trello)

DATA ANALYSIS, HYPOTHESIS TESTING AND INTERPRETATION

Data Collected for this project from various sources as mentioned in resource methodology was masked keeping data confidentiality in mind and most of the research work was carried out based upon proportional logic wherein the proportions of actual data was used to create masked data set. These include revenue data from balance sheet, profit& loss statements etc.

Based upon the masked data various scenarios were created and the data parameters like PBT (profit before tax) margin, parts absorption ratio, labour absorption ratio was tested accordingly. Based upon the actual expected ratios a masked base situation for a dealership was devised as shown below.

Sales		
Revenue (monthly)		
Sr. No	**Description**	**Amount**
1	VAS Sales	₹ 60,00,000.00
2	Parts Sales	₹ 1,50,00,000.00
3	Labor Sales	₹ 90,00,000.00
	TOTAL SALES	**₹ 3,00,00,000.00**

Fig.10.1 Revenue component break-down

Summary	
	₹
Revenue	3,00,00,000.00
	₹
Total Expenses	2,40,00,000.00
PBT	₹ 60,00,000.00

PBT %	**20**
Cost of Labor (Salary & wages + Admin & Infra)	₹ 31,22,000.00
Sales Revenue from Labor	₹ 90,00,000.00
Profit on labor (Revenue from Labour -Cost of Labour)	₹ 58,78,000.00
Labor Margin %	**65.3**
Parts cost	₹ 2,05,50,000.00
Sales of Parts	₹ 1,50,00,000.00
Opening Stock	₹ 10,00,000.00
Parts Absorption Ratio %	**70%**

Fig 10.2: Revenue base scenario

Based on the correlational analysis on the above data various data sets were formulated for various situations like:

1. When revenue is constant but expense is increased (inflation)
2. Revenue is increased in parallel with expense rate.
3. Revenue increased twice as of expense increased.
4. Revenue increased along with expense increased by $1/4^{th}$ of revenue.

The impact of such situations on Profit before tax, parts absorption, labour absorption was studied and relationship between these components were established for further research work as to make sure the end user of the game/ case study and identify the most

Various analyses were made to identify the optimal, Sub – optimal and above Optimal statistics for various workshop utilization components such as no. of bays, technicians (per category), express & electric bays and so on to validate the workshop capacity with available demand and to determine the break even demand as per the workshop capacity to ensure optimal performance.

Sr. No	Description	Sub-Optimal	Actual	Optimal
1	Servicing Bay's	10	12	14
2	No. of express bay's	0	1	1.2
3	No. of electric bay's	0	1	1.2
4	No. of technicians	19	24	29
5	Technicians on buffer	17	3	25
6	Vehicles for servicing per day	22	28	34
7	Inventory stock-up for period of (days)	36	45	54
8	Master diagnostic Technicians	1	2	3
9	Average time for periodic maintenance	1.5	1	0.45
10	No. of vehicles to be serviced per technician per day	3	2.5	2
11	Team Leaders for technicians	2	3	4
12	No. of equipment trolleys, diagnostic kits etc	19	24	29
13	No. of service advisors	5	6	7
14	No. of CRE's	5	6	7
15	Front desk executives	1	2	3
16	Account executives	2	3	4

Fig. 10.3 Utilization parameters

Conclusion:

In case of customer satisfaction most of the data was qualitative, as to process this data was segregated according to various parameters like point of contact, pain point (communication, quality, utilization) in order to analyse and find out the area for improvement. Various inferences were made based upon the data collected:

1) Dealerships with monopoly have low customer satisfaction.
2) Dealerships with high competition provide more facilities and promotional schemes than dealership with monopoly situation.
3) Dealership having owned land for infrastructure tend to have higher PBT margins.
4) Dealership having leased land for infrastructure have low PBT margin as their expense is on higher side.
5) Utilization and customer satisfaction directly affect Revenue.
6) All three key areas namely Revenue, utilization and customer satisfaction are interlinked and correlational.
7) Technician attrition rate is on higher side due to competition.
8) Maintaining appropriate inventory is essential part of dealership as it directly impacts customer satisfaction.
9) Dealership profitability margin does not depict the customer satisfaction.
10) It is service manager to monitor and control his subordinates and cross functional departments to ensure smooth functioning of the dealership.

