ACHARYA INSTITUTE OF TECHNOLOGY
(Affiliated to Visvesvaraya Technological University, Belagavi, Approved by AICTE, New Delhi and Accredited by NBA and NAAC)

Date: 25/05/2018

CERTIFICATE

This is to certify that **Mr. Girish H** bearing USN **1AY16MBA20** is a bonafide student of Master of Business Administration course of the Institute 2016-18 batch, affiliated to Visvesvaraya Technological University, Belagavi. Project report on "**A Study on Inventory Management at Toyotetsu India Pvt Ltd" Bidadi, Ramanagara** is prepared by him under the guidance of **Prof. Swarupa Ranjan Panigrahi** in partial fulfillment of the requirements for the award of the degree of Master of Business Administration, Visvesvaraya Technological University, Belagavi, Karnataka.

Signature of Internal Guide

Signature of HOD

Head of the Department
Department of MBA
Acharya Institute of Technology
Soldevanahlli, Bangalore-560 107

30 May 18

Signature of Principal

PRINCIPAL
ACHARYA INSTITUTE OF TECHNOLOGY
Soldevanahalli Bangalore-560 107

Toyotetsu India Private Limited

(Formerly known as Stanzen Toyotetsu India Private Limited)

Date: 30th March 2018

CERTIFICATE

This is to certify that Mr. Girish H (1AY16MBA20), a student of MBA from Acharya Institute of Technology, Bangalore, has successfully completed his Internship Project on "A Study on Inventory Management" at Toyotetsu India Pvt Ltd, Bangalore, during 15th January 2018 to 24th March 2018, as a partial fulfilment for the award of degree of "Master of Business Administration".

During the period of his stay his conduct was good.

For Toyotetsu India Pvt Ltd

Nataraj K

GMF & Company Secretary

Toyota Techno Park, Plot No. 20, Bldg.No 2, Bidadi Industrial Area, Bidadi,
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DECLARATION

I, GIRISH H, hereby declare that the Project Report entitled "A Study on Inventory Management" with reference to "TOYOTETSU INDIA PVT LTD", Bidadi Industrial Area, Bidadi, Ramanagar District, prepared by me under the guidance of Prof. Swaroop RanjanPanigrahi, faculty of MBA Department, Acharya Institute of Technology and external assistance by Nataraj K, GMF & Company Secretary, Toyotetsu India Pvt Ltd. I also declare that this Project work is towards the partial fulfilment of the university Regulations for the award of degree of Master of Business Administration by Visvesvaraya Technological University, Belgaum. I have undergone a summer project for a period of Ten weeks. I further declare that this Project is based on the original study undertaken by me and has not been submitted for the award of any degree/diploma from any other University / Institution.

Place: Bangalore

Signature of the Student

Date: 30/05/2018.

ACKNOWLEDGEMENT

The Internship opportunity I had with Toyotetsu India Pvt Ltd, was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it.

It's a pleasure to acknowledge with thanks to the people who guided me to complete this Project successfully.

I express my sincere thanks to my external guide Nataraj K, GMF & Company Secretary, whose guidance and encouragement helped me to complete my Project report successfully.

I'm thankful to my Internal guide Prof. Swaroop Ranjan Panigrahi, Assistant Professor of MBA Department, Acharya Institute of Technology, Bangalore, for his constant support, suggestion, guidance and encouragement in carrying out this Project.

My sincere thanks to Dr. Nijaguna G, HOD - Department of MBA, Acharya Institute of Technology, Bangalore, whose timely suggestions and encouragement supported me to complete this Project.

Finally, I thank my parents and all my friends for helping me during the period of my Project work.

Place:

Date:

TABLE OF CONTENTS

LIST OF TABLES AND GRAPHS

LIST OF TABLES

LIST OF GRAPHS

EXECUTIVESUMMARY

This is an attempt to know how the theories can be applied to practical situation. As a student of MBA, it is a part of study for everyone to undergo Summer Project at some good institute or organization. So for this purpose, I got the opportunity of doing my Internship program at Toyotetsu India Pvt Ltd.

In the initial part of the Project report, the general information of the company has been collected. Information is gathered through the primary and secondary source as well.

Toyotetsu India Pvt Ltd was started as a Joint Venture agreement signed between Toyoda Iron Works Company Limited, Japan, Stanzen Techno Private Limited, Bangalore and Toyota Tsusho Corporation, Japan. It started producing auto components for Toyota KirloskarMotors and it is one of the main suppliers of parts like Frame, Press and Assembly components to Toyota Kirloskar Motors.

As the main purpose of internship is to learn by working in practical environment and to apply the knowledge acquired during the studies in a real world scenario in order to tackle the problems using the knowledge and skill learned during the academic process.

This report also contains my perceptions about the employee's satisfaction, motivation level and the working environment of the organization.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The internship aims to provide the industry awareness where we can apply the knowledge which we have learnt in the classes. Generally, the internship project work was for a period of 10 weeks i.e. from 15th January 2018 to 24th March 2018. Inventory Management plays an important role in the process of manufacturing and distribution so it helps the companies to properly manage and control the available inventories. Hence investment in inventories will have an effect on the conduct of the business.

1.2 INDUSTRY PROFILE

The Automotive or the automobile industry aims at designing, developing, manufacturing and marketing and selling the motor vehicles to its customers all over the globe and it is deliberated as one and only of the world's most important economic sectors in positions of revenue.

The automotive industry generally does not contain that industry which are committed to the motors after delivering the products to its customer like the repair works and the motor fuel satisfying stations.

The word Automobile is derived from the Ancient Greek word autós, which means self and the French word mobile which means moving or movable and from the Latin mobilis which means movable that is the vehicle that moves by itself, rather than being pulled or pushed by a separate animal of another vehicle. The name Car is trusted to be derived from the Latin word carrus, which means four-wheeled baggage wagon or the Middle English word carre, which means from Old Northern French or from the Gaulish word karros, which means a Wagon.

The automotive industry in India is considered as one of the largest in the world, which results in producing an annual production of 23.96 million automobiles in the FY that is the Fiscal Year 2015-16 and resulting the growth of 2.57 per cent over the last few years. Hence, the Industry accounts for almost 7.1 per cent of the country is Gross Domestic Product (GDP). Moreover, the further growth of the sector is aided by the growing interest of the companies by exploring the rural markets and the overall Passenger Vehicle (PV) segment has accounted for 13 per cent market share in India.

India in the recent years is also a conspicuous auto exporter and is guessing a stronger export growth in the nearby or in the coming future. In FY 2014-15, the auto trades have grown-up by 15 per cent over the last limited years. In count to that, the Government of India takes several initiatives and the Indian markets are estimated to mark India a head in the Two Wheeler (2W) and the Four Wheeler (4W) markets in the world by 2020 by concentrating more on the major auto players in India.

Indian Automobile Industry

The Indian Automobile Industry has surrounded by the largest automobile markets around the globe in the earlier years and it is coming as or resulted for one of the fastest mounting passenger car markets around the globe and the customers can expect many new features as many automobiles companies are concentrating to provide. In the recent days or months, the auto industry in India is seeing a flat and a negative growth rate, which may affect the industry, and this kind of impact is not good, both for the customers and for the companies.

The Indian auto industry is also attractive a promising centre for transferring the sports utility vehicles (SUVs) to Europe, Southeast Asia and South Africa. Further, the hybrid and the automatic vehicles are directing for new extension in the Indian motor markets. Nowadays, the Indian makers are also focusing or aiming to advance new innovative products, machineries and the resource chains and thus wishes to provide the quality products to the customers frequently.

In India, the motor industry is also providing the straight employment opportunity to almost nearly 5 lakh persons and it adds more or equal to 4.7 per cent to India's GDP growth and 19 per cent towards India's indirect tax revenue. In the initial 1980s, there were very few performers in the Indian auto sector, which was extremely suffering from the low dimensions of production, out-dated and inferior technologies and the de-licensing has released up this sector to growth of FDI in 1993 and the sector has been growing or increasing quickly due to the entrance of many worldwide performers in India.

The Indian auto component area is considered as a thrusted segment for India where the industry has more than 500 large to medium key participants which results in establishing the organized sector and there are nearly more than 6,000 ancillary units, which may establish or form the unorganized sector. The OEM has conquered the auto section market by making or organizing almost 75 per cent of the market but the standby market has a share of 25 per cent. Unorganized performers are mainly concentrating to govern the replacement market or they are normally concentrating on tier 3/4 components makers.

There are essentially two diverse sets of players in the Indian auto industry that is the Automobile part manufacturers and the vehicle manufacturers, which are also referred to as the Original Equipment Manufacturers (OEM's) and they are highly engaged in manufacturing the parts, the components, the bodies and the frameworks that are involved in the automobile trade concern and later it is involved in the gathering of all these constituents into an automobile. In the Indian or domestic market, the firms or the companies in this sector aims at supplying the components to the vehicle manufacturers, to the other component suppliers, to the state transport accomplishments, to the defence formations, to the railways and even in the standby market. A range of or all categories of constituents are being transferred to OEMs overseas and after that to the markets internationally or worldwide.

Car Manufacturers in India

The car manufacturing in India was first begun in the late 1940s. Earlier a couple of cars made by a foreign technology were manufactured in India. But now, the cars which are made by the Indian car manufacturers are dominating the business. The future of manufacturing the cars in India is brighter and by considering this, the foreign car manufacturers like the Ford, Toyota, Suzuki, Hyundai, Skoda and Honda are being able to spread their brand or base in the country like India. The local car manufacturers have also contributed towards the development of the auto industry in India.

The popular car manufacturers in India are Maruthi Suzuki India Ltd, Hyundai Motors, Honda Motors Co. Ltd, Tata Motors Limited, Chevrolet Cars India, Toyota Motors Car, Mahindra Cars, and Skoda Cars etc.

The Automotive Component Manufacturers Association of India (ACMA)

The ACMA is the branch which has grown-up from the Indian Auto Component Industry and it is related with the trade exaltation, the quality elevation, the technology enhancement and the gathering of information which in turn helps in the evolution of the Industries.

Active involvement of the trade promotion, the equipment up-gradation, the quality improvement, the collection and the dissemination of the evidence has made a chief or vital promoter for the growth of the auto industry. The other activities contain the involvement in the worldwide trade fairs, sending the trade delegations overseas and getting out many publications on several subjects which are related to the automotive or automobile industry.

The ACMA was moreover represented on a number of panels, the boards and the bodies of the Government of India through which it aids in the mounting or formulation of policies pertaining to the Indian automobile or automotive industry.

For discussion of the evidence and particularly the evidence concerning for the co-operation in trade problems and the ACMA has engaged in the Minute of accepting with its counterparts in countries like USA, Canada, UK, France, Japan, South Korea, Italy, Spain, Malaysia, Australia, Uzbekistan, Pakistan, Egypt and Iran.

Society of the Indian Automobile Manufactures (SIAM)

SIAM is considered as the apex Industry body which is representing the leading vehicle and the vehicular engine manufactures in India.

SIAM plays an important role in the channel of communication for the Automobile Industry with the Government, the National and the International organisations. The SIAM which is considered as the Apex National Body is representing the Indian Automobile Industry. SIAM also focuses on the Advocacy that is the Industrial and the Economic Policy, the Technical Regulations and the Public Policy. SIAM also works closely with the various stakeholders in the framing or the formulation of the policies and the regulations and hence results in interacting with the various international bodies regularly. It also works closely with the counterpart associations like VDA, SMMT, AFM, etc. All the activities of SIAM are aiming to promote the sustainable development of the Indian automobile industry.

SIAM aims at providing a window or safety to the Indian Automobile Industry and aims at enhancing the exchanges and the communication expand economics, the trade technical co-operation between the automotive industry and the international counterparts which it consists of.

With its consistent or often and the nonstop interaction with the global bodies and the organisation, it aims to simplify the up-graded technology capabilities of the Indian motor industry in order to equal the best practices which are followed worldwide.

Disseminations of the information are being one of the integral parts of the SIAM's activities where it can be done through various reports, publications, seminars and conferences.

The SIAM helps in organising the biennial Auto Expo series of the trade fairs in co-operation with the Confederation of Indian Industry (CII) and Automotive Component Manufacturers Association of Indian (ACMA).

SIAM has also been striving or trying to keep the pace with the socio-economic and technological changes that helps in shaping the Automobile Industry and Endeavoured or determined to be a catalyst or change in the development or growth of a stronger Automobile Industry in India.

Industry Challenges

Many industries are facing many challenges with respect to Auto Companies over the last few years. The locomotive industry is experiencing or suffering a phase of interruption and the transformation. A junction between the technology companies and the auto manufacturers is concealing the industry lines and growing the bounds of the out dated automotive company. Consumers are shifting and evolving from an ownership-centric mind set to service-centric demand. The Supply chain will be at the staple of this transformation. The major challenges and the disruptions that the automobile industry are facing today are as follows.

- Due to globalization there arises a chance of risk, where the companies may fail to satisfy the requirements of the customers.
- Manufacturers are leaned out and are not been able to provide continuous quality products and hence they lack in terms of the efficiency and the growth aspects.
- No proper integration with respect to the innovators in the Indian automotive ecosystem.
- No proper business models leads to shifting from the ownership.
- Lack of Innovation has failed to meet the customer requirements or needs.

