Project Report (17MBAPR407) on

A STUDY ON INVENTORY MANAGEMENT AT ABB INDIA LIMITED

BY

SAGAR.S

1AY17MBA46

Submitted to

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

In partial fulfillment of the requirements for the award of the degree of

MASTER OF BUSINESS ADMINISTRATION

Under the guidance of

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March 2019

Power and productivity
for a better world

Date : 16 - 02 - 2019

To whom so ever it may concern

This is to certify that **Mr. Sagar S. (1AY17MBA46)**, a student of **Acharya institute of Technology** had been working on an internship project in our organisation between **03 - 01 - 2019** to **16 - 02 - 2019.** The title of the project was **"A study on Inventory Management System at ABB India Limited".**

During the period of his internship program he is has abide by all the rules and regulations of the organisation. He showed a great enthusiasm in working on the project and we found him to be hardworking.

Wishing him best of luck and Thanking you

For ABB India Pvt Ltd.

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ACHARYA INSTITUTE OF TECHNOLOGY
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Date: 04/04/2019

CERTIFICATE

This is to certify that **Mr. Sagar S** bearing USN **1AY17MBA46** is a bonafide student of Master of Business Administration course of the Institute 2017-19 batch, affiliated to Visvesvaraya Technological University, Belgaum. Project report on **"A Study on Inventory Management at ABB India Ltd, Bengaluru"** is prepared by him under the guidance of **Prof. Mallika B K,** in partial fulfillment of the requirements for the award of the degree of Master of Business Administration, Visvesvaraya Technological University, Belagavi, Karnataka.

4/4/19

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DECLARATION

I, **SAGAR.S**, hereby declare that the Project report entitled "A STUDY ON INVENTORY MANAGEMENT AT ABB" with reference to **ABB India Limited** prepared by me under the guidance of Prof. MALLIKA BK, faculty of M.B.A Department, Acharya Institute Of Technology and external assistance by **B L UMASHANKAR HR** Manager .I also declare that this Project work is towards the partial fulfillment of the university Regulations for the award of degree of Master of Business Administration by Visvesvaraya Technological University, Belagavi. I have undergone a summer project for a period of Twelve 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
Date 10/04/2019

Signature of the student

ACKNOWLEDGEMENTS

I wish to express my sincere thanks to our respected Principal, **Dr. Prakash M R,** beloved Dean-Academics**, Dr. Devarajaiah R M**, and deep sense of gratitude to **Dr. M M Bagali**, HOD, Acharya Institute of Technology, Bangalore for their kind support and encouragement in completion of the Project Report.

I would like to thank **Prof. MALLIKA B K ,** Asst. Professor, Department of MBA, Acharya Institute of Technology, Bangalore and external guide **Mr. B L UMASHANKAR** HR Manager **ABB India Limited**, Company Name, Bangalore, who gave me golden opportunity to do this wonderful Project in the esteemed organization, which helped me to learn various concepts.

Finally, I express my sincere thanks to my Parents, Friends and all the Staff of MBA department of AIT for their valuable suggestions in completing this Project Report.

Place: Bangalore
Date: 10/04/2019

Name :SAGAR.S
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES AND CHARTS

EXECUTIVE SUMMARY

The MBA course offered by the Visveshvaraya Technological university has its own unique Syallubs which requires its MBA students to undertake an project with any of leading business houses for a period of SIX weeks during the end of third semester. The purpose of the project is to enable the students to appreciate and understand the practical world via-a-via the theoretical input administered during the academic sessions. This help in creating managers who are equipped with the Expirence of linking the theoretical inputs with those of practical exposure and come out with creative solutions and ideas in enhancing the business. In partial fulfillment of MB degree of VTU I took up an organization study at ABB INDIA LIMITED, for a period of 45 days.

The objective is to learn about the working of a company. The practical aspects was studied and compared with the theoretical aspects learnt in the course. The study involves visiting various departments of the organization to learn about their structure and their functions. The incorporation, background, vision and mission of the company were briefed by the administrative department. The work flow model was briefed before the visit to the site. The service profile was collected by visiting the various departments. The study was more emphasized on SWOT analysis of the company. The study provides a good exposure to the corporate world and a good comparison of practical and theoretical aspects as studied in the course.

CHAPTER-1

1.1 INTODUCTION

The organization is given the chance to get a constant acknowledgment. The venture causes us comprehend the organization's profile, work process show, organization subtleties, helping me explore different avenues regarding encounters in the organization and for my investigation to recognize content. One of the key parts of assembling organizations is stock administration of Inventory Management, the examination chose for the investigation, as the organization has a place with the assembling business.

Stock Management is supervision of non-promoted resources (stock) and stock things. An organization of store network the executives oversees the Inventory Management stream at the purpose of offer from the Warehouse and from these offices.

1.2 INDUSTRY PROFILE

When is it that India will see a day when no company will hold itself back from going in for the latest automation technologies due to budget constrains?

Indian markets are gradually beginning to feel the trigger for hardware, control and mechanization. Today, the way toward bringing issues to light among Indian customers has guaranteed that the business has the correct blend of innovations that can create improvement openings, and now the business has been searching for and for quite a while.

Picking the correct computerization structures offers us the chance to incorporate assembling forms with business frameworks. This is a noteworthy outcome of lessening reliance on imported merchandise from industrialized nations. In this way, we can deliver the best quality products inside India and make them accessible to all clients at a progressively moderate cost.

Today, India needs computerization in each industry. Moving factories for nourishment handling, mining, oil and gas and drinking, including power plants, stones and earth ventures, glass and earthenware production, iron, steel, non-ferrous metal creation, steel and aluminum sheets, substance and pharmaceutical, petrochemicals, mash, cardboard and paper, Relating to

water, sewage plants, consuming plants and other ecological assurances The procedure of mechanical endeavors made under the domain of all, however, every one of these enterprises comprise of somewhere around one piece of the entire procedure which will require propelled mechanization, where it is lagging. In India, a sum of 21 percent of power (with the exception of robbery) is lost in transmission and appropriation. In the event that we utilize mechanical procedures, we can lessen this misfortune to a base dimension. In the wake of comprehension of the mechanization prerequisite of the power part, the legislature is in the 2010 Union Budget, and plans to make and execute elective sources utilizing computerization. Nonetheless, if India needs to accomplish its objectives completely, component ought to be legitimately actualized here. Generation rates will increment and drive will keep on costing more.

1.3 COMPANY PROFILE

ABB is a pioneer in power and robotized innovations, improving utility and industry customers execution and decreasing ecological effect. ABB Group organizations are working in excess of 100 nations and utilize 130,000 individuals.

ABB activities in India incorporate 12 fabricating offices, 10,355 workers. Clients are serving more than 23 markets, 8 administration focuses, 3 implementation stockrooms, 2 Power and Automation Engineering Centers and a wide across the country nearness of 550 channel accomplices organize. ABB Group is raising Indian tasks for undertakings, items, administrations, building and R and D.

History

General:

• The organization was joined into The Hindustan Electric Company Limited on 24.12.1949.

• On 24.09.1965, the organization's name was changed to Hindustan Brown Bowry Limited (HBB).