This research has been a detailed one which will play a significant role in all the aspects of improving utilization, customer satisfaction and revenue. Implication of the same will help in growth and development of the company in a long run. The kind of research completed do justice to find solutions to relevant problems of the dealerships.

The purpose of this research was to find effective strategies for dealing with the issues faced by the dealerships. Based on the formulation of business case studies, a gamification script was formulated to relevant solutions and guiding notes thus, refining the effectiveness of the service manager as well as the dealership.

References

Akaeze, D. C. (2017). Exploring Factors That Influence Consumer Loyalty to Automobile Dealerships in New York . Journal of Business Theory and Practice, 1-22.

Allied Market Research. (2022, July). Automotive Retail Market. Retrieved from Allied Market Research: https://www.alliedmarketresearch.com/automotive-retail-market-A10753#:~:text=The%20automotive%20retail%20industry%20comprises%20two%20kinds%20of,parts%20%26%20accessories%20to%20customers%20and%20commercial%20clients.

Blunt, D. R. (2007). Does Game-Based Learning Work? Results from Three Recent Studies. In Proceedings of the Interservice/Industry Training, Simulation, & Education Conference (pp. 945-955). Orlando Florida: National Defense Industrial Association.

Emery, C. R., & Fredendall, L. D. (2001). The Effect of Teams on Firm Profitability and Customer Satisfaction. SAGE Journals.

Flynn, M. S., Hill, K., Alkire, K. F., Belzowski, B. M., Kang, G., & Senter, R. H. (2001). Economy, Competition, and the Retail Automotive Dealer. Fort Lauderdale, FL.: Michigan Univ., Ann Arbor. Office for the Study of Automotive Transportation.; AutoNation, .

Lu , X., Blankson, C., & Prybutok, V. (2017). Relative Contributions of Product Quality and Service Quality in the Automobile Industry. Quality Management Journal, 21-36.

Marx, T. G. (1980). The Economics of Single- and Multi-Line Retail Automobile Dealerships. Journal of Marketing, 29-35.

Mehdi, T., & Mehdi, R. (2018). Effectiveness of teaching methods in business education: A comparison study on the learning outcomes of lectures, case studies and simulations. The International Journal of Management Education, 131-142.

Pothal, L., Tripathy, S., & Dash, A. (2020). Study of Customer Relationship Management in Automobile Industry. In L. K. Pothal, S. Tripathy, & A. Dash, Advances in Mechanical Processing and Design.

Simmons, R. L. (2015, September). The Relationship Between Customer Relationship Management Usage, Customer. Doctoral Study - Walden University . Washington, Minneapolis, United States.

Skoda Auto Volkswagen India Private Limited. (2022, May). About Us. Retrieved from Skoda Auto Volkswagen India Private Limited: https://www.skoda-vw.co.in/about-us/#about

Skoda Auto Volkswagen India Private Limited. (n.d.). Business Acumen. (Internal Document).

Skoda Auto Volkswagen India Private Limited. (NA). Key Performance Index (KPI). KPI.

Skoda Auto Volkswagen India Private Limited. (NA). SCP (Supply Chain Planning). (Internal process documentation).

Timothy, F. B., & Reiss, P. C. (1985). Dealer and Manufacturer Margins. The RAND Journal of Economics, 253-268.

Vargas, C., & Cortés, M. (2017). Automobile spare-parts forecasting: A comparative study of time series methods. International Journal of Automotive and Mechanical Engineering, 3898-3912.

Appendix 1 -Questionnaire

1) Revenue per month of dealership?
2) Number of bays in workshop?
3) Number of Technicians?
4) Number of master diagnostic technicians?
5) No. of vehicles serviced daily?
6) Weekly/ Monthly average Ro/?
7) No of service advisers?
8) Inventory purchase cycle (in days)
9) Inventory purchase in amount (per cycle)
10) No. of Front desk executives?
11) VAS Sales per month?
12) Parts sales per month?
13) Labour sales per month?
14) Profit before tax margin?
15) Total expense monthly?
16) Cost of labour?
17) Parts absorption ratio?
18) Customer satisfaction percentage?
19) Customer retention rate?
20) Technician attrition rate?