1.3 COMPANY PROFILE

Company Background

Toyotetsu India Private Limited (formerly known as Stanzen Toyotetsu India Private Limited) was started on October 23rd 1998 as a Joint Venture between the Toyoda Iron Works Company Limited, the Japan, Stanzen Techno Private Limited, Bangalore and the Toyota Tsusho Corporation, Japan. The creation activities were started in November 1998 and got completed on 30th November 1999. Toyotetsu India Pvt Ltd. (TTIA) is placed in the Toyota Techno Park India, which is sited near Bidadi Industrial Area and covering the area for almost 3,800Sqm.

In November 1999, the company started producing the parts or the components of Toyota Qualis to Toyota Kirloskar Motors Limited. The mark off for the Qualis was in December 1999. In the year 1999, the company starts working with the full gauge of Toyota Production System. In January 2003, TTIA also started producing the auto components or the parts for Corolla sedan and in February 2005, the Innova was altogether or internationally launched in 7 countries, where India being one of them. The Innova is based on the IMV policy where the Fortuner SUV and the Hilux Vigo pickup as its sisters. The Plant also undertook a major expansion and the build-up area, which was increased from 7,200Sqm to a total of

11,048Sqm. TTIA aims at supplying a total of 244 parts like the Frame, the Press and the assembly components to its customers and it is currently involved in the Innova projetc, the Fortuner project, the Corolla Altis project and also the Etios project.

Established: On October 2nd 1998 through a Joint Venture agreement signed between Toyoda Iron Works Company Limited, Japan Stanzen Techno Private Limited, India and the Toyota Tsusho Corporation, Japan and the Plant was organised in 30th June 1999. TTIA was situated in the picturesque surrounding of Toyota Techno Park located deliberately in Bidadi Industrial Area and became operational in December 1999, with its supplies to Toyota's Qualis project. It has a total Build up Area of 25,500sqm.

Lines Off"s:

Qualis - December 1999

Corolla - January 2003

Innova - February 2005

Fortuner - April 2009

Etios - December 2010

Liva - June 2011

Company Outline

Name - Toyotetsu India Pvt Ltd

Established - 23rd October 1998

Location - Bidadi, Bangalore

Present Director - Atsushi Ozawa

Start of Production - November 1999

Delivery Parts - 244

Customers - Toyota Kirloskar Motor Pvt. Ltd., Toyota Kirloskar Auto Parts Pvt.Ltd., Tenneco Automotive India, Robert Bosch Automotive India, Bundy India.

Nature of Business

TTIA mainly carries on the following nature of business they are Press, Weld and Assembly. The company uses huge amount of machines and labor for the production process and it has been one of the largest facilities in South India, and it is committed to the manufacturing of

high qualities press parts. The company produces mainly the parts to Innova and Corolla that are Radiator, Clutch Pedal, Lever Assy, Parking Brake etc.

- **Press**

  TTIA boasts of one of the largest facilities in South India, and are committed to the manufacturing of high quality press parts. TTIA automatic press line up is state-of-the-art consisting of 2 nos of 1600 Transfer Presses capable of upto 30spm with auto destacker. The Progressive Blanking Presses (800T & 300T) are capable of upto 80spm with coil feed.

  The tandem line press shop has 250ton, 250ton (wide), 350ton, 400ton and 600ton presses.

  TTIA lines incorporate Fixed Time, Variable Quantity Pattern System and Variable Time Fixed Quantity Lot type production systems. TTIA also strives to maintain SMED (Single Minute Exchange of Dies) on all its lines.

  The material once pressed into their respective forms, are then moved into a First In, First Out (FIFO) Storage after which they are supplied to the Welding and Assembly Lines. Larger parts are supplied to the lines by the Minomi System at a frequency of once in 30 minutes.

- **Weld**

  TTIA Weld shop consists of manual and robotic lines to do Spot Welding, Projection Welding, MIG Arc Welding & Stud Welding.

  All tools and weld lines are designed with poka-yokes including interlocking between operations to avoid mistakes. The manual lines use hand operated Panasonic Weld Guns. TTIA does Total Production Maintenance (TPM) of for all toolingsand equipments to achieve consistent high quality and minimal production down time.

  As a next step of planned improvement, TTIA has started converting their Weld Lines to Defect-Zero ("D-Zero") lines with a target of achieving ZERO Quality Defects & ZERO Line Stops. TTIA have already established this in 2 Lines and the other lines will follow.

- **Assembly**

  TTIA Primary assembly components are Brake Pedal, Clutch Pedals and Parking Brake Lever. Aesthetic components or parts such as the Parking Brake Lever are assembled in a Dust Free Environment. TTIA lines are continually optimized and help

to reduce the operator workload and improve ergonomics, ensuring that the child components are within the "Strike Zone".

The parts are drawn from the lines at a levelled pace (Heijunka System), using the Mikara system. The parts are then inspected as per the stringent Toyota Inspection Standards and moved to the FIFO Storage after which the parts are supplied to its customers 16 times per day.

1.4 VISION, MISSION AND QUALITY POLICY

Vision

To be the number one supplier in the Toyota Kirloskar Motors group, India, with respect to the Cost, the Quality and the Delivery.

Mission

- The company will try to foster the culture that improves the Individual creativity and the team work values.
- The company shall try to develop a culture that values the training and development and hence helps all the employees to have an opportunity to reach their potential.
- The company shall try to deliver the increased value to its customers and the stakeholders.
- The company shall try to promote total quality education as a culture.

Quality Policy

TTIA shall try to achieve this by,

- Target towards achieving zero defect with total employee participation.
- Enforcing and preserving an effective quality management combination and aiming continuously at improve its process performance.
- Setting and reviewing quality policy to all company to contract the employee suppliers and those indirectly involved in product quality.
- Focus on employee training and empowerment.
- Quality and quality improvement is every associates responsibility and ultimate goal.
- Avoiding the failures and eliminating the defects makes the company systematically to apply various methods and tools for preventive quality assurance, learn from the mistakes, in addition and eliminate their root cause immediately.

Shared Values

- Mutual trust, respect and the team work.
- High standard of discipline or behaviour across the organisation.
- Continuous customer satisfaction.
- Commitment or focusing towards the company's goals, objectives and targets.

1.5 PRODUCT/SERVICE PROFILE

Based on the principles of "Customer First" and "Quality First", the company aims to be a global system supplier offering impressive and appealing products to its customers. The company has employed adequate staff and the workers and has been one of the top well-known auto parts manufacturing industries of the state. TTIA is also one of the subsidiary company of the Toyoda Iron Works Co. Ltd. TTIA produce more than 100 parts to be manufacturing of Innova, Corolla and Fortuner cars.

Toyotetsu's automotive parts product choice can be classified into the following types,

1) **Body Parts:**
   The front and the centre body supports, the radiator support, the lower back panel, the cowl top and those alike main parts that mark up the body of a vehicle are being produced within the stamping and the welding lines of the Toyotetsu with comparison to the unity of technology and the human.
2) **Chassis and Assembly Parts:**
   The Lower arms, the front suspension cross member, the brake and the clutch pedals are the examples for chassis and assembly parts that are produced as a profession of the toyotetsu.

The following are the main or the major parts that are produced or manufactured by the TTIA,

- Support S/A, Radiator RH/LH
- Clutch Pedal
- Brake Pedal
- Lever Assy, Parking Brake
- Arm Sub- Assy, Suspension, LWR RH and Arm Sub- Assy, Suspension, UPR RH
- Innova Crysta, Fortuner, Corolla/Etios Parts

Environment

Both the plants are ISO 14001 certified. TTIA are devoted to safeguarding and maintaining its environment. It is their aim to reduce and control the industrial waste and implement the effective measures and systems. TTIA have eliminated SOC (Substance of Concern) elements namely Lead, Mercury, Cadmium and Hexavalent Chromium for all its parts and they follow the slogan called "The most dangerous kind of waste is the waste we do not recognize".

Environment Policy

TTIA shall consciously discharge its environmental responsibility by,

- ✓ Implementing the effective and efficient environment management system and try to continually or regularly improve its environment performance.
- ✓ Improving its environmental performance by always framing new targets and mission.
- ✓ Achieving prevention of pollution through adoption of improved waste management practices and waste minimization programs.
- ✓ Optimum utilization of natural resource.
- ✓ Agreeing with the appropriate legal and other requirements, which TTIA subscribes which relate its environmental aspects.
- ✓ Moving towards a SOC (Substance of Concern) free world.
- ✓ Creating environmental awareness among all the employees working for or on behalf of the organization.
- ✓ Setting and inspecting the objectives and the targets directed towards continuous improvement of its environmental accomplishment.

THE PRESS PRODUCTON MACHINES

Table 1.5.1: Table showing the Press Production Machines

SL NO.	EQUIPMENT	520W 2015	640A 2016
1	600 ton	2	4
2	500 ton	1	0
3	350 ton	1	0
4	400 ton (C line)	4	4
5	250 D Line	3	8

6	250 DW Line	2	2
7	PART CONVEYOR	0	3
8	SCRAP CONVEYOR	0	1
9	DIE SPOTTING PRESS	1	1
10	EOT CRANE	2	4

640A Concept includes the Single Piece Flow, the Scrap Conveyor, the D Thru Dollys and the Liftless (No Fork Lift).

WELD AND LOGISTICS PRODUCTION MACHINES

Table 1.5.2: Table showing the Weld and Logistics Production Machines

SL NO.	EQUIPMENT	520W 2015	640A 2016
1	STATIONARY SPOT, NUT, STUD	44	48
2	MANUAL ARC WELD	40	24
3	ARC WELD ROBOT	14	42
4	SPOT WELD ROBOT	0	4
5	PORTABLE SPOT M/C	27	1
6	SPM M/C	9	6
7	EXHAUST SYSTEM	5	7
8	FORK-LIFTS	9	9
9	TOW MOTOR	0	8

Manual Weld includes the Robo Weld and the In Process Inspection.

QUALITY FACILITY

Instruments

Table 1.5.3: Table showing the Instruments for Quality Facility

SL NO.	ITEM	QUANTITY
1	QL Wrench Calibrator	1
2	Hardness Tester	1

3	Height Gauge	8

Facility

Table 1.5.4: Table showing the Facility available for Quality Facility

SL NO.	ITEM	QUANTITY
1	Cut Section Machine	1
2	UTM	1
3	Plasma Cutting Machine	1
4	FARO ARM with Lazer Scanner	1
5	Microscope	1

SUPPLIER LOCATION

Table 1.5.5: Table showing the Suppliers Location

SL NO.	SUPPLIERS	LOCATION
1	Aditya Auto Products	Bangalore
2	Elrke Precisions Pvt Ltd	Bangalore
3	Lakshmi Components	Bangalore
4	Omax Autos Limited	Bangalore
5	Prabha Industries	Bangalore
6	Saify Industries	Bangalore
7	Stanzen Enggineering Pvt Ltd	Bangalore
8	SLS Tool Company	Bangalore
9	Spoorthy Metal Technologies Pvt Ltd	Bangalore
10	Toyotetsu India Auto Parts	Bangalore
11	Toyota Tsusho India Pvt Ltd	Bangalore
12	Aisin Takaoka India Pvt Ltd	Bangalore
13	Venee Speciality Coatings	Bangalore
14	MK Fastners Pvt Ltd	Bangalore
15	Sri Varalakshmi Auto Componenets Pvt Ltd	Bangalore
16	Megha Rubber Technologies	Chennai

17	Tube Investments of India	Chennai

1.6 AREAS OF OPERATION

Global network of Toyotetsu

a) TTMA (Toyotetsu Mid America, Inc.) in Owensboro, Kentucky, USA.
b) TTAI (Toyotetsu America Inc.) in Somerset, Kentucky, USA.
c) TTTX (Toyotetsu Texas Inc.) in Texas, USA.
d) TTCA (Toyotetsu Canada) in Ontorio, Canada.
e) TTTI (Toyotetsu Automotive Pacalari Sanayive Ticatert Anonim Sirketi) in Kocaeli, Turkey.
f) TTAP (Tainjin Toyotetsu Automobile Parts Co. Ltd.) in Tianjin, China.
g) GTAP (Guangzhou Toyotetsu Automobile Parts Co. Ltd.) in Guangzhou, China.
h) TTIA (Toyotetsu India Pvt. Ltd.) in Bidadi, Karnataka, India.
i) TTID (Toyotetsu India Auto Parts Pvt. Ltd.) in Bidadi, Karnataka, India.
j) TEP (Techno Eight Philippines Corp.) in Laguna, Philippines.
k) NTC (PT Nusa Toyotetsu Corp.) in West Java, Indonesia.
l) NTTE (PT Nusa Toyotetsu Engineering) in West Java, Indonesia.

Ownership Pattern

The total Capital is Rs. 1,120million.

Table 1.6.1: Table showing the Ownership Pattern of TTIA

Shareholding Company/Shareholders	Percentage(%)
Toyoda Iron Works Co. Ltd., Japan	95.57
Toyota Tsusho Corporation, Japan	4.43
Total	**100.00**

Table 1.6.2: Table showing the Customers and Competitors for TTIA

Customer	Competitors
Toyota Kirloskar Auto Parts Pvt Ltd.	JBM (Jai Bharath Maruthi Pvt Ltd.)
Toyota Kirloskar Motor Pvt Ltd.	NTTF (Nettur Technical Training Foundation)
BOSCH Automotive Electronic India Pvt Ltd.	FAURECIA Pvt Ltd.