• The name was changed to Ass Brown Bower Limited, which was actualized on 13.10.1989, as per the ASSG's Amgamation plan with HCB on January 1, 1989.

• Effective 16.04.2003, the name was changed to ABB Limited.

Level India Limited was actualized with ABB on 5 October 1995. In 1994-95, joint endeavor ABB Daimler-Benz Transport AG (Atrange) was established by Germany's ABB Zurich and Daimler-Benz AG Germany.

1.4 Corporate management team

Managing Director	Bazmi R. Husain
Chief financial officer	AmlanDattaMajumdar
Legal and compliance	Stefan Backstrom
Human resources	Raja Radhakrishnan
Communication and investor relations	Vikram V Kanth
Company secretary	B Gururaj
Power systems	N Venu
Power products	PitamberShivnani
Discrete automation and motion	R Narayanan

Process automation	Priteesh Mahajan
Low voltage products	Tommy Andreasson
Country service manager	MadhavVemuri
Country operations manager	Tajinder Vohra
Chief technology officer	GiandomenicoTesti
Business Development, Strategy, and Marketing	Subir Pal

1.5 Mission

The Mission of the ABB customers improve their performance improvement: energy performance, grid reliability while saving and productivity and helps to lower the impact on the environment. Drive innovation: innovation and quality in our products, the main features of the system and service provider. To attract talent: attract and ABB dedicated and skilled people and keep the staff strives to provide a work environment, a global attraction. Act responsibly: sustainability, environmental impact and offer our market and lower business ethics in our own are at the core of the operation

Vision

ABB is one of the world's leading engineering companies, the vision of our industry to increase productivity in a sustainable manner the environmental impact of low power use will help our customers more efficiently. Efficiency and productivity for a better world

1.6 Our businesses

ABB is a pioneer in power and mechanized advancements, improving utility and industry customers execution and lessening ecological effect. The ABB Group of Companies works in more than 100 nations and utilize around 145,000 individuals.

Power Products :

With wide scope of items and administrations, the division chiefly gives electrical utilities, just as gas and water utilities and modern and business shoppers to encourage control age, transmission and dispersion. Yeh can control and oversee electrical systems.

Power Systems :

Breakdown offers answers for the power esteem chain. Counting answers for transmission advances, for example, control age, HVDC and FACTS, conveyance innovations for correspondence and system the board. The special Turnkey venture go incorporates structure, framework designing, supplies, establishment, task and testing. We join items from our own Power Products Division and outer providers, including an incentive through space ability, building, venture the executives and life cycle bolster administrations

Our culture

Good leaders are characterized by competence, ambition and integrityWe work with our clients, our representatives and our responsibilities to the networks and social orders we run, and we work with the voice corporate qualities.

Business principles

Duty, respect and assurance are imperative for ABB to fabricate esteem, execution and initiative. Our innovation initiative, our spearheading soul and our capacity to remain in our home - dependable and acting with poise and assurance can give the possibility to raising the customary capacities of ABB. That is our inheritance and our future.

The way to progress is that everybody comprehends and applies the business standards - showing individual, proficient and hierarchical duty, appearing for others' conclusions and needs and applying our triumphant goals.

Responsibility, respect, determination

Through a progression of workshops, ABB representatives have comprehended business standards of obligation, respect and assurance.

Responsibility

• Taking obligation: Take our expert advancement and ABB procedure truly

• Attach to the Code: Legal risk and consistence to rehearse best in all nations

• Professional Work: Responsibility and 'Strolling Talk'

• Distributing Our Promises: Let's do the ethical duty we can do

Respect

• Celebrating contrasts: opening up to different societies and taking a gander at all ABB representatives similarly

• Discussion, challenge and hearing: backing and challenge others while staying receptive outlooks

• Integrity: Honesty and genuineness are appeared. Regarding others by regarding others

• Personal Honor to Employees and the Environment

Determination

• Provide champ winning outcomes for all accomplices. Our clients are imaginative, successful for our association and accomplishing ourselves

• Continuity: Course and adhering to it, with great time and terrible

• Performance Results: Want to win for ABB and our own best execution

• Commitment: taking choices and indicating clear initiative

Sustainability:

For ABB, maintainability adjusts financial achievement, biological system and social advancement to profit the majority of our accomplices.

Incorporates security contemplations. Furthermore, the security of our workers, temporary workers and others influenced by our exercises.

Sustainability Priorities

Environment : Policy and performance, covering sites, products and suppliers. We pass this aptitude to buyers and providers to lessen the ecological effect of our innovations and items, while endeavoring to guarantee that our generation forms are earth agreeable and vitality productive. In our own tasks, ABB encourages the way toward transporting merchandise, decreasing the utilization of products and materials, lessening the effect of business travel, dispensing with unsafe materials, and improving structure ecologically proficient and recyclable items and providers. Can be accomplished by sharing a decent propensity.

For instance, water driven shading frameworks created in an industrial facility were presented in comparative areas around the globe to decrease the discharges of natural solvents. Improvement of execution likewise incorporates the plan period of new items and procedures. Configuration engineers get preparing and hardware to complete Life Cycle Assessments to assess the

adequacy of an item situation for the duration of the existence cycle. Four hundred maintainable specialists, the greater part of whom are in our industrial facilities, execute gathering and national destinations at around 360 locales and workplaces around the ABB around the world. They guarantee that all generation offices are liable to worldwide norms of ISO 14001 and OHSAS 18001 for the administration of natural and wellbeing and dangers. Shutting collaboration with outside maintainable associations and colleges will likewise build up powerful projects for ABB to help its improvement activities

1.8 ABB INDIA LTD COMPETATORS

- Bhel
- Thermax
- NBCC
- Power mech
- BEML
- Rel Ind infra
- Punj Lloyd

Corporate Responsibility:Policies and performance covering human rights, community engagement and the supply chain.

The organization has numerous arrangements and criteria to join approaches, for example, business strategy and administration, set of accepted rules, and gathering social and human rights strategies, in view of those qualities. These are bolstered by inner gathering rules and guidelines.

We likewise have a solid spotlight on creating proficiency and effectiveness for compelling administration and the board of OHS, improving benchmarks for hazard control, and checking our offices and activities. At mass dimension we have attempted to extend the scope of our Leadership Training Program, giving learning and aptitudes expected to powerful close to home OHS authority. It additionally empowers dynamic nearby enhancements over our organizations.

One impact of powerful OHS administration is the expanding number of business-drove OHS programs. These activities bloom the improvement of criteria and convey particular preparing as per the particular prerequisites and exercises of various specialty units (buns).

In 2011, existing OHS programs, for example, the BU Substations '"Energizing Safety" and BU Transformers' center and high-voltage exchanges and administration exchanges activities, were reinforced and extended. Extra projects have been created in the Process Automation segment.

To help and fabricate the abilities of supporting systems that help our organizations, we bolster our Executive Valuation Assessment Process and OHS Training Programs

Eminent achievements were accomplished and programs were executed ABB Worldwide 2011:

US distinctions

For instance of the learning and experience on our system, Darrell C was the pioneer of Vice President of Health and Health, North America and the American Society of Safety Engineers amid his century year. Fiddle is likewise unfit to help ABB, yet in addition impairs the capacity to share aptitudes and experience inside a more extensive network.

In the US, there were no wounds that could be recorded in a similar business wellbeing and wellbeing organization (OSHH) in the fifth sequential year in typical voltage and high voltage administrations. This is an excellent accomplishment, taking into account that all administrations are held in the field conditions.

Before the finish of 2011, around 850 chiefs in every one of the eight zones, practically the majority of the Country Management groups were prepared to manage emergency workshops and activities.

ABB fortified its contribution with security organizations with a worldwide program propelled in 2011 to guarantee that every single such organization meet the ABB and International Standards. The program's work proceeds in 2012.

New mass-level security rules are being made dependent on security and human rights volunteer standards, which will be concluded in 2012.

1.9 SWOT ANALYSIS

Strengths

• A huge set up client base with long haul contracts

• High brand esteem helped in cross deals and resulting deals openings

• ABB has assets everywhere throughout the world and geologically spreads well

• A critical piece of its income originates from rising developing markets requesting foundation

• Production worldwide is outstanding for top notch items

Weaknesses

• 1. Management has broad stream history for procurement and cooperative energy on past issues

• 2. In the back of liquidity shortage, edge won't improve for the time being

• 3. Terrible advances and money related issues for purchasers have expanded the obligation commitments influencing benefits.

Opportunities

• 1. Government activities at framework space increment the general interest for the power business

2. It is monetarily solid with expansive income, which obtains buys, repurchases and benefits.

• Requirements for Smart Grids Increase interest for any producer, provider or work of keen matrix framework

• 4. Extra guideline builds the interest for organizations in the environment business

Threats

- 1. The most exceedingly awful point of view of the economy influences the stream of income and economy
- 2. Governments are experiencing tension to cut costs, substitution deals may back off and in general deals can be perilous

1.11 Balance Sheet Comparison

	2018	2017	2016	2015	2014
EQUITIES AND LIABILITIES					
SHAREHOLDER'S FUNDS					
Equity Share Capital	0.00	42.38	42.38	42.38	42.38
Total Share Capital	**0.00**	**42.38**	**42.38**	**42.38**	**42.38**
Reserves and Surplus	0.00	3,564.51	3,240.40	2,966.17	2,769.60
Total Reserves and Surplus	**0.00**	**3,564.51**	**3,240.40**	**2,966.17**	**2,769.60**
Total Shareholders Funds	**0.00**	**3,606.89**	**3,282.78**	**3,008.55**	**2,811.98**
NON-CURRENT LIABILITIES					
Long Term Borrowings	0.00	4.14	600.00	600.00	0.00

Other Long Term Liabilities	0.00	3.86	3.91	4.30	4.51
Long Term Provisions	0.00	42.68	52.08	47.92	37.44
Total Non-Current Liabilities	**0.00**	**50.68**	**655.99**	**652.22**	**41.95**
CURRENT LIABILITIES					
Short Term Borrowings	0.00	0.00	0.04	0.00	371.07
Trade Payables	0.00	2,713.11	2,157.31	2,101.96	1,984.02
Other Current Liabilities	0.00	2,202.85	1,237.23	1,267.70	1,297.70
Short Term Provisions	0.00	314.52	395.56	378.40	314.93
Total Current Liabilities	**0.00**	**5,230.48**	**3,790.14**	**3,748.06**	**3,967.72**
Total Capital And Liabilities	**0.00**	**8,888.05**	**7,728.91**	**7,408.83**	**6,821.65**
ASSETS					
NON-CURRENT ASSETS					
Tangible Assets	0.00	1,142.60	1,168.79	1,199.36	1,284.02
Intangible Assets	0.00	76.06	86.12	99.06	115.52

Capital Work-In-Progress	0.00	116.48	67.78	44.28	31.93
Fixed Assets	**0.00**	**1,335.14**	**1,322.69**	**1,342.70**	**1,431.47**
Non-Current Investments	0.00	0.17	16.23	16.31	16.39
Deferred Tax Assets [Net]	0.00	117.30	78.36	48.96	15.23
Long Term Loans And Advances	0.00	21.56	380.60	422.20	401.53
Other Non-Current Assets	0.00	457.44	7.23	6.69	7.48
Total Non-Current Assets	**0.00**	**1,931.61**	**1,805.11**	**1,836.86**	**1,872.10**
CURRENT ASSETS					
Current Investments	0.00	270.45	0.08	0.08	0.08
Inventories	0.00	1,153.55	940.25	939.57	893.82
Trade Receivables	0.00	2,787.78	3,063.33	3,390.93	3,157.52
Cash And Cash Equivalents	0.00	1,491.66	1,189.16	573.59	225.96
Short Term Loans And Advances	0.00	24.62	330.78	278.08	277.45
OtherCurrentAssets	0.00	1,228.38	400.20	389.72	394.72

Total Current Assets	**0.00**	**6,956.44**	**5,923.80**	**5,571.97**	**4,949.55**
Total Assets	**0.00**	**8,888.05**	**7,728.91**	**7,408.83**	**6,821.65**

Profit and Loss comparison

	2018	2017	2016	2015	2014
INCOME					
Revenue From Operations [Gross]	**6,613.36**	**9,249.20**	**9,056.87**	**8,545.58**	**8,054.29**
Less: Excise/Sevice Tax/Other Levies	0.00	287.78	541.31	530.43	423.64
Revenue From Operations [Net]	**6,613.36**	**8,961.42**	**8,515.56**	**8,015.15**	**7,630.65**
Other Operating Revenues	76.76	125.90	132.81	125.12	102.62
Total Operating Revenues	**6,690.12**	**9,087.32**	**8,648.37**	**8,140.27**	**7,733.27**
Other Income	84.01	120.97	65.27	13.04	17.28
Total Revenue	**6,774.13**	**9,208.29**	**8,713.64**	**8,153.31**	**7,750.55**
EXPENSES					
Cost Of Materials Consumed	3,755.62	5,060.67	4,641.36	4,560.51	4,487.19
Purchase Of Stock-In Trade	582.11	357.12	401.59	321.64	305.88

Operating And Direct Expenses	0.00	538.29	507.69	466.42	405.85
Changes In Inventories Of FG,WIP And Stock-In Trade	-50.38	-65.51	66.64	-48.56	43.98
Employee Benefit Expenses	529.50	796.30	767.82	749.87	705.20
Finance Costs	53.90	77.31	84.92	91.16	104.95
Depreciation And Amortisation Expenses	92.76	157.97	150.95	159.79	112.81
Other Expenses	1,415.48	1,664.38	1,516.62	1,377.89	1,229.48
Total Expenses	**6,378.99**	**8,586.53**	**8,137.59**	**7,678.72**	**7,395.34**

CHAPTER 2

2.1 CONCEPTUAL BACKGROUND AND LITERATURE REVIEW

Defining Inventory

Stock is a non-standard load of physical products that have a money related esteem, and its holding up hold up at future dimensions happens from the association in pressing, preparing, change, use or deal.

Any association inside item generation, business, deals and administration must have an accumulation of various physical assets to aid future use and deals. In spite of the fact that the rundown is antagonistically influenced by such a business, the firm holds records for different reasons, which incorporate prescient intentions, useful goals, physical necessities, and so on.