TENNECO Automotive India	Gebriac

1.7 INFRASTRUCTURE FACILITIES

Table 1.7: Table showing the Infrastructure Facilities

Press Equipment		Welding Equipment		Support Facilities		Lab Facilities	
Class	No.	Type	No.	Name	No.	Name	No.
1600t Transfer (Komatsu & H&F).	2	Spot Welding. PSW Lines.	108 70	300t Die Spotting Press.	2	UTM.	1
800T Prog Press (Komatsu).	1	Spot Weld Robot.	4	Compressor.	9	FARO Arm (600 mm reach).	1
300T Prog Press (Komatsu).	1	Arc Weld M/c.	55	Overhead Crane.	6	Microscope	2
350-600T (SEYI & AIDA).	8	Arc Weld Robot.	16	Fork Lift.	13		
250T Tandem.	10	SPM Arc Weld.	5				

Welfare Activities

a) Transport Facilities

The company will provide the transport facility to all its employees and for this purpose; the company will deduct a certain sum or amount of money from their salary.

b) Canteen Facilities

Cafeteria facility or Canteens facility are provided by the company and it aims to provide the hygienic and the nutritious food to the employees. Company will provide the canteen facility for all its employees and 60% of the food value will be borne by the company and the remaining 40% of the food value will be deducted or taken from their salary every month.

c) Uniform / Dress

All employees will be given company uniform (shirts: 3 No's & Trousers: 2 No's) and all are required to wear formal dresses to office till they get the uniform. Once they get the uniform they should wear it without fail.

d) Identity card

It is compulsory for all employees to wear the company identity cards while working inside the company premises.

e) Safety shoes

Company provides safety shoes to the employees, where all the employees are required to wear safety shoes without fail.

f) Rest Rooms

Sufficient numbers of the restrooms are provided to the workers with sufficient and frequent supply of the water.

g) Drinking Water

At all the working places safe hygienic drinking water should be provided.

h) First aid appliances

First aid appliances or the medical facilities are provided to the employees and it should be fast or quickly assessable so that if there is any minor or small accident or emergencies initial medication or treatment can be provided to the needed employee at that time.

Achievements/Awards

Table 1.7.1: Table showing the Achievements / Awards of TTIA

YEAR	AWARDS
2002	Provider of the year Gold Award
2003	Best Price Performance Award
2004	Innovative Technology Transfer Award (692N Project)
2005	Best Cost Performance Award Logistics Month: 3rd Place
2006	Logistics Month: Best Logistic Supplier
2007	Safety Month: Best Safety

Milestones

- October 1998 : Established by TIW, Stanzen Techno and Toyota Tsusho.
- June 1999 : Plant Setup.
- December 1999 : Start of production and delivery for QUALIS.
- January 2002 : ISO 14001-2004.
- February 2005 : Start of production and delivery for INNOVA.
- February 2009 : TS 16949.
- August 2009 : Start of production and delivery for FORTUNER.
- August 2013 : OHSAS 18001-2007.
- April 2014 : Start of production and delivery for FMC COROLLA.
- April 2016 : Start of production and delivery for FMC INNOVA.
- October 2016 : Start of production and supply for FMC FORTUNER.

1.8 COMPETITOR'S INFORMATION

a) JBM (Jai Bharat Maruthi Pvt. Ltd.)

The company was included on 19th March, at Delhi and the Maruthi Udyog Ltd. (MUL) promoted it as a joint venture. It manufactures the products like the sheet metal components, the assemblies and the sub-assemblies and was involved in the project were the technical assistance and the back-up re-inforce was required which was assisted or provided by the MUL as per the specifications and the quality standards prescribed by the Suzuki, Japan.

b) Faurecia Pvt. Ltd.

Faurecia was founded in 1997 in France, were it provides or manufactures the products like Automotive seating, Interiors and emissions control technologies and it is one of the 6th largest international automotive parts manufacturer around the globe. It designs and manufactures the seats, the exhaust systems, the interior systems (like the dashboards, the centre consoles, the door panels, the acoustic modules) and the decorative aspects of a vehicle (aluminium, wood).

1.9 SWOT Analysis

SWOT denotes to the Strengths, the Weaknesses, the Opportunities and the Threats that the firm or the organisation or the company faces during the business period. Any company or the organisation has to develop the required plans in order to move ahead in this highly competitive world and it should also take into consider all the factors earlier moving or proceeding to the next step or level. The Strengths and the Weaknesses are the internal

factors which are within the company and then it can work to its strengths and try to eliminate the weaknesses that they are facing and it can be changed over by time to time but where as the Opportunities and the Threats are the external factors within the company that could affect its success and the company does not have control over these factors when they face during the business period and they are present in the market and it cannot be changed.

The existing business or the current running business can use the SWOT analysis at any time in order to assess or determine the changing environment and respond to the changes in a good manner or proactively and the new business should also consider the SWOT analysis which helps them in their planning process and they can be able to take quick and good decisions.

Strengths

- Low cost production.
- Well established system practices and procedures.
- Good relationship with customers.
- Good internal communications.
- Availability of knowledge and skills.
- Technologically advanced and skilled workforce.
- Better access to updated technology.
- Results in increasing the export levels.
- Well-equiped quality control department for inspecting the quality of the raw materials and the final products.
- Raw materials and other resources are easily accessable.
- Employees are being provided with all necessary welfare facilities.

Weakness

- Single customer that is it operates within the Toyota group of companies only.
- Very high competition.
- Investments made in research and development area is usually low.
- They are exposed to cyclical downturns in the industry.
- High rate of interest for working capital and also taxation issues.
- Communication gap between employees as they operate globally.

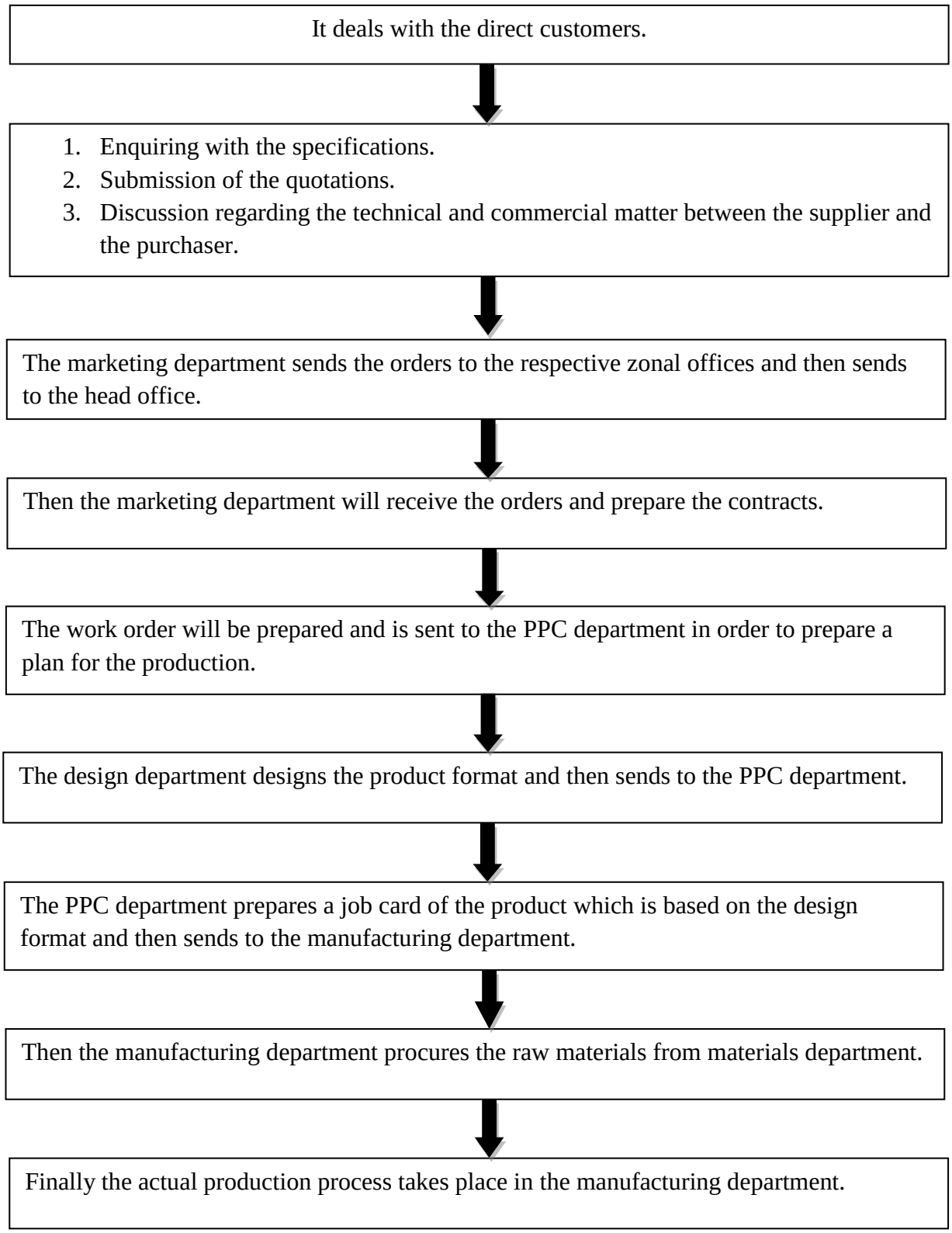
Opportunities

- They have Loyal customers.
- Consistency in Customer's acceptance.
- Government support.
- Income level increases.
- Increase in the stanadard of living.
- Demand in rural areas have increased.
- It has high export opportunities.
- The company can establish more branches in across State/ Global.
- With the introduction of improved and new models in Toyota vehicles, the demand for production has increased and also the scope for the further expansion in the production of existing products and some new products has increased as they have wide network.

Threats

- Competition in the Automobile Industry.
- There are strict government policies.
- Competition from other global leaders.
- May result in less skilled labour.
- Increase in the petrol price.
- Import of many Chineese products to the Indian markets.
- Technology costs are high.
- There is a technology difference with reference to other countries.

WORKFLOW MODEL [END TO END]



1.10 FUTURE GROWTH AND PROSPECTS OF COMPANY

The industry shows an extraordinary potential or ability in generating the employment opportunity and encouraging the new entrepreneurs or organisers in our country. An overflow of new investment plans which are published by many global and domestic automobile manufacturers are helping in the growth of India which acts as a central part for many auto components around the world.

TTIA aims at taking a long period view or the long term view when preparing their business strategies. The company expect robust all around growth in global economy in the next 10 years. The company also believes that global economy has become more inclusive. Countries like India, China and Japan are now posed to play a greater role in determining the course of global growth opportunities and it is helping downturns should they occur. In view of this they are very optimistic about the future.

TTIA is a 19 years old company, since their inception they have believed in setting challenging Auto Parts and have worked hard to achieve goals of the company. The scale of operations is an important parameter for any manufacturing company like Toyotetsu India Pvt Ltd. There are other critical areas like Technology, Product development, Customer Service, Human Resource, etc. in which the company is striving to excel and the goal of the company is to be the industry benchmark in all these areas and to be an end to end service provider to the global or the domestic customers and with the fair value to its customers.

Toyota Production System

The Toyota Production System has been improved by the Toyota that includes the management philosophy and the practices, which are to be followed, and it helps in organising the manufacturing and the logistics for the automobile manufacturers where it includes the interaction with the suppliers and the customers. Taiichi Ohno, Shigeo Shingo and Eijin Toyoda developed this system earlier in the year 1948 and 1975.

The founder of Toyota, Sakichi Toyota and his son Kiichiro Toyoda and the engineer Taiichi Ohno frames the approach called the just-in-time production where the work of the United States was directed massively by the founders of the Toyota in order to notice the assembly lines and the mass production that had made the Ford rich where they were unimpressed. During the shopping, in a super market they keenly observed the idea behind the automatic drink resupply that is when the customer wants to drink, he can take one and replace the other one and thus the principles of the TPS are included or represented in the Toyota manner.

The main aim of the Toyota production philosophy is to supply or provide the quality products within the time frame and with performance wise and with the low cost of production and thus the company uses the Toyota production system as its instructor or guide during the production process.

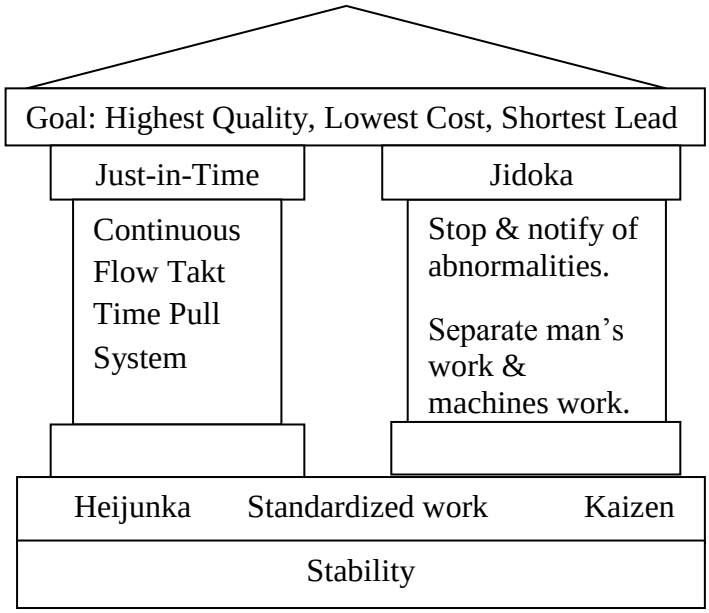
Production

Productivity Improvements are critical to all manufacturers bottom line. In this aspect, the company is in the constant process of improving their processes through the Kaizen Cycle and Naze-Naze (5 why? Analysis) to identify root causes of the Muda, the Mura and the Muri. With the fundamental tools viz. Standardized Work Operation Sheet, Work combination Table and Process Capability Chart, various production lines are analyzed and Cycle Time improvements are carried out.