Following are the accompanying elements for stocks:

- All the associations engaged with the generation or clearance of items hold a rundown in a structure or other structure.
- The stock might be in the whole state or in a fragmented state.
- Stock happens to encourage future use, deals or further handling/esteem expansion.

Stock administration thinks about the organization's property as resources, working necessities and business money related assets. Stock Management decides the glory level for the case of purchasing, stockpiling, and utilization of hardware. The findings in extra stock, ie, favorably affect the organization's benefit on a more elevated amount. So when an item demand is finished, anybody ought to have a genuinely wide product taking care of to remunerate the stream of material beginning from the moment that the buy demand is made.

Potential stock administration lessens generous stock dimensions without impact on creation and deals through straightforward stock arranging and control procedures.

The disregard of stock administration can demolish its long haul advantage and survival. So great stock administration is a decent money related administration

Stock Management and Inventory Control must be intended to coordinate market space and bolster the organization's key arrangement. Because of various changes in market request, new open doors because of offers around the world, worldwide source materials and new assembling innovation. This implies organizations need to change their stock administration procedure and change the stock control process.

Regardless of the numerous progressions of organizations, the fundamental standards of stock administration and stock are the equivalent. Some new procedures and methods are enclosed by some new terms, yet the hidden standards have not changed for better stock administration and stock exercises.

Gives data to store stock administration frameworks and stock control data viably in individuals and in instruments, sort out inner exercises and speak with customers. Stock administration and stock control exercises don't settle on choices or perform tasks; They give data to administrators who settle on increasingly exact and convenient choices to deal with their activities.

Essential Building Blocks of stock administration framework and stock control exercises:

- Sales estimate or request the executives.
- Sales and Operation Plan.
- Production plan.
- Material Requirements Plan.
- Inventory decrease

CONCEPT OF INVENTORY

Inventory

Stock is a non-standard load of physical merchandise that have a budgetary esteem, and its holding up hold up at future dimensions happens from the association in pressing, handling, change, use or deal.

Different Types of Inventory

Stock of things at various dimensions and in the bureaus of the association. The assembling association has shoppers who need crude materials for generation and creation. It has a rundown of semi-completed merchandise at various dimensions in the plant with different divisions.

Complete rundown of merchandise is done in plant, completed products stores, conveyance focuses and so forth. What's more, both crude materials and completed merchandise are in travel at different areas. The completed merchandise reserve keeps it in different capacity focuses or vendors and stockists until it achieves the market and clients.

Other than Raw Materials and Finished Goods, additionally hold the merchandise for extra parts to give items to organizations. Malevolent items, defective parts and scrap additionally structure a piece of the stock until they concoct the organization's books and have a money related esteem.

Types of Inventory by Function

Table.1.1. different types of inventory by function

Input	**Process**	**Output**
Raw Materials	Work In Process	Finished Goods
Consumables required	Semi Finished Production in	Finished Goods at Distribution

for processing. E.g. : Fuel, Stationary, Bolts & Nuts etc. required in manufacturing	various stages, lying with various departments like Production, Work In Progress Stores, Quality Control, Final Assembly, Paint Shop, Packing, Outbound Store etc.	Centers throughout Supply Chain
Maintenance Items/Consumables	Production Waste and Scrap	Finished Goods in transit
Packing Materials	Rejections and Defectives	Finished Goods with Stockiest and Dealers
Local purchased Items required for production		Spare Parts Stocks & Bought Out items
		Defectives, Rejects and Sales Returns
		Repaired Stock and Parts
		Sales Promotion & Sample Stocks

Inventory Costs

Stock Storage, Storage and Maintenance are identified with the bigger expenses related with every one of these capacities.

Ordering Cost

The expense of capacity and approaching coordinations costs is a piece of the expense of requesting. The request cost is reliant and changes relying upon the two components - the expense of overabundance request and the lower request.

Both of these components move in inverse ways. The higher the request will result in the expense of stock. The lower request will result in an expansion in the expense of revive and the expense of the request

Carrying Cost

Stock stockpiling and support incorporate different sorts of costs:

- Stock stockpiling cost.
- Cost of capital.

Stock conveying will incorporate stock stockpiling and the board, which claims and keeps up outer distribution centers at outsider merchants. In the two cases, stock administration and preparing include broad utilization of structures, material taking care of devices, IT programming applications and equipment devices, just as activities and the board staff assets.

(i) Inventory Storage Cost

Stock stockpiling costs regularly incorporate structure lease expenses and office the executives and related expenses. Material taking care of gear cost may incorporate IT equipment and applications, buy costs, devaluation or lease or rent. Greater expenses incorporate working costs, utilization, interchanges costs, and the expense of HR utilized in utilities, tasks and activities.

(ii) Cost of Capital

Venture costs, enthusiasm on employment capital, imposes on paid inventories, protection costs and different costs join with legitimate commitments.

The expense of stock stockpiling and the expense of the capital relies upon the upkeep of the home stock with the choice of the executives or by the outsourcer and the outsider specialist co-op.

Also, amid the vast scale distribution center tasks, the measure of ventures might be unreasonably huge for structure expenses and material administration hardware. The venture can reach out for a long time, so confining the organization's capital might be used in progressively critical regions, for example, R and D, extension instead of putting into the undertaking.

Shortage or stock out Cost & Cost of Replenishment

- Incorporates deficiency or reimbursement costs and cost:
- Cost of misfortunes, blackmail, shrinkage and detriment.
- Logistics cost
- Sales Discounts, Volume Discounts and Other Related Costs.

Inventory Control Techniques

1. **ABC Classification**

ABC investigation is the business term used to characterize a normally utilized stock order system for materials the executives. Otherwise called select stock control.

ABC examination gives an instrument to recognizing substances that have critical effect on by and large stock expenses, just as systems for distinguishing supply of various classes that require distinctive administration and control.

The ABC examination recommends that authoritative inventories are not a similar esteem. In this manner, stock is sorted into three classes (A, B, and C) as per the rough significance.

'A' things are imperative for associations. Because of the high estimation of these 'A' things, regularly need esteem examination. Also, the association must pick the fitting requesting design

(eg: 'Without a moment to spare') to maintain a strategic distance from more noteworthy proficiency.

The 'B' things are critical, however less vital than 'A' things and 'C' things. So 'B' objects become interconnected.

The 'C' things are critical.

ABC analysis categories

‘A’ items – 20% of the items accounts for 70% of the annual consumption value of the items.

‘B’ items - 30% of the items accounts for 25% of the annual consumption value of the items.

‘C’ items - 50% of the items accounts for 5% of the annual consumption value of the items.

Advantages

This grouping of inventories keeps up the whole volume and offers need to the correct class. For instance, one class objects are progressively important articles. So it is conceivable to direct stock of this division, to keep up the stock dimension at the largest amount, any extra stock may have a colossal negative effect on the general esteem.

One class things: These stocks help recognize high esteem things and distinguish tight command over the procedure control, physical security and review recurrence. Chairmen and stock organizers help keep up exact records and help deal with the treatment of substance in convenient to settle on speedy basic leadership simpler.