Just-in-Time production and supply is implemented using Kanban, good visualization and well-designed process flow and logistics.

Production Philosophy

Toyota production system's main objective or goal is to provide the better quality products with the lowest cost and with the shortest background by reducing the wastes during the production process. Generally, the TPS consists of two pillars mainly the Just-in-Time and the Jidoka and it is represented with the "house" structure and thus the TPS is maintained and improved through the similar work that is the Heijunka and the Kaizen by adopting the plan, do, check, act (PDCA) approach.



Toyota Production System "House"

The three pillars of its production system is based on the operational stability and they are summarized as below:

a) Just-in-time production and shipment.
b) The Jidoka.
c) The Kaizen.

a) **Just-in-Time Production.**

Just-in-Time refers to matching receipt of materials closely with usage so that raw material inventory is reduced to near zero level. The purpose of Just-in-Time is to reduce the stock levels to the minimum through creating a connection with the suppliers and placing the frequent delivery of materials in smaller quantities.

It aims at providing the production in shortest time when required, production with short lead time that is duration from receiving orders from customers to shipment of products. Just-in-Time also helps to increase the inventory turnover rate by reducing the inventory levels.

It may results in the low inventory holding cost and thus, the storage space results in the higher productivity and one of the benefits of JIT is that, when there is no demand for the product for a particular period, the workers may need not work but they can involve themselves in other activities or other jobs.

b) **The Jidoka.**

Jidoka refers to rectifying the causes for the problems during the production process and its purpose is to have harmony between the machine and the man and to produce high quality products with less cost, providing quality within production, eliminating the defects and keeping the manpower. The difference between Jidoka and automation may be given as operator's making a manual work in another machine while the other machine is working.

c) **The Kaizen.**

Improvement (Kaizen) is like a life philosophy in Toyotetsu, that is having continuous improvement in the production process where, the thought of "Improvement is Endless" is concentrated during the present or current situtations.

In the TPS basically the pull system is put into practice, where the new product is produced after the previous one is sold to its customers and it can be made cleared by making the production with the sales speed and therefore the flow of production and the process of data or orders is opposite.

Toyota Production System Goals

The TPS goals are subject to design out that is Muri, Mura and Muda which indicates the overburden or overload, the unevenness or irregular and to delete the wastage or unwanted where muri results in giving stress to the workers or the employees of the organisation, mura leads to drive the behavior of the individuals in the company and muda leads to wastage of the available resources and it is crucial or important to ensure or follow the process by the company or the organisation and reducing the wastages or the elimination of Muda are precious or valuable to any manufacturing companies. There are normally seven wastages that are identified in the TPS.

a) Over production of the products.
b) Physical movement or the motion of the operater or the machine.
c) Waiting (of operater or machine).
d) Movement of the products.
e) Processing beyond the customer requirements.
f) Inventory (the Raw Materials).
g) Defects or malfunction.

The Quality Problem Report (QPR) and the Parts Per Million (PPM)

When a deffect is found at the customer end, the customer may raise QPR company performance with respect to PPM comes down with the customer raising QPR.

The target got by the TTIA customer to the company is 3PPM and now at the present it has been reduced to 0.5PPM and therefore, it means the company sends only 0.5parts rejection for one Million supplies.

5S's SYSTEM

5S's is a systematic method or the tool used in the work place in order to improve the safety and to create a better working environment in the company. The 5S's are as follows,

a) **Seiri** (Sorting Out) – It refers to Proper Arrangement, that is removing whatever is not needed and keeping what is needed and putting the things in an order, that is arranging in a proper manner and it is easy to know the inventory efficiency and thus helps in reducing the cost.

b) **Seiton** (Systematic arrangement) – It refers to Orderliness, that is having a proper storage place for anything or for everything.

c) **Seiso** (Spic & Span Cleaning) – It refers to maintaining Cleanliness, that is there must be no dirt in working place and to make sure that everything in the workplace is bright and clean.

d) **Seiketsu** (Standardization) – It refers to Clean up that is to maintain the equipment's, tools etc., so that the normal and abnormal work is easily identified or visualized at work place.

e) **Shitsuke** (Self discipline) – It refers to Discipline, that is following the rules and regulations regularly which in turn helps to produce the pride at the workplace.

Kanban System

Kanban is an important tool for visual control to do the standardized work and it is not considered as an inventory control system but it is considered as a arrangement system that assits or helps in knowing about when to be produced, what to be produced and how much to be produced which helps in maintaining the production process smoothly and when the demand is tough to estimate or forecast the best way to rectify is to reply quickly to the noticable or known demand.

Functions of Kanban System

- It helps in prevention of over production.
- It is concerned with standardized work that is by having facility layout, technology development, manufacturing lines etc.
- It helps in providing conveyance and production information.
- It deals with quality improvement and continuous improvement.
- It is a tool for the visual control.

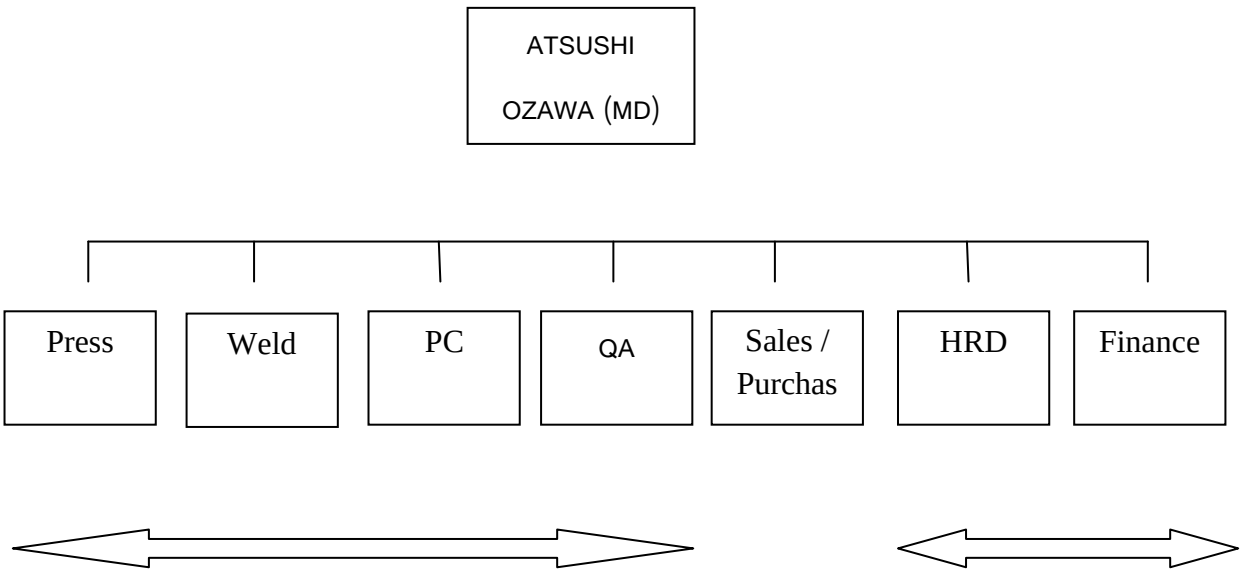
The Kanban card is, in result, a memo that indicates the exhaustion of the product, parts or inventory that when received will generate the replacement of that product, slice or inventory feeding drives demand for extra. Kanban Card thus, in effect, helps in creating the demand – driven systems which leads to faster turnarounds in the productions and the lower inventory levels, helping the companies in implementing such a systems to be more competitive.

TOYOTETSU Six Rules

- Do not guide deffective products to the coming method.
- The coming process occurs to take back only what is desirable.
- Producing only the correct quantity which is taken back by the subsequent or the coming process.
- Level the production.

- Kanban must be used as a resource.
- The process must be stable and more rational.

TTIA Organization Structure



Sato Kusuo + 2 Co-ordinators (PE and DMD)

Departmental Structure and their Functions

Production	Finance and Accounts	Purchase, Sales and Marketing	HRD and Admin
SGM	GM	GM	DGM
Asst. Manger	Manager	Manager	Manager
Group Leaders	Group Leaders	Group Leaders	Group Leaders
Team Leaders	Team Leaders	Team Leaders	Team Leaders
Team Member	Team Member	Team Member	

Roles and Responsibilities of Managers

1. Vikram- SGM
   Weld Division
2. Manjunath - DGM
   Quality and Control
3. Deepak Rego - DGM
   Maintenance and Production Engineering and Projects
4. Nataraj K - GM
   Finance and Accounts, Purchase, Sales and Marketing
5. Umashankar K - DGM
   HR and Admin

1.11 Financial Statements

The financial statement refers to the basic statements where an accountant or an individual prepares at the end of an accounting period for the business or the organisational enterprise. The financial statements are of two types.

a) The Statement of Profit and Loss Account or the Income Statement.
b) The Balance Sheet / the Statement of the Financial Position.

THE STATEMENT OF PROFIT AND LOSS

Statement of Profit and Loss for the year ended March 31, …… (In Rs)

Particulars	**March 31ST 2018**	**March 31ST 2017**	**March 31ST 2016**	**March 31ST 2015**	**March 31ST 2014**
Revenue from Operations (Gross)	3,70,00,00,000	3,33,00,00,000	2,99,70,00,000	3,14,68,50,000	2,20,27,95,000
Less: Excise Duty	10,00,00,000	9,00,00,000	8,10,00,000	8,50,50,000	5,95,35,000
Revenue from Operations	3,60,00,00,000	3,24,00,00,000	2,91,60,00,000	3,06,18,00,000	2,14,32,60,000

(Net)					
Other Income	3,00,00,000	2,70,00,000	2,43,00,000	2,55,15,000	1,78,60,500
Total Revenue	3,63,00,00,000	3,26,70,00,000	2,94,03,00,000	3,08,73,15,000	2,16,11,20,500
Expenses:					
Cost of Materials consumed	2,30,00,00,000	2,07,00,00,000	1,86,30,00,000	1,95,61,50,000	1,36,93,05,000
Changes in Inventories of finished goods and work-in-progress	(20,00,000)	(18,00,000)	(16,20,000)	(17,01,000)	(11,90,700)
Employee benefits expense	54,76,79,220	50,24,58,000	45,67,80,000	39,72,00,000	35,46,84,724
Finance Cost	34,00,000	59,00,000	2,80,24,190	70,24,190	20,24,190
Depreciation, Amortization and provision for impairment	5,10,77,213	5,37,65,488	5,65,95,250	2,79,95,000	2,55,96,000
Other expenses	64,28,71,602	58,44,28,730	53,12,98,845	48,29,98,950	34,36,99,265
Total Expenses	3,54,30,28,036	3,21,47,52,217	2,93,40,78,285	2,86,96,67,140	2,09,41,18,479
Loss before tax	8,69,71,964	5,22,47,783	62,21,715	21,76,47,860	6,70,02,021
Tax Expense:					
Current Tax	2,87,00,748	1,72,41,768	20,53,166	7,18,23,794	2,21,10,667

expense					
Deferred Tax	12,00,000 (2,00,000)	10,80,000	9,72,000	8,74,800	7,87,320
Current Tax expense of earlier years	2,97,00,748	1,83,21,768	30,25,166	7,26,98,594	2,28,97,987
Profit (loss) for the year	5,72,71,216	3,39,26,015	31,96,549	14,49,49,266	4,41,04,034
Earnings per Share (EPS)					
Basic and Diluted (Nominal value of Rs.10 per share	1.15	0.68	0.06	2.90	1.10

THE BALANCE SHEET

Balance Sheet as on March 31, …..... (In Rs)

Particulars	**March 31st 2018**	**March 31st 2017**	**March 31st 2016**	**March 31st 2015**	**March 31st 2014**
Equity and Liabilities					
Shareholder's Funds					
Share Capital	50,00,00,000	50,00,00,000	50,00,00,000	40,00,00,000	40,00,00,000
Reserves and Surplus	24,93,43,046	19,20,71,830	15,81,45,815	15,49,49,266	1,00,00,000
Total Shareholder's Funds	74,93,43,046	69,20,71,830	65,81,45,815	55,49,49,266	41,00,00,000
Non-Current Liabilities					
The Long Term Provisions	4,11,94,450	3,74,49,500	3,40,45,000	3,09,50,000	2,78,55,000