Things of the B-area: These can be given a second need with low recurrence survey and can be less firmly controlled with chronicles, review controls at spot.

C class objects: Basic and basic reports can be kept up. Stock rates might be bigger with less occasional audits. ..

Disadvantages

Stock characterization does not mirror the recurrence of development and in this manner misdirects the controllers. B and C classes are normally disregarded and are probably going to get captured or lost in mass accumulations, columns, and slower in record control.

Economic Order Quantity (EOQ)

The money related request rate is the dimension of stock that lessens the absolute stock holding expenses and requests. It is one of the most established great generation plan models. The structure used to decide this activity is called Wilson EOQ model or Wilson Formula. This model is FW. Harris created in 1913, however RH. Wilson, generally utilized by an expert.

The EOQ possibly applies that each new request is completely supplemented when the item request is steady in the year and the stock void is come to. A particular rate fixed for each request doled out is set, paying little respect to the quantity of requested directions. There is additionally a holding or capacity cost for every unit away.

We need to decide the quantity of the best number of request items, which will diminish the all out expense related with the buy, circulation and capacity of the item.

The parameters required for the arrangement are the all out expense every year, the expense of procurement for every thing, the consistent expense to put requests and capacity costs per thing every year. Note how frequently the request influences the all out expense, in any case, this number can be controlled by different parameters

Assumptions

- The interest rate is consistent
- Major time is planned
- The thing's price tag is steady, which means no markdown is accessible
- Recovery is done promptly; The entire bunch will be conveyed once.

- The EOQ request is the amount, which decides the base measure of expense + transportation cost.

Variables

Q = order quantity

Q^* = optimal order quantity

D = annual demand quantity of the product

P = purchase cost per unit

S = fixed cost per order

H = annual holding cost per unit

The Total Cost function

The single-item EOQ formula finds the minimum point of the following cost function:

Total Cost = Purchase cost + Ordering cost + Holding cost

Purchase cost: This is the variable cost of goods: purchase unit price × annual demand quantity. This is P×D

Ordering cost: This is the cost of placing orders: each order has a fixed cost S, and we need to order D/Q times per year. This is S × D/Q

Holding cost: the average quantity in stock (between fully replenished and empty) is Q/2, so this cost is H × Q/2

$$TC = PD + \frac{DS}{Q} + \frac{HQ}{2}.$$

To determine the minimum point of the total cost curve, set the ordering cost equal to the holding cost:

$$\frac{DS}{Q} = \frac{HQ}{2}$$

Solving for Q gives Q* (the optimal order quantity):

$$\frac{H}{2} = \frac{DS}{Q^2}$$

$$Q^2 = \frac{2DS}{H}$$

$$Q^* = \sqrt{\frac{2DS}{H}}.$$

Q* is independent of P; it is a function of only S, D, H.

Inventory Turnover Ratio

The Inventory Turnover Ratio Index speaks to the proficiency of creating and selling its item. It is determined by separating net deals into absolute normal stock.

$$\text{Inventory Turnover} = \frac{\text{Net sales}}{\text{Total average inventory}}$$

The total average inventory is the opening and closing balance of the total inventory.

Components of Inventory

An examiner may likewise be keen on looking at the aptitude of having the capacity to change over crude materials into crude materials and to work in procedures as completed merchandise. For example The expert needs to realize the crude materials stock and the work done in a normal company's stock. The crude material must be liable to materials expended and handled for the expense of creation.

Thus

$$\text{Raw material Turnover Ratio} = \frac{\text{Materials consumed}}{\text{Average raw material inventory}}$$

$$\text{Work in process Turnover} = \frac{\text{Cost of production}}{\text{Average work in process inventory}}$$

$$\text{Finished goods Turnover} = \frac{\text{Cost of goods sold}}{\text{Average finished inventory.}}$$

Equalizations of crude materials and buys can be believed to expend shutting materials to diminish crude materials shutting adjusts. The expense of generation is resolved to begin the parity of material utilization and other creation expenses and work forms.

Without ingested things or cost of creation, the crude materials and work in the process stock might be identified with the deal. Shows how quick stock exchange can be acquired through the clearance of stock. Generally high stock exchange is a decent stock administration pointer. Low stock turnover shows higher stock dimensions than generation and deals exercises or request from moderate moving or out of date stock. At a more elevated amount, dormant inventories diminish benefits and benefits for the pointless measure of cash.

On the off chance that out of date stock is discounted, it might antagonistically influence the association's official capital and liquidity status. In any case, high stock exchanges ought to be deliberately broke down; Most stock exchanges might be an aftereffect of low stock, regularly causing stock trips: the firm might be hand-to-mouth. In the event that the organization energizes its stock in a few littler sizes, the exchange is much higher.

Regularly the circumstance of stock outs and a few little stock substitutions cost the organization. In this way, high or too little stock turnover proportions must be deliberately examined. Bookkeeping records for discrete sections of stock turnovers can discover unequal interests in different stock units.

2.2 REVIEW OF LITERATURE

1. Smoothing models of conceivable creation, for example, Beckman (1961), are additionally appropriate here. Beckman's model joins the expense of a straight yield with the per-unit expenses of raising and lessening the creation level for the dimension chose for the past period.

2. At that point the smoothing models in this vein creation incorporate Sobel (1969) and Sobel (1971). In our model, interestingly, the request cost work is reliable with noncrecking and term, yet we take into account any number of straight pieces.

3. Sobel (1970) concentrates such an example in which the area of the wrinkle is chosen at first and is then dated for a period. He contends for the limit of the general stock approach that is restricted under the normal cost criteria, given the area of the wrinkle under the markdown rate criteria and the constrained interest.

4. Hari R. Swamy's examination work "Materials Management in Public Inquiries", evaluates execution in focal open organizations of Rajasthan, instrumentation constrained, share unit: HMT, Ajmer unit: Hindustan Zinc Ltd, Debari unit; Hindustan Copper Limited, Khetri Unit and SambarSolts Limited. The investigation covers different parts of material administration in these enterprises from 1977-78 to 1981-82.

5. Ramakrishna Rao B., in 1979, in the investigation of Bharat Heavy Plate and Wessels Limited (BHPV) in Visakhapatnam, 'Substantial Engineering Industry Materials Management' has assessed the execution of the materials the executives in BHVV and some explicitly issues identified with material administration in BHPV and Bh Which ran the designing business.

6. In 1980 K. Sambasiva Rao directed an exploration contemplate called "Materials Management in the Public Sector Shipbuilding Industry". He made an audit of the investigation of overseeing things in Indian businesses and lit the arrangement and spending plan. Material Management at Hindustan Ships Limited He examined profoundly in the fields of study, aggregation and accreditation, deals investigation, and stock control in the light of stock gauges set by the Bureau of Public Enterprises under the examination.

7. The main accommodation verification that we permit on Bensousson et al is the requesting cost work that has any direct pieces. (1983), restricted skyline all out expected cost criteria.

8. As noted in the general medicines of Markov's choice procedures in Hayman and Sobel (1984, p. 171) and Putman (1994, p. 331), the normal cost criteria are perfect for demonstrating frameworks, in which choices are frequently made.