Total Non-Current Liabilities	4,11,94,450	3,74,49,500	3,40,45,000	3,09,50,000	2,78,55,000
Current Liabilities					
Short Term borrowings	50,00,000	24,00,00,000	29,30,00,000	50,00,000	50,00,000
Trade Payables					
a) Total o/s dues of the micro enterprises and the small enterprises.	44,00,000	42,00,000	38,00,000	20,00,000	6,00,000
b) Total o/s dues of the creditors other than the micro enterprise and the small enterprise.	55,10,00,000	34,30,00,000	35,60,00,000	32,50,00,000	30,20,00,000
Total Trade payables	55,54,00,000	34,72,00,000	35,98,00,000	32,70,00,000	30,26,00,000
Other Current Liabilities	4,60,00,000	3,60,00,000	2,95,00,000	2,80,00,000	1,80,00,000
Short Term Provisions	9,00,000	7,00,000	8,00,000	5,00,000	10,00,000
Total Current Liabilities	60,73,00,000	62,39,00,000	68,31,00,000	36,05,00,000	32,66,00,000
TOTAL	1,39,78,37,496	1,35,34,21,330	1,37,52,90,815	94,63,99,266	76,44,55,000
Assets					
Non-Current Assets					
The Property, Plant and Equipment	75,00,00,000	74,50,00,000	73,60,00,000	39,30,00,000	35,80,00,000

Less: Impairment loss	-	-	-	-	-
	75,00,00,000	74,50,00,000	73,60,00,000	39,30,00,000	35,80,00,000
Capital work-in-progress	-	20,00,000	2,00,00,000	-	-
Intangible Assets	46,00,000	37,00,000	32,00,000	30,00,000	28,00,000
Less: Impairment loss	-	-	-	-	-
	46,00,000	37,00,000	32,00,000	30,00,000	28,00,000
Deferred Tax Assets (Net)	-	-	-	-	-
Long term Loans and Advances	5,00,000	5,00,000	50,00,000	10,00,000	20,00,000
Total Non-Current Assets	75,51,00,000	75,12,00,000	76,42,00,000	39,70,00,000	36,28,00,000
Current Assets					
Inventories	12,00,00,000	13,00,00,000	11,50,00,000	9,50,00,000	10,50,00,000
Trade Receivables	40,00,00,000	33,00,00,000	38,00,00,000	36,20,00,000	22,50,00,000
Cash and Cash Equivalents	3,59,37,496	4,82,21,330	2,30,90,815	1,83,99,266	1,60,00,000
Short Term Loans and Advances	5,38,00,000	3,40,00,000	3,80,00,000	5,20,00,000	2,60,00,000
Other Current Assets	3,30,00,000	6,00,00,000	5,50,00,000	2,20,00,000	2,96,55,000
Total Current Assets	64,27,37,496	60,22,21,330	61,10,90,815	54,93,99,266	40,16,55,000
TOTAL	1,39,78,37,496	1,35,34,21,330	1,37,52,90,815	94,63,99,266	76,44,55,000

CHAPTER 2

CONCEPTUAL BACKGROUND AND LITERATURE REVIEW

2.1 Theoretical background of the study

Inventory refers to that type of asset, which will be disposed of in the upcoming in, the normal sequence of the Business or Inventory is a stock of physical items, which includes or consists of the Raw Materials, the Work-in-Progress/Process and the Finished Goods.

In other words, Inventory refers to the accumulation of the stocks or the products that the firm's offer for the purpose of sale and those components which helps to frame the Product.

Types of Inventory

Inventory plays an important role in the manufacturing industries which helps them to meet the demands and fulfil the requirements of the costumers. Based on the nature of the business carried the inventories are of the following types. They are,

a) **Raw Materials**

   Raw Materials are the important inputs that are used in the manufacturing process which are then converted into finished products where these kinds of inventories are bought and stored for the future production purpose.

b) **Work-in-Progress/Process**

   Work-in-Progress is a type of inventory where the Raw Materials processed is yet to complete which is called Semi-Finished Product, where it requires more work to be done before selling.

c) **Finished Goods**

   Finished Goods is the final stage in the manufacturing process, where these goods are critically examined and have got qualified for all the final inspection requirements and thus it can be available for final sale.

Inventory Management

Inventory management is concerned primarily with defining the size of the stocked goods which involves planning, organising and controlling of inventories which is needed at many different locations in order to safeguard the well-ordered and in the planned way of the production process. It aims at setting the targets, report the authentic and the estimated inventory status, controlling of financial costs and operating costs, estimated inventory,

inventory costing, quality management, demand forecasting, restored and the inoperative goods etc.

Operating Cycle

Operating cycle is a cycle which refers to the period or the duration taken by the company or the firm to convert the raw materials into semi-finished goods or finished goods for the purpose of earning the sales revenue at the end of the phase or the stage.

Periodic Inventory System

The periodic inventory system is a structure or a system where the subjective evaluation is done or undertaken at the time of, at the end of an accounting year and it includes validation of the definite quantities of the raw materials. The annual stock transfer should be organised well in advance in order to minimise any interruption during the production process.

Inventory Control

Inventory Control or Material Control refers to the safeguarding of company holdings in the formation of materials by a proper system of recording and also to maintain them at the optimum level considering the operating requirements and financial resources.

Essentials of Inventory Control

- Inventory Control assists in managing the inventories or stock effectively and efficiently.
- It helps in proper coordination and proper planning and also maintaining adequate records of inventory.
- The major aim is to reduce the costs at the time or period of purchasing or buying the raw materials.

- Inventory control is very important to maintain the efficient running of operations and consistency in the production process.
- It ensures in proper fixing of stock levels and valuation of stocks.
- It is used for proper codification and grouping of the materials.
- It is used in preparation of budgets.
- It also aims at reducing the duplication of stock orders and ensures effective supervision.

Objectives of Inventory Control

- To maintain sufficient inventory for productive and level of manufacturing.
- To ensure no under stocking and no over stocking.
- To provide correct quality of materials.
- To provide sufficient evidence about the materials and materials reports to the management.
- To regulate and restrict the investment in inventories and try to preserve it at the ideal or at the highest level.
- To maintain enough load of raw materials in the shorter time or period of supply and predict for the changes in prices.

Merits or Advantages of Inventory Control

- ✓ It helps in improving the liquidity position of the company.
- ✓ It helps in elimination of wastage of materials.
- ✓ It helps to reduce the fear of loss from fraud or theft, deterioration, damage, etc.
- ✓ It maintains regular supply to the customers through adequate stocks.
- ✓ It provides regular reporting to the management.
- ✓ It is used for efficient system of internal view and internal analysis.

Demerits or Disadvantages of Inventory Control

- ✓ The controlling of inventories becomes complex when it performs many functions.
- ✓ It does not eliminate or reduce the business risk.
- ✓ Excess of usage of inventories may lead to liquidity risk.
- ✓ Inadequate inventory may lead to failure in meeting the delivery requirements.

- ✓ Sometimes maintaining the stocks at high levels may lead to deterioration due to passage of time.

Types of Inventory Costs

There are basically three categories of costs which are associated with the inventory control or management. They are as follows,

a) **Carrying Costs.**

   The carrying costs are also known as holding costs which are incurred at the time of keeping or maintaining or storing of inventory before selling them. It includes costs of storage, costs of inventory utilities, inventory risks costs, opportunity costs, etc.

b) **Ordering Costs.**

   The ordering cost is also called as the setup costs which are happened at the period of placing an order. It includes the cost of detecting the providers or the suppliers and the orders in advance, transportation costs, receiving costs, EDI costs, etc.

c) **Shortage Costs.**

   The shortage costs are also known as stock-out-costs or hidden costs which are happened at the time when the firm or business does not have stocks or when they become out of stock when there is a demand from its customers. It includes disrupted production, emergency shipments, customer loyalty and reputation, etc.

d) **Financing Costs.**

   The financing costs are the costs which are aroused at the time or period of making investments in inventory. Financing costs may also become complex depending on the business carried. It includes the investments returns, interest on working capital, etc.

Methods of Pricing the Inventory or the Material Issues

a) **First-in First-out (FIFO) Method.**

   First-in First-out method refers to that method where it is formed on the assumptions that the materials which are purchased first or issued first and these are issued at the actual cost. The benefit of this method is that, it can be easily understood and operated. The deficiency of this method is that the materials are not charged at the prevailing market price.

b) **Last-in First-out (LIFO) Method.**

Last-in First-out method refers to that routine which is the reverse of FIFO and it is formed on the assumptions that the last purchase of materials are issued first and earlier the receipts are issued in the last. The benefit of this method is that it has less taxable income and the payment of income tax is also less. It is not in practice by many companies and is considered as one of the drawback or demerit of this method.

Techniques of Inventory Control

a) ABC Analysis.
b) VED (Vital Essential Desirable) Analysis.
c) Economic Ordering Quantity (EOQ).
d) Minimum, Maximum and Re-order levels.
e) Inventory Turnover Ratio.
f) Proper purchase procedure.
g) Proper storage of materials.
h) Perpetual inventory system.
i) Preparation of material budgets.

Some of the most important or vital techniques used are as follows.

- **ABC Analysis.**

  ABC Analysis refers to the division of inventory methods which includes the splitting of items into three groups that is "A group", "B group" and "C group" where "A" is considered as the most high priced items and "C" is the least priced items.

- **VED (Vital Essential Desirable) Analysis.**

  VED Analysis stands for Vital Essential Desirable items where, VED Analysis is mainly done for controlling of spare parts by keeping the degree of necessity to the production whether the stuff is vital or important to the production process or essential or desirable to the process of production.

- **Economic Ordering Quantity (EOQ).**

  It refers to the size of the order, which results in giving the most economy in obtaining any material and finally or eventually it provides in maintaining the substance at the optimum level and at the minimum cost.

- **Minimum, Maximum and Re-order levels.**

It is the level at which the least and the most limits are known for the inventories. The minimum level is the small level of the stock or inventory where the quantity is not below the level and the maximum level is the level of inventory where the quantity does not go beyond.

- **Inventory Turnover Ratio.**

  Inventory turnover ratio or the stock turnover ratio refers to the ratio of materials consumed during a particular year to the average stock of raw materials. Generally, the high turnover ratio is considered to be positive which shows the capacity of the companies and the low turnover ratio leads to the business losing the sales which is unacceptable for the companies.

Stock Levels of Inventory Control

These are the levels where they are fixed in order to have a control on the inventory or the stock and in order to ensure that there is no over stocking of the inventories and no under stocking of the inventories. The different or various levels of stock are as follows,

a) Maximum Level.
b) Minimum Level or the Safety Level.
c) Reordering Level.
d) Danger Level.
e) Average Stock Level.

2.2 Literature Review

1) **Best Practice that are followed in the Inventory Management**

   By efficient and good or correct management of inventory, allows the companies or the organisations to increase or boost their customer service, cash flow and profitability. It aims at determining how and where to apply the basic techniques followed and provides information about the desired effect in practice. The best practice followed is the 3E that provides every student and professionals, the product of many years of experience and the proficiency in the field. **(Tony Wild – Routledge, 2017)**

2) **Inventory Control**

   It deals with the historical or old approaches for the purpose of estimating, decision of safety inventories or stocks and the rendering points, the KANBAN strategies, etc. It helps in keeping the stock levels down to make the cash available

for meeting the future expenses in order to maintain long run production. It provides information to the managers about the high stock of finished goods which helps to provide the high service level for the customers. **(Sven Axsäter – Springer, 2015)**

3) **Essentials of SCM (Supply Chain Management)**

   It helps the managers in getting information about the techniques for maximizing efficiency and making the supply chain management into the competitive advantage or edge. It is used for measuring performance of the supply chains and helps in understanding, predicting accurately and also makes the companies to take or make decisions individually regarding the production, inventory, location, transportation, accurate and suitable information's which makes the company's to have effective and efficient supply chain. **(Michael H Hugos – John Wiley and Sons, 2018)**

4) **Inventory Management as the Instrument in Measuring the Quality Management Factors**

   The measures used for measuring the quality management factors can be used to produce a good profile of the organisation where the estimation can be valid and reliable and with the help of these measures decision makers can assess the status of quality management. It helps in identifying the importance of quality management factors and provides better understanding in quality management practice. It also helps in building models and theories for the measuring the factors which are responsible in providing the quality environment and better performance to the company. **(Jayant V Saraph, P George Benson, Roger G Schroeder – the Decision Sciences, 20 (4), 810-829, 1989 – Wiley Online Library)**

5) **Identifying or determining the Total Quality Management (TQM) Factors**

   Total quality managements concepts are basically based upon the case studies and very little scientific synthesis frameworks are used for measuring the practices of quality management like Baldrige Award where it is useful for developing the total quality systems and it helps in identifying the essential TQM factors where these factors will be valid and reliable. **(Simon A Black, Leslie J Porter – Decision Sciences, 27 (1), 1-21, 1996 – Wiley Online Library)**

6) **A System of the Inventory Management for the auto leftover parts in the storehouse**

It helps to or aims at succeeding the EFNN (Enhanced Fuzzy Neural Network) in order to manage the automobile spare parts inventory in the central warehouse. It helps in forecasting the requirement for the leftover parts or the spare parts. Basically, first it aims at assigning the associated loads or weights which depends on the fuzzy Analytical Hierarchy Process (AHP) method. Then it is useful for generating and refining activation functions. Lastly, the flexible absorption variable is established in order to minimise the smack of the strap results on the estimating perfection. **(SG Li, X Kuo – the expert systems with the applications 34 (2), 1144-1153, 2008)**

7) **Inventory Management in Managing Carbon Footprints**

It deals in mitigating the global warming and the carbon ejection selling is considered as one of the largest useful market established system. It helps in knowing how the firms manage the carbon tracking in the inventory management under the carbon emission trading mechanism and it also helps in examining the bang of carbon trade, the carbon price and the carbon cap on the classified judgements, the carbon ejections and the total cost. **(Guowei Hua, TCE Cheng, Shouyang Wang – the global journal of the production economics, 132 (2), 178-185, 2011)**

8) **A Fuzzy Echelon Approach in Supply Chains for Inventory Management**

It helps in providing or presenting a methodology in order to define the supply chain inventory management policy which is generally based on the echelon inventory or stock approach and the fuzzy set theory where the echelon inventory or stock approach is used in managing the supply chain inventory or stock in a mixed way and the fuzzy set approach is used in perfectly modelling the uncertainty which is associated with both the factors, i.e., the market demand and also the inventory costs. **(llaria Giannoccaro, Barbara Scozzi, Pierpaolo Pontrandolfo – the European journal of the operational research, 149 (1), 185-196, 2003)**

9) **Managing the Risk in order to avoid Supply Chain Breakdown**

It deals with how the company's or the industries tackle the threats that they face and it can be due to natural disasters, labour disputes, terrorism and the more mundane risks that can seriously and easily disturb the movement of materials, information and also the cash through an organisations supply chain. The companies can select the best moderation strategy which may result in assembling

inventory, using of terminated suppliers, balancing the capacity and inventory, adjusting or modifying the pricing and the incentives etc. **(Sunil Chopra, ManMohan S Sodhi – the MIT Sloan Management review, 46 (1), 53, 2004)**

10) **Heijunka, used as one of the important tool to the Toyota Production System**

In Toyota, the Heijunka is known for production of different body parts and it is considered as the most basic method used in the production system and this has been generally familiar with the production and the inventory management in many manufacturing companies. **(B Jay Coleman, M Reza Vaghefi – the production and the inventory management journal, 35 (4), 31, 1994)**

11) **The Effect of the Quality Management exercise or implementation on the performance and on the competitive edge**

The aim is to focus on both the basic quality management implementation and on the infrastructure which helps to build a reserve for their use and it also covers the two areas of the quality fulfilment and its performance in establishing and sustaining the competitive advantage or edge. Due to the effect of quality management implementation on the performance and on the competitive edge it helps the managers to involve in the implementation of total quality management. **(Barbara B Flynn, Roger G Schroeder, Sadao Sakakibara - Decision Sciences, 26 (5), 659-691, 1995)**

12) **Retail inventory management when the records are wrong or incorrect**

It is a remarkable issue that the retailers face while using the robotic inventory management structures. It helps to avoid the problems of freezing, in which the physical inventory location is zero but the correspondent record will be positive and the audit policy will significantly outpaces the popular zero stability walk in the company. **(Nicole DeHoratius, Adam J Mersereau, Linus Schrage – the Manufacturing and the Service Operations Management, 10 (2), 257-277, 2008)**

13) **Inventory Management of the Re-Manufacturable Products**

It helps in procurement of new components which are used for recycling the products and its objective is to find the ordering policy which ensures to minimize the total expected acquirement, inventory effects and the lost sales cost and it helps to identify the effects of various system features like procurement delay, the demand rate, the informational structure and the length of the PLC that is the

Product Life Cycle. **(L Beril Toktay, Stefanos A Zenios, Lawrence M Wein – the Management Science 46 (11), 1412-1426, 2000)**

14) **Performance connection or relationship with the different product Kanban control structures**

The Kanban control systems is the most widely used systems in manufacturing companies which helps in controlling the work-in-process and it has various product kanban control structures or systems like the common kanban control structure and the longer kanban control structure and these two structures are compared in order to know the achievement of both by using a general total cost range or measure. **(Alvin Wei Hern Ang, Rajesh Piplani – the international journal of the production research, 56 (3), 1299-1312, 2017)**

15) **Variation of the EOQ procedure for the JIT quasi-pull system production**

This system helps in calculating the optimised lot size with the help of using two specific formulas which is improper from the EOQ model and it results by providing assumptions like the lower level of errors, insignificant shortage backordering and the failure of the equipment. These formulas are specialised and it allows for the estimation of the improved plot size which is generally smaller than the customer's daily requirement for the product. **(Andrea Chiarini – the production planning and control 28 (2), 123-130, 2017)**

16) **The Demand Pull design's effects for the continuous development in the manufacturing industries**

The demand pull strategies helps in enhancing the vital skills required for developing the framework of the company and it significantly has an impact on the continuous growth of a manufacturing industry. It helps to meet the customer's needs in time by building a linkage between the technological capabilities and the demands. **(Anuj Singla, IPS Ahuja, APS Sethi – the international journal of innovations in the engineering and in the technology 8 (2), 27-34, 2017)**

17) **Consolidation Effects and Inventory Portfolios**

Any stock or inventory rescuing systems leans on the communication between the coefficient of variation of the requirement and the ratio between the stock ordering and the holding costs and it also specifies that, the percentage between the standard fluctuations of the start time at probable efficiency is considered to be one of the key variables for consolidation. **(Peter F Wanke - Transportation**

Research Part E: the logistics and the transportation reviews 45 (1), 107-124, 2009)

18) **The combination of the lean management and the six sigma**

This helps to know what the lean organisations can achieve from the six sigma organisation and what the six sigma organisations can achieve from the lean management. The purpose is to remove many misunderstandings about the six sigma organisation and the lean management by specifying every structure and the important concepts and techniques which is liable to their implementation. **(Edward D Arnheiter, John Maleyeff - The TQM Magazine 17 (1), 5-18, 2005)**

19) **Quality enhancement instrument for the continuous performance**

Through the development and implementation of 5S the sustainable performance of the organisation has increased which is, one of the outstanding Japanese philosophy for the development of any kind organisation or management all over the world. This study helps to bring out the concepts of 5S, benefits that is, the network with the other lean instruments, and essential for its full utilisation, success factors and the restrictions in the 5S utilisation. **(Jugraj Singh Randhawa, Inderpreet Singh Ahuja – International Journal of the Quality and the Reliability Management 34 (3), 334-361, 2017)**

20) **Economic Order Quantity (EOQ) Model**

This model helps to manage inventory of a single item in which the purpose of this model is required to figure out how much to order the quantities that is when to purchase and when to place the orders. It is one of the visuals used to produce or extract good results where these visuals will be effectively occupied for many years in many sectors and it aims at gaining insights about the inventory system's behaviour. **(John A Muckstadt, Amar Sapra – Principles of Inventory Management, 17-45, 2010)**

21) **Inventory Management System and Method**

It is done through the procedure and the structure of providing and dispensing the things in a composed way and also through re-ordering the dispensed items and providing information about these items in the system. It helps in tracking the inventory, generating the reports, minimizing the availability of items, for maintaining the just-in-time inventory levels and also it helps in tracking the replacement and stocking of the components with the help of unique identification

strings where with the help of these methods and systems the usage, individual access and the theft of items can be identified and monitored. **(Dean G Rosenberg, William K Holmes – US Patent 6,418,416, 2002 – Google Patents)**

22) **Regulatory Inventory and Change Management Framework**

It deals with an enterprise which follows a computer enforced system for the purpose of receiving a regulatory change data, finding a managing variation and communicating the same to the affected regulatory inventory which is associated within the enterprise. It is useful in getting the feedback from the users and helps in creating an action plan which helps the enterprise in managing the regulatory change. **(KAG Davila, RA Synder, JD Dodge, Ethan Thomas Moore, Srinivas Rapaka, Walter Eugene McRae, RA LaPrade – US Patent 9,824,364, 2017)**

CHAPTER 3

RESEARCH DESIGN

3.1 Statement of the Problem.

How does the company able to manage and control its inventories during the production process and at the time of investment in inventories and how does they provide sufficient quality products to its customers. How do they keep sufficient quantity of raw materials as and when they require for production, which in shot helps to diminish the cost of production and increase the profits.

3.2 Need for the Study.

The company makes an attempt to control the inventory to facilitate the smooth running of production and sales operations and to increase or decrease the levels of stock or the inventory. It helps in meeting the variation in production demand, finding the inventory turnover during the year, delivering the products in time, maintaining consistency in production and supply of products, knowing the investment management policy of the organisation, knowing the yearly inventory procurement, etc.

3.3 Objectives of the Study.

- To identify the inventory control effects on the companies achievement.
- To understand the production procedure that is followed by the company.
- To maintain the stock quantity for the purpose of meeting the market demands.
- To allow cost efficient operations.
- To manage the quality control in the process of production.

3.4 Scope of the Study.

The scope of the study is to find the effectiveness of the inventory management with respect to the company, to analyse the levels of inventory or stock and to analyse the various types and techniques of the inventory control which helps to assess the company's financial achievement during a particular period.

3.5 Research Methodology.

- **Type of Research.**

  Descriptive Research

- **Data collection.**
  - **Primary Data:** The information gathered or collected is through the communication and conversation with the working executives of the company.
  - **Secondary Data:** The information is collected through the company brochures, company websites, company reports, internet, books, journals and articles.
- **Statistical Tools.**

  The Inventory Turnover Ratio, the Raw Materials Holding Period, the Assets Turnover Ratio, the Fixed Assets Turnover Ratio and the Working Capital Turnover Ratio are used for this study.

3.6 Limitations of the Study.

- In depth study about all the techniques are not possible because the time available for the study is limited.
- The study is based only on the information provided.
- The information provided may not be fully accurate and correct.
- Some of the information was kept confidential.
- The company takes customer orders throughout the year which becomes difficult to know the exact inventory count.

CHAPTER 4

ANALYSIS AND INTERPRETATION

Analysis of Turnover Ratios

Turnover ratio's refers to those ratios where it aims at measuring how efficiently and effectively the company makes use of its assets during the particular period. The companies with higher turnover ratio is said to be doing well in the market and it is a good sign for the companies, where the company may produce and sell the products to its customers within a given period of time. It is also called as performance ratio or efficiency ratio or activity ratio.

The following are the various types of turnover ratio.

1) Inventory Turnover Ratio.
   It includes Raw Material Holding Period.
2) Assets Turnover Ratio.
   It includes the Fixed Assets Turnover Ratio.
3) Working Capital Turnover Ratio.

- **Inventory Turnover Ratio**

  Inventory turnover ratio assists in determining the speed at which inventory can be transformed into sales. The greater the ratio, the regulation of the stock or inventory management will be high and if the ratio is lower it indicates the accumulation of obsolescence of the stock. It is also called or known as the stock turnover ratio.

  The Stock Turnover Ratio is computed for the raw materials, for the work-in process or progress and for the finished goods individually.

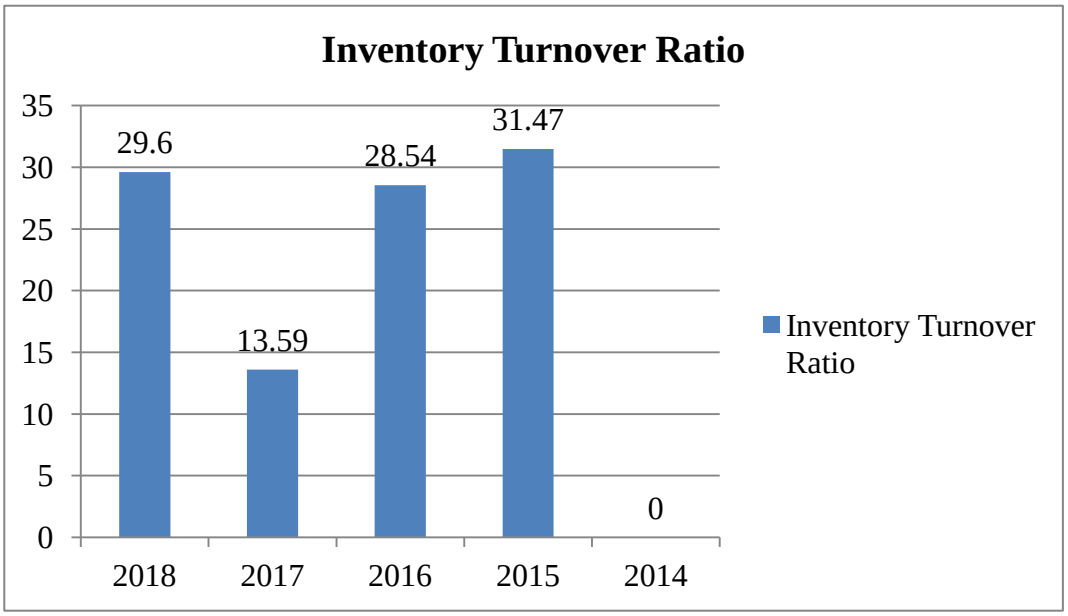
  - Inventory or Stock Turnover Ratio = $\frac{\text{Cost of Sales}}{\text{Average Inventory}}$

Table 4.1: Table showing the Inventory Turnover Ratio

Particulars	2018	2017	2016	2015	2014
Cost of Sales	3,70,00,00,000	3,33,00,00,000	2,99,70,00,000	3,14,68,50,000	2,20,27,95,000
Average	12,50,00,000	24,50,00,000	10,50,00,000	10,00,00,000	-

Inventory					
Inventory Turnover Ratio	29.6	13.59	28.54	31.47	-

Graph 4.1: Graph showing the Inventory Turnover Ratio



Interpretation

The above table provides the information regarding the inventory where during the year 2014, 2015, 2016, 2017 and 2018 the Inventory or the Stock Turnover Ratio are 0, 31.47, 28.54, 13.59 and 29.6 respectively which indicates that how the company has effectively and efficiently utilised its inventories. During the year 2015 the company has efficiently utilised or managed its inventories because it has higher inventory ratio that is 31.47 times when compared to other subsequent years.