9. The mean best meanings of us are Hayman and Sobel (1984) and Arapastasis and others. (1993). Our definition is Puterman (1994, p. 129, while boosting returns) "Liminf" is equal to average enhancement.

10. The expense of the piecewise straight and concurrent request is examined in a conceivable stock review by Portius (1990). He portrays the development of a constrained summed up stock framework for a theoretical circumstance including elective assembling advancements.

11. He cites a few articles that contend that the structure (s, s) is predominant. Zeng (1991) is a paper that is of specific significance to us, which utilizes the unwinding procedure we use.

12. Different investigations incorporate Iglehart (1963), Venot and Wagner (1965), Bayer and Sethi (1999), and Chen and Sinchi-Levi (2004). Bayer and others up and coming volume. (2009) has additionally guaranteed to talk about this case.

13. Shastri Study (1996) was an investigation of the absolute stock of organizations crosswise over different assortments of ventures amid the 1955-60s, utilizing the monetary information of private part open constrained organizations. This investigation has drawn out the significance of impetuses speaking to the adjustment in deals. It has appeared negative effect of fixed speculation on stock venture.

14. Heneig and others. (1997) a similar model is viewed as the expense of requesting a likeness zero to RR units with C cost for an extra unit.

15. Bansal G.D. (1998) In the investigation of Material Management, A Case Study of Bharat Heavy Electrical Limited, Bhopal Unit, (BHEL), assesses existing frameworks of stock administration. They stressed the requirement for computerized surveillance frameworks to secure. He embraced ABC investigation and control of the EOQ methodology.

16. A stock model of direct request cost task (as referenced above, Carlin was first tried in 1958) is contemplated in Vega-Ama and Montes-d'Oka (1998). They contend that the fundamental stock structure is best under the normal cost criteria

17. Junius (1999) and Serel et al. (2001). Yang and others. (2005) Capacitated does not consider a model with "inward" creation and is a surprising "redistributed" choice. In their default framework, the dimension of limit arbitrarily varies and the consistent expense of re-appropriating and per-unit cost.

18. The writing by and large reasonableness in tests was quickly looked into in Fenberg and Louis (2006), with the fixed cost of the request for the direct part (as Carlin tried in the second case in 1958).

19. Huh et al. (2008) Aims to build up a structure that can broaden the settings of restricted structure control frameworks from constrained skyline to unendingness skyline (counting normal expense).

20. Working by Hah et al. (2008) The above definitions give the normal prevalence of approach structures, for wide class cost errands and other example parameters, at whatever point structures are suitable in a restricted skyline setting.

CHAPTER 3

RESEARCH DESIGN

Title of the Study:

"A study on Inventory Management at ABB India Limited"

3.1 Statement of the problem

Stock is an antagonistic effect, and every association needs to work for an assortment of purposes. The best stock administration is the objective of each stock organizer. Because of the effect of the business under stock or stock over and the business well being and viability of both business

Most firms store crude materials, consumables and pressing materials and contain crude materials for stockrooms appended to generation offices that are circulated to the item on JIT. The purposes behind holding the rundowns can change dependent on the case.

3.2 NEED FOR STUDY

ABB's internship program guidelines and a variety of power and automation technologies are designed to provide practical exposure. Students in the engineering business unit it Center in the continental-wide research outfits and work on innovative ideas or businesses with research center.

3.3 Objectives to study inventory management

Here are the essential goals of the investigation of stock administration

1. To contemplate stock administration dependent on proportions

2. Secure stock impact on position capital.

3.To think about stock administration and its viable power over different techniques.

4. Indicate ventures to improve stock dimensions.

3.4 SCOPE OF THE STUDY

The extent of running a significant use of hypothesis for real usage. Since the investigation centers around distinguishing the present capability of organization stock techniques and targets, we perceive the best stock philosophy to improve the organization's arrangement to decide their stock.

This examination gives understanding into high esteem materials and low-esteem materials. This examination gives a thought of industrial fixation and is proposed for overseeing stock.

3.5 Research Methodology:

The exploration technique is a precise answer for the examination issue. Speculation Analysis is gone for research reason at ABB India Limited. For stock examination, we will decide the accompanying discoveries:

- Raw Material Inventory.
- Process Inventory Jobs
- Complete Goods Inventory.

METHODS OF DATA COLLECTION

In the stock examination of ABB India Limited, we gather information from different sources. We gather essential and auxiliary information.

Secondary Data

Optional information as of now exists for a particular reason. We utilize auxiliary information about stock to take a gander at the organization's old records. Day by day data about materials is appeared day by day narrative archives, different documentaries utilized for the buy register and research.

In stock investigation, the auxiliary information gave isn't sufficient to us to gather the essential information.

Primary Data

Essential information or crisp information We get from the examination targets recipe with the assistance of the essential information. Essential information is exact, feasible, solid and valuable information

- The organization utilized stock control procedures.
- Stock Levels.
- Company site.

Reference Peirod :

The reference time frame I took for this examination is 4 years ie from 2014 to 2018. I allude to the organization's fiscal summary and different sources, for example, organization diaries and site and monetary related magazines.

3.7 LIMITATIONS OF THE STUDY

It requires greater investment and needs more expenses. This examination requires more opportunity to do.

- The examination depends on auxiliary information as it were.
- Stock quality examination isn't tantamount.
- Analysis depends on people who are just in interior reports.
- Analysis dependent on four years' report from the Finance Department, which has its very own farthest point.
- Working Environment does not enable a lot to be gathered.
- For the present investigation, two systems are utilized for stock examination because of time limitations

- Current investigation symbolism and goals are not material to different gatherings in ABB India Limited

CHAPTER 4

ANALYSIS AND INTERPRETATION

TURN OVER RATIOS

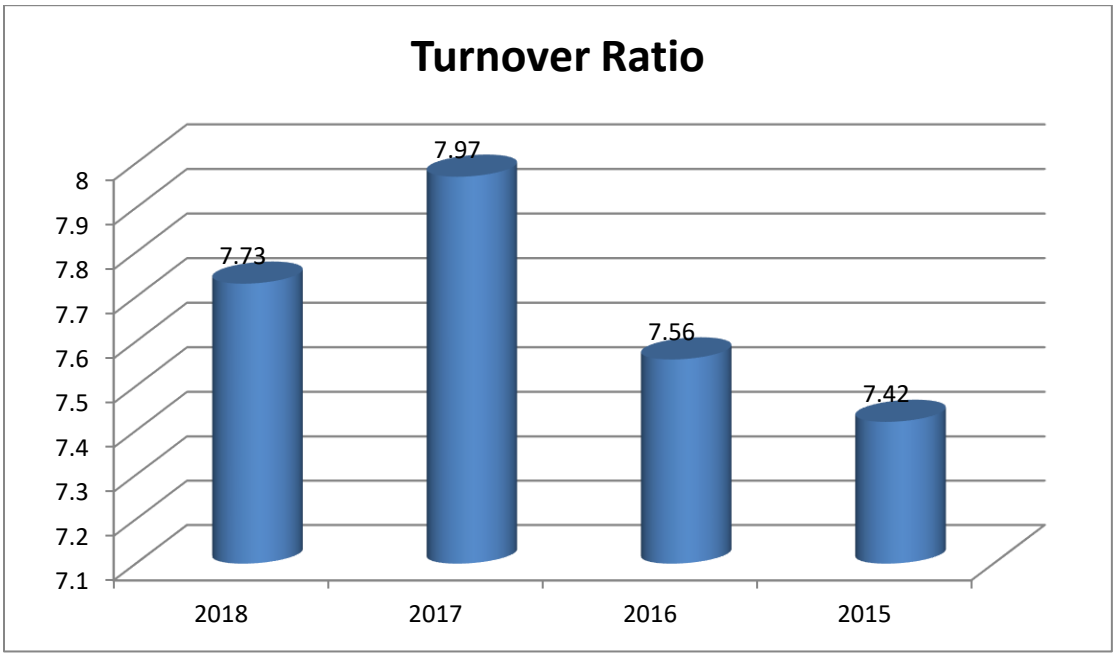
INVENTORY TURNOVER:

Table 4.1 showing data for the inventory turnover 2015-2018

Inventory Turnover Ratio = Cost of goods sold / Average Inventory

Period	Net Sales	Average Inventory	Turnover Ratio
2015	3918558196	506460567	7.73
2016	5958016404	746837818	7.97
2017	10833256904	1432524560	7.56
2018	13177230047	1775802189	7.42

Graph 4.1 showing for the inventory turnover ratio.



INTERPRETATION:

The above table shows that the Inventory Turnover Ratio. It was small changes B/W year to year 7.73 in the year 2015, 7.97 in the year 2016, 7056 in the year 2017& 7.42 in the year 2018. So It sales was increased in value but not increase in overall Ratio.

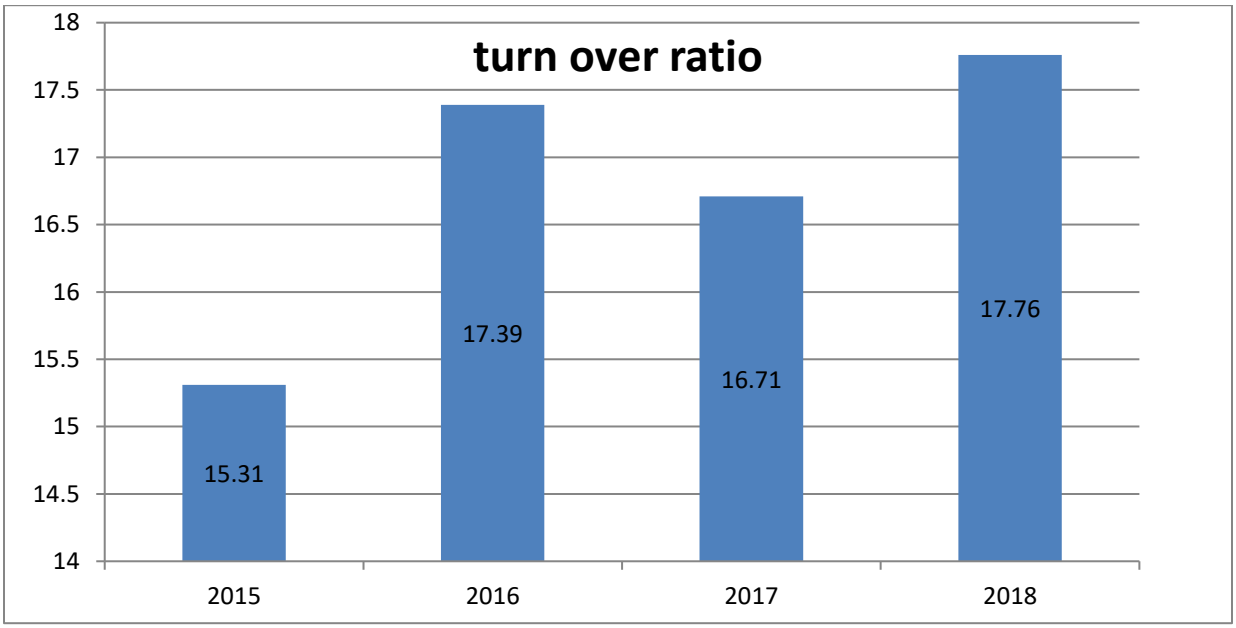
Raw material Turnover Ratio:

Table 4.2 showing data for the raw materials form 2015-2018

Period	Raw material consumed	Average Raw material	Turn over Ratio
2015	2232086848	145788351	15.31
2016	3937812454	226333146	17.39
2017	7794794675	466270075	16.71
2018	8453055263	475934324	17.76

Raw material Turnover Ratio = Raw material consumed / Average Raw material

Graph 4.2 showing for the raw materials turnover ratio



INTERPRETATION:

The above table shows that the Raw material Turnover Ratio. It was 15.31 items in 2015, 17.39 items in 2016, 16.71 in 2017. In the year 2018, The Ratio was more than the norm on that sales also increased.

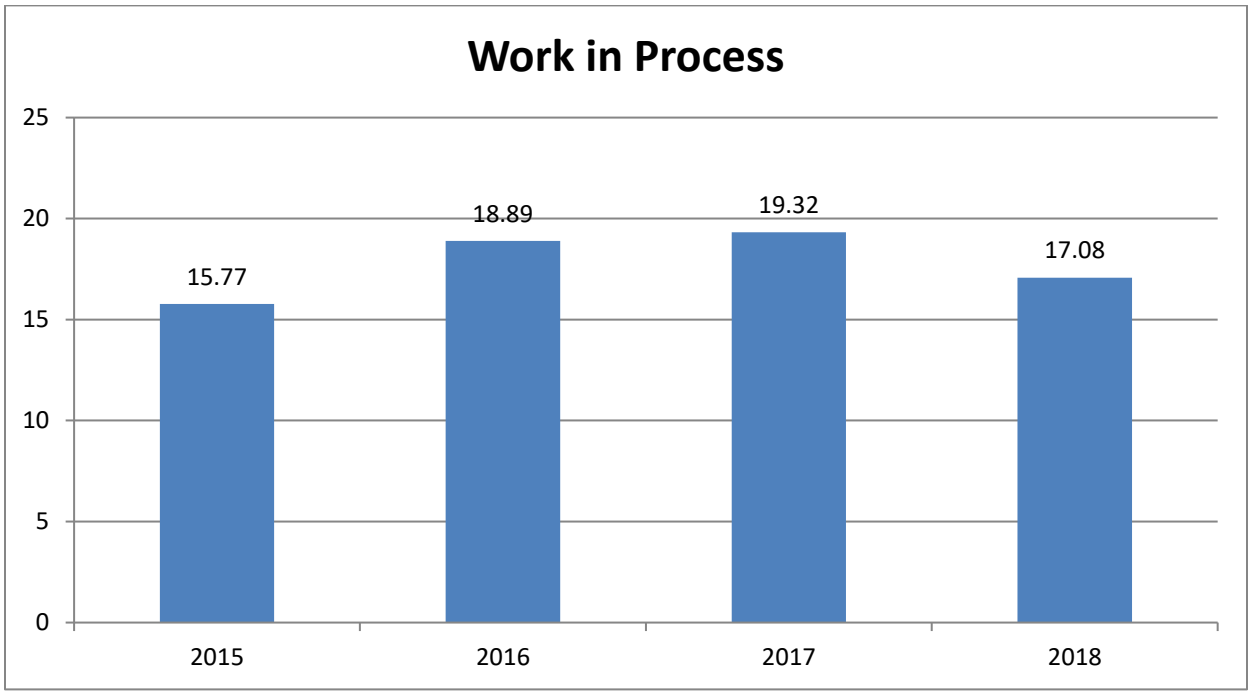
Work- In-Process Turnover Ratio :