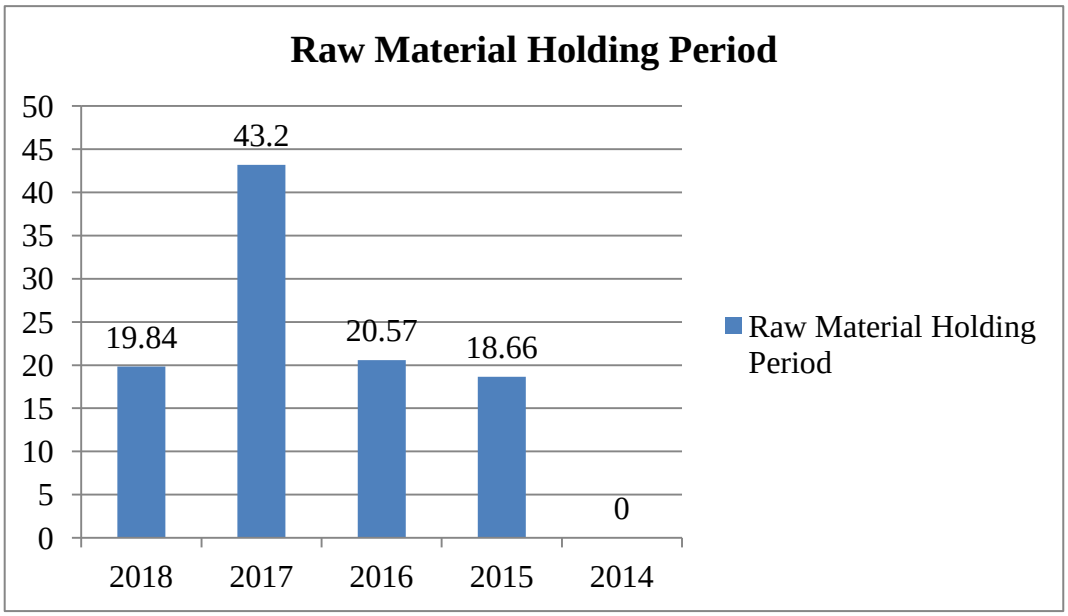
- RM Holding Period = $\frac{\text{Average Raw Materials}}{\text{Raw Materials Consumed}} \times$ Number of days/months in a year

Table 4.2: Table showing the Raw Material Holding Period

Particulars	**2018**	**2017**	**2016**	**2015**	**2014**
Average Raw	12,50,00,000	24,50,00,000	10,50,00,000	10,00,00,000	-

Materials					
Raw Materials Consumed	2,30,00,00,000	2,07,00,00,000	1,86,30,00,000	1,95,61,50,000	1,36,93,05,000
Raw Material Holding Period	19.84	43.20	20.57	18.66	-

Graph 4.2: Graph showing the Raw Material Holding Period



Interpretation

The above table provides the information regarding holding the inventories where during the year 2014, 2015, 2016, 2017 and 2018 the Raw Material Holding Period is 0, 18.66, 20.57, 43.20 and 19.84 respectively which indicates that for how long the company will hold the raw materials at the time of purchasing or during the production. During the year 2017 the company has the raw material holding period for 43.20 days when compared to other subsequent years.

➢ **Assets Turnover Ratio**

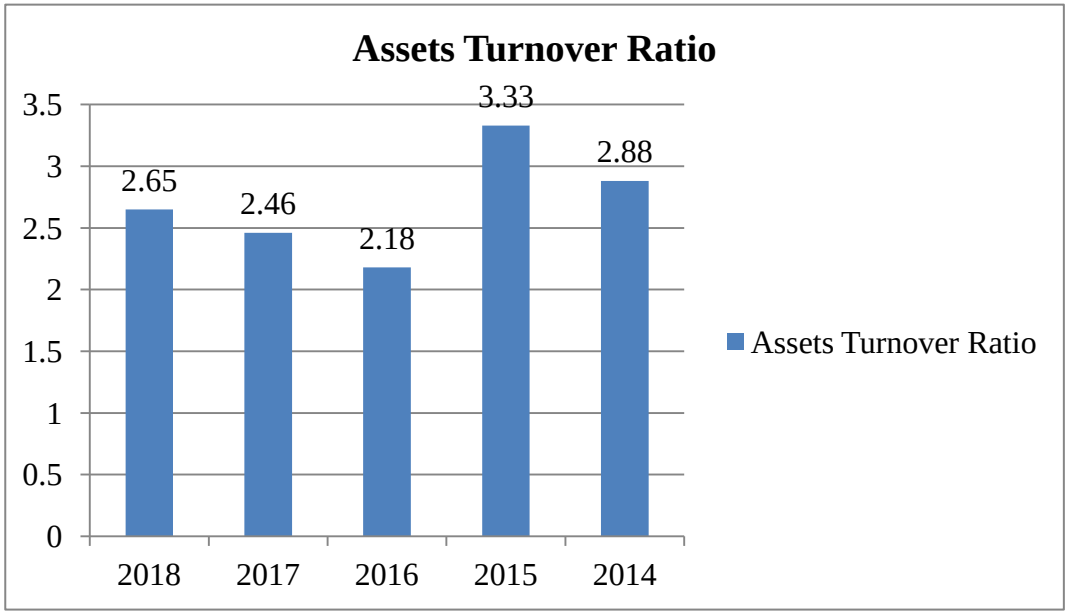
Assets turnover ratio helps in measuring the efficiency of the assets used and it expresses that usually the net tangible assets are turnover during the particular period or the year.

- Assets Turnover ratio = $\frac{\text{Cost of Sales or Sales}}{\text{Net Assets}}$

Table 4.3: Table showing the Assets Turnover Ratio

Particulars	2018	2017	2016	2015	2014
Cost of Sales	3,70,00,00,000	3,33,00,00,000	2,99,70,00,000	3,14,68,50,000	2,20,27,95,000
Net Assets	1,39,78,37,496	1,35,34,21,330	1,37,52,90,815	94,63,99,266	76,44,55,000
Assets Turnover Ratio	2.65	2.46	2.18	3.33	2.88

Graph 4.3: Graph showing the Assets Turnover Ratio



Interpretation

The above table provides the information regarding the usage of assets in the company where during the year 2014, 2015, 2016, 2017 and 2018 the Assets Turnover Ratio are 2.88, 3.33, 2.18, 2.46 and 2.65 respectively where the year with higher ratio suggests that the firm or the

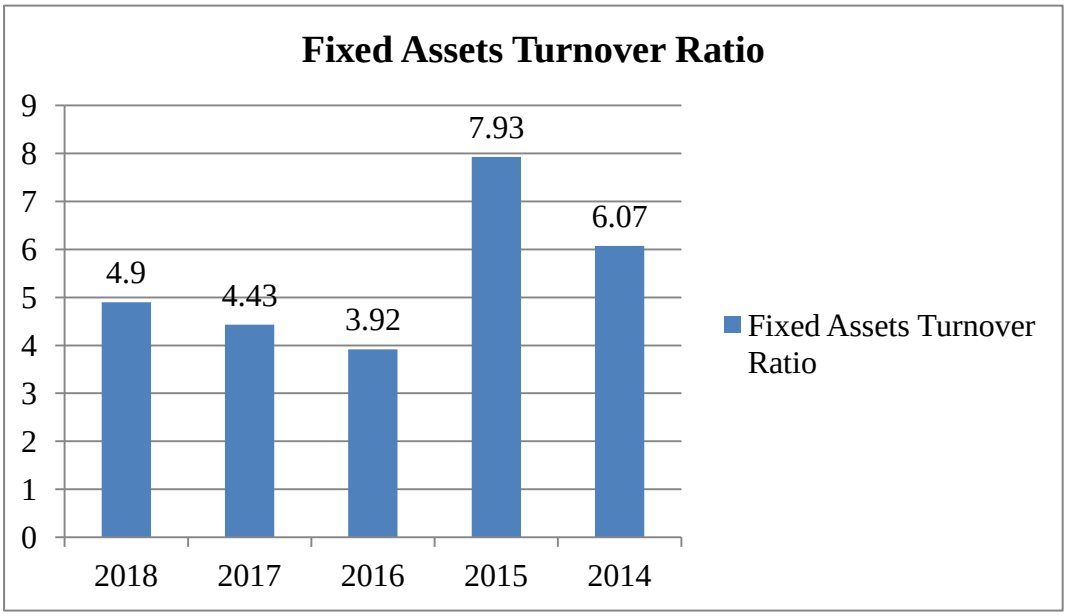
company has effectively and efficiently utilised its assets and thus results in greater sales. An improvement in the ratio suggests that the turnover of the firm or the company has done better. During the year 2015 the company has the assets turnover ratio of 3.33 which suggests that the firm or the company has the higher ratio when compared to other subsequent years.

- Fixed Assets Turnover Ratio = $\frac{\text{Cost of Sales or Sales}}{\text{Net Fixed Assets}}$

Table 4.4: Table showing the Fixed Assets Turnover Ratio

Particulars	2018	2017	2016	2015	2014
Cost of Sales	3,70,00,00,000	3,33,00,00,000	2,99,70,00,000	3,14,68,50,000	2,20,27,95,000
Net Fixed Assets	75,51,00,000	75,12,00,000	76,42,00,000	39,70,00,000	36,28,00,000
Fixed Assets Turnover Ratio	4.90	4.43	3.92	7.93	6.07

Graph 4.4: Graph showing the Fixed Assets Turnover Ratio



Interpretation

The above table provides the information regarding the utilisation of fixed assets where during the year 2014, 2015, 2016, 2017 and 2018 Fixed Assets Turnover Ratio was 6.07, 7.93, 3.92, 4.43 and 4.90 respectively where the ratio is compared with other companies and indicates that how well the company utilises the fixed assets and the low ratio may indicate inefficient or underutilisation of the fixed assets. During the year 2015 the company has the turnover ratio of almost 7.93 which suggest that the firm or the company has the higher ratio when compared to other subsequent years.

- **Working Capital Turnover Ratio**

  Working capital turnover ratio assists in knowing how repeatedly that the working capital is moved in a certain time or during a particular period. If the ratio is higher it results in lower transaction in the working capital and greater is the sales revenue and profit. If the ratio is lower it suggests that, the working capital is not effectively utilised. The working capital is split or divided based on the concepts and time period.

  Based on the approach or idea it is grouped into the gross working capital and the net working capital.

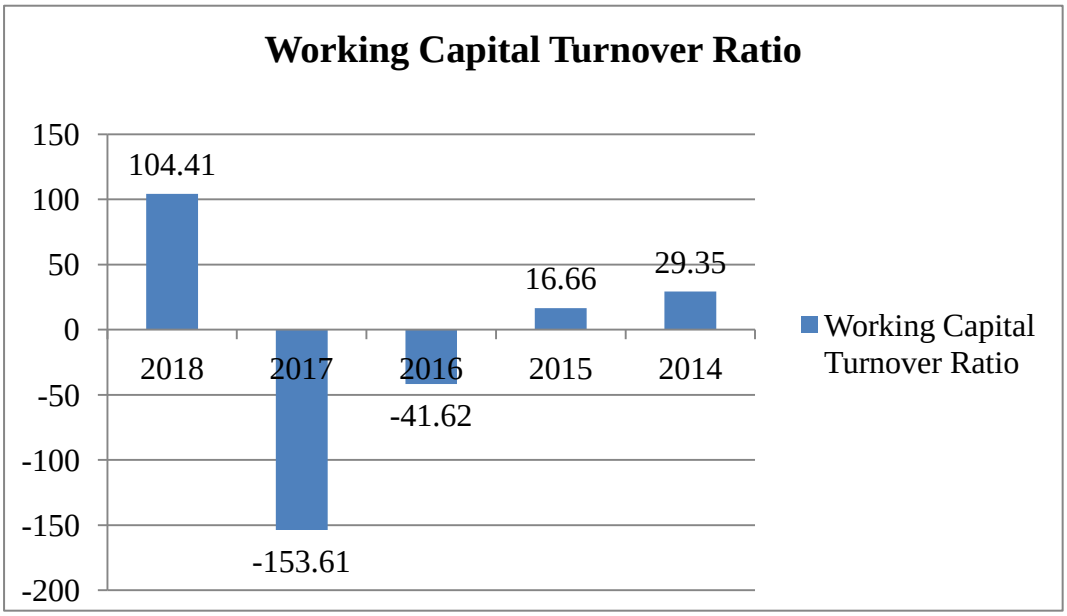
  Based on the time period it is categorised into the permanent working capital and the temporary working capital.

  - Working Capital Turnover Ratio = $\frac{\text{Cost of Sales or Sales}}{\text{Working Capital}}$

Table 4.5: Table showing the Working Capital Turnover Ratio

Particulars	2018	2017	2016	2015	2014
Cost of Sales	3,70,00,00,000	3,33,00,00,000	2,99,70,00,000	3,14,68,50,000	2,20,27,95,000
Working Capital (CA-CL)	3,54,37,496	(2,16,78,670)	(7,20,09,185)	18,88,99,266	7,50,55,000
Working Capital Turnover Ratio	104.41	(153.61)	(41.62)	16.66	29.35

Graph 4.5: Graph showing the Working Capital Turnover Ratio



Interpretation

The above table provides the information about how does the company is able to meet its day-to-day expenses where during the year 2014, 2015, 2016, 2017 and 2018 the Turnover Ratio was 29.35, 16.66, (41.62), (153.61) and 104.41 respectively where the higher turnover suggests that the firm or the company is being efficiently using its short term assets in order to meet its expenses. During the year 2016 and 2017 the turnover ratio was (41.62) and (153.61) which is a bad sign for the firm or the company for meeting its regular expenses but during the year 2018 the company has the turnover ratio of 104.41 which has provided the firm or the company for meeting its day-to-day expenses properly when compared to other subsequent years.

CHAPTER 5

FINDINGS, CONCLUSION AND SUGGESTIONS

5.1 Summary of Findings

- During the internship period of 10 weeks I came to understand about the company and the employees and I got to know that they were highly inspired and found to be friendly in nature.
- The company follows Just-in-time, Jidoka and Kaizen in the production process and results in providing quality products to its customers.
- The company produces critical parts like crash box, suspension arm, power module, radiator support and door trim.
- The ordering of raw materials is done only when there is a requirement for further production process.
- The company aims at providing or supplying the products to its customers globally or worldwide.
- The inventory or stock turnover ratio during the year 2015 was high that is 31.47 times and during the year 2017 was low that is 13.59 times due to more number of average inventories maintained by the company when compared to other subsequent years.
- The Raw Material Holding Period during the year 2015 was low because the company had hold the raw materials only for 18.66 days but during the year 2017 the raw material holding period was high because the company had hold the raw materials for 43.20 days.
- The Assets Turnover Ratio during the year 2016 was low or muted, that is 2.18 times and during the year 2015 the company had efficiently utilised the available assets that is 3.33 times.
- The Fixed Assets Turnover Ratio in the year 2016 was low that is 3.92 times and during the year 2017 was high that is 7.93 times because the company had efficiently and effectively utilised the available fixed assets.
- The Working Capital Turnover Ratio in the year 2016 and 2017 that is (41.62) and (153.61) respectively where the company could not manage or meet its day-to-day expenses but during the year 2018 that is up to 104.41 times the company was able to meet its day-to-day expenses and its production process.

5.2 Conclusions

The Inventory Management in Toyotetsu India Pvt Ltd. plays an important or vital role in the company where it can provide the quality products and meet the customer requirements. The company maintains optimum order quantity to minimise its costs at the time of the production process and use of new and modern techniques helps in providing the dynamic optimisation of inventories in order to increase the customer value with the decreased inventory and lowering the cost of production. Efficient and effective inventory or stock management is essential for any business where it enables to operate in a systematic manner. The inventory management also aims at reducing the wastage of materials or the components at the time of the production process by following the three main objectives that is (Muri) overburden, (Mura) inconsistency and (Muda) to eliminate waste. Therefore, I would like to conclude that the company has adopted suitable process and procedures of the inventory management and has been consistently proving good quality of products to its customers and also has been efficiently and effectively doing well in this highly competitive world.

5.3 Suggestions

- The company can make maximum utilisation of the available resources which may result in low cost production and maximising the profit.
- The inventories should not be kept for a longer time which should be reduced.
- In order to reduce the cost, the company has to maintain the selected ordered quantity that is unnecessary purchase of the inventory has to be minimised.
- The company has to maintain consistency with regard to inventory turnover.
- The composition of the inventory, size of the inventory and the adequacy of the inventory has to be maintained consistently which may results in growth of the company.
- The inventory management should be highly focused than on the profit making motives by the company.
- The company should be able to tackle the problems regarding the investment made on the inventory.
- Regular follow up procedure helps to control the delivery lead time with regard to the purchase orders placed.

- In order to divert from overstocking of materials the non-movable items has to be disposed.
- The purchase process or procedure should be reviewed by the internal audit which helps in bringing the economy in purchasing cost.
- The company should delegate the authority that is responsibility should be delegated or divided among the workers.

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ANNEXURE

STATEMENT OF PROFIT AND LOSS

Statement of Profit and Loss for the year ended March 31, …… (In Rs)

Particulars	**March 31ST 2018**	**March 31ST 2017**	**March 31ST 2016**	**March 31ST 2015**	**March 31ST 2014**
Revenue from Operations (Gross)	3,70,00,00,000	3,33,00,00,000	2,99,70,00,000	3,14,68,50,000	2,20,27,95,000
Less: Excise Duty	10,00,00,000	9,00,00,000	8,10,00,000	8,50,50,000	5,95,35,000
Revenue from Operations (Net)	3,60,00,00,000	3,24,00,00,000	2,91,60,00,000	3,06,18,00,000	2,14,32,60,000
Other Income	3,00,00,000	2,70,00,000	2,43,00,000	2,55,15,000	1,78,60,500
Total Revenue	3,63,00,00,000	3,26,70,00,000	2,94,03,00,000	3,08,73,15,000	2,16,11,20,500
Expenses:					
Cost of Materials consumed	2,30,00,00,000	2,07,00,00,000	1,86,30,00,000	1,95,61,50,000	1,36,93,05,000
Changes in Inventories of finished goods and work-in-progress	(20,00,000)	(18,00,000)	(16,20,000)	(17,01,000)	(11,90,700)
Employee benefits expense	54,76,79,220	50,24,58,000	45,67,80,000	39,72,00,000	35,46,84,724

Finance Cost	34,00,000	59,00,000	2,80,24,190	70,24,190	20,24,190
Depreciation, Amortization and provision for impairment	5,10,77,213	5,37,65,488	5,65,95,250	2,79,95,000	2,55,96,000
Other expenses	64,28,71,602	58,44,28,730	53,12,98,845	48,29,98,950	34,36,99,265
Total Expenses	3,54,30,28,036	3,21,47,52,217	2,93,40,78,285	2,86,96,67,140	2,09,41,18,479
Loss before tax	8,69,71,964	5,22,47,783	62,21,715	21,76,47,860	6,70,02,021
Tax Expense:					
Current Tax expense	2,87,00,748	1,72,41,768	20,53,166	7,18,23,794	2,21,10,667
Deferred Tax	12,00,000 (2,00,000)	10,80,000	9,72,000	8,74,800	7,87,320
Current Tax expense of earlier years	2,97,00,748	1,83,21,768	30,25,166	7,26,98,594	2,28,97,987
Profit (loss) for the year	5,72,71,216	3,39,26,015	31,96,549	14,49,49,266	4,41,04,034
Earnings per Share (EPS)					
Basic and Diluted (Nominal value of Rs.10 per share	1.15	0.68	0.06	2.90	1.10

BALANCE SHEET

Balance Sheet as at March 31, …..... (In Rs)

Particulars	**March 31st 2018**	**March 31st 2017**	**March 31st 2016**	**March 31st 2015**	**March 31st 2014**
Equity and Liabilities					
Shareholder's Funds					
Share Capital	50,00,00,000	50,00,00,000	50,00,00,000	40,00,00,000	40,00,00,000
Reserves and Surplus	24,93,43,046	19,20,71,830	15,81,45,815	15,49,49,266	1,00,00,000
Total Shareholder's Funds	74,93,43,046	69,20,71,830	65,81,45,815	55,49,49,266	41,00,00,000
Non-Current Liabilities					
Long Term Provisions	4,11,94,450	3,74,49,500	3,40,45,000	3,09,50,000	2,78,55,000
Total Non-Current Liabilities	4,11,94,450	3,74,49,500	3,40,45,000	3,09,50,000	2,78,55,000
Current Liabilities					
Short Term borrowings	50,00,000	24,00,00,000	29,30,00,000	50,00,000	50,00,000
Trade Payables					
c) Total o/s dues of the micro enterprises and the small enterprises.	44,00,000	42,00,000	38,00,000	20,00,000	6,00,000
d) Total o/s dues of creditors other than the micro enterprise and the small	55,10,00,000	34,30,00,000	35,60,00,000	32,50,00,000	30,20,00,000

enterprise.					
Total Trade payables	55,54,00,000	34,72,00,000	35,98,00,000	32,70,00,000	30,26,00,000
Other Current Liabilities	4,60,00,000	3,60,00,000	2,95,00,000	2,80,00,000	1,80,00,000
Short Term Provisions	9,00,000	7,00,000	8,00,000	5,00,000	10,00,000
Total Current Liabilities	60,73,00,000	62,39,00,000	68,31,00,000	36,05,00,000	32,66,00,000
TOTAL	1,39,78,37,496	1,35,34,21,330	1,37,52,90,815	94,63,99,266	76,44,55,000
Assets					
Non-Current Assets					
Property, Plant and Equipment	75,00,00,000	74,50,00,000	73,60,00,000	39,30,00,000	35,80,00,000
Less: Impairment loss	-	-	-	-	-
	75,00,00,000	74,50,00,000	73,60,00,000	39,30,00,000	35,80,00,000
Capital work-in-progress	-	20,00,000	2,00,00,000	-	-
Intangible Assets	46,00,000	37,00,000	32,00,000	30,00,000	28,00,000
Less: Impairment loss	-	-	-	-	-
	46,00,000	37,00,000	32,00,000	30,00,000	28,00,000
Deferred Tax Assets (Net)	-	-	-	-	-
Long Term Loans and Advances	5,00,000	5,00,000	50,00,000	10,00,000	20,00,000
Total Non-Current Assets	75,51,00,000	75,12,00,000	76,42,00,000	39,70,00,000	36,28,00,000
Current Assets					
Inventories	12,00,00,000	13,00,00,000	11,50,00,000	9,50,00,000	10,50,00,000
Trade Receivables	40,00,00,000	33,00,00,000	38,00,00,000	36,20,00,000	22,50,00,000
Cash and Cash Equivalents	3,59,37,496	4,82,21,330	2,30,90,815	1,83,99,266	1,60,00,000
Short Term Loans and Advances	5,38,00,000	3,40,00,000	3,80,00,000	5,20,00,000	2,60,00,000

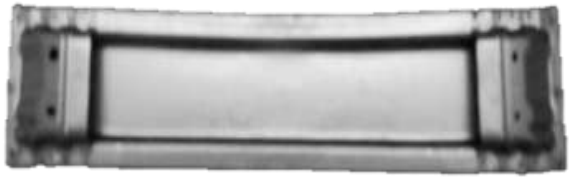
Other Current Assets	3,30,00,000	6,00,00,000	5,50,00,000	2,20,00,000	2,96,55,000
Total Current Assets	64,27,37,496	60,22,21,330	61,10,90,815	54,93,99,266	40,16,55,000
TOTAL	1,39,78,37,496	1,35,34,21,330	1,37,52,90,815	94,63,99,266	76,44,55,000

PRODUCTS FOR COROLLA AND ETIOS

COROLLA

ETIOS

BRAKE PEDAL



FRONT BUMPER

KNUCKLE BRACKET

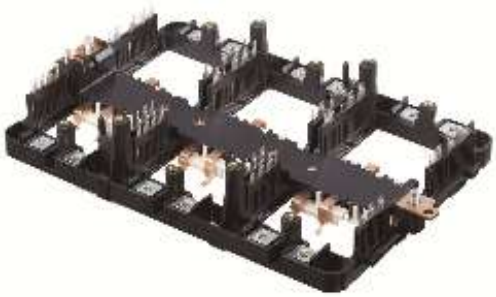
SPRING SEAT

CRITICAL PARTS– TOYOTETSU GROUP

CRASH BOX

SUSPENSION ARM

SUSPENSION ARM



POWER MODULE

RADIATOR SUPPORT

DOOR TRIM

ACHARYA INSTITUTE OF TECHNOLOY

DEPARTMENT OF MBA

INTERNSHIP WEEKLY REPORT (16MBAPR407)

Name of the Student : Girish H

Internal Guide : Prof. Swarupa Ranjan Panigrahi

USN No : 1AY16MBA20

Specialization : Finance and Marketing

Title of the Project : A Study on Inventory Management

Company Name : Toyotetsu India Pvt Ltd

Week	Work Undertaken	External Guide Signature	Internal Guide Signature
15-1-2018 to 19-1-20018	Introduction about the Company.		
22-1-2018 to 26-1-20018	Understanding the structure and the work culture of the company.		
29-1-2018 to 02-2-20018	Studying about different types of products that they produce.		
05-2-2018 to 09-2-2018	Analysis of the market position of the company.		
12-2-2018 to 16-2-2018	Gathering the information or the data of the company.		
19-2-2018 to 23-2-2018	Preparation of the research instrument for data collection.		
26-2-2018 to 02-3-2018	Theoretical background of the study.		

05-3-2018 to 09-3-2018	Data Collection and Analysis.		
12-3-2018 to 16-3-2018	Interpretation of the data collected.		
19-3-2018 to 23-3-2018	Final Report preparation and Submission.		

Head of the Department
Department of MBA
Acharya Institute of Technolog
Soldevanahlli, Bangalore-560 107

COMPANY SEAL

COLLEGE SEAL