Table 4.3 showing data for the work in process turnover ratio from 2015-2018

work in process turnover ratio = Cost of production / Average work in process

Period	Cost of production	Average work in process	Turn over ratio
2015	2803302510	177728384	15.77
2016	4780617871	253103985	18.89
2017	9236956058	478121242	19.32
2018	9928113854	581208251	17.08

Graph 4.3 showing for the work in process turnover ratio



INTERPRETATION :

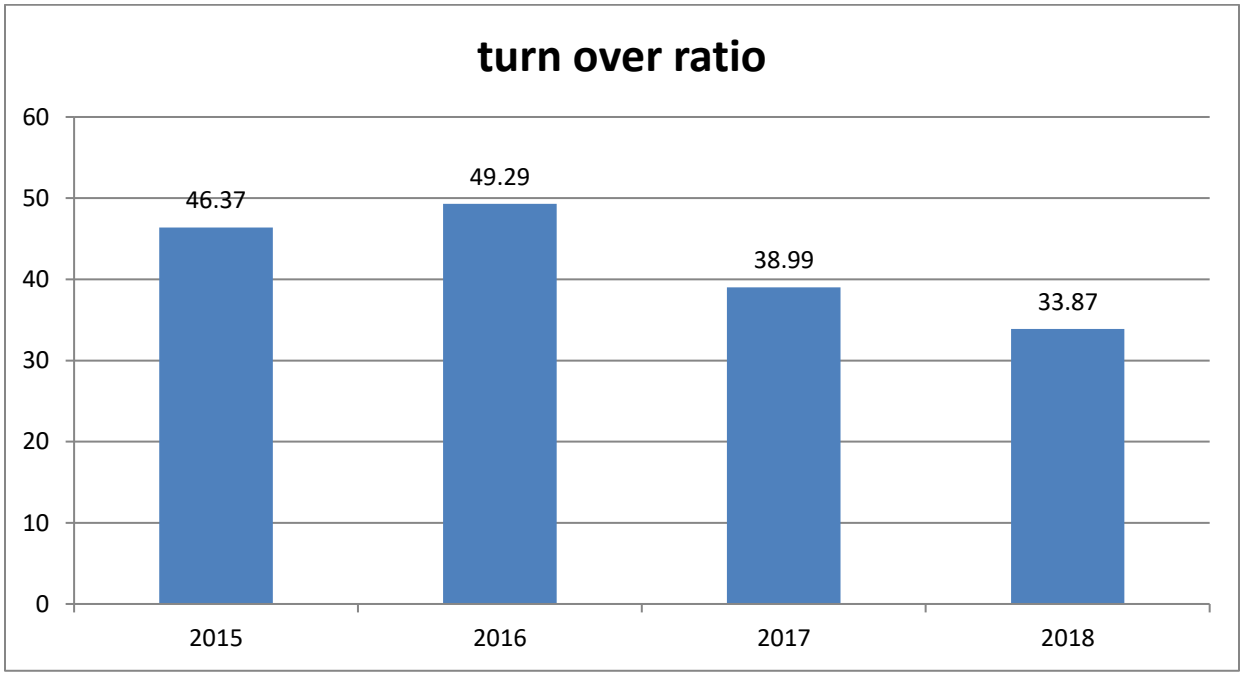
The above table shows that the Work-in-progress Turnover Ratio. It was 15.77 in the year 2015, 18.89 in the year 2016, 19.32 in the year 2017& 17.08 items in the year 2018. The Work-in-progress in the year 2018

Table 4.4 showing data for Finished Goods Turnover Ratio :

$$\text{Finished Goods Turn Over Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Finished Goods}}$$

Period	Cost of Goods sold	Average Finished Goods	Turnover Ratio
2015	3918558196	84493680	46.37
2016	5958016404	120859398	49.29
2017	10833256904	277797726	38.99
2018	13177230047	389043563	33.87

Graph 4.4 showing for the finishid goods turnover ratio.



INTERPRETATION:

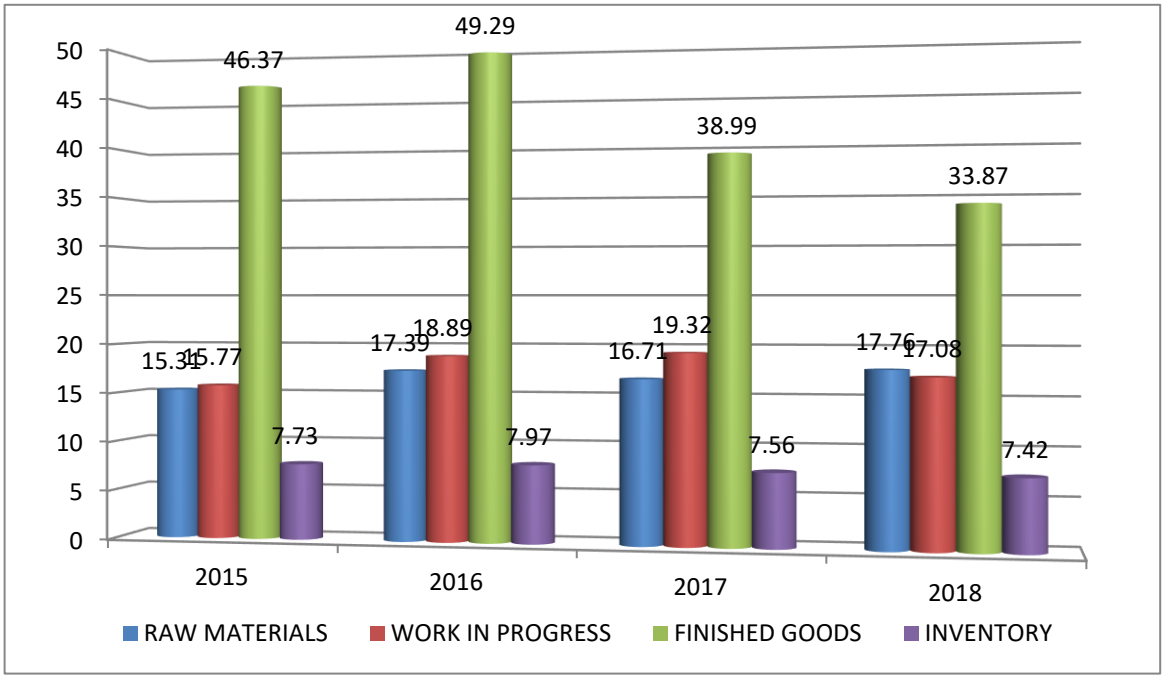
The above table shows that the Finished Goods Turnover Ratio. It was 46.37 in the year 2015, 49.29 in the year 2016, 38.99 in the year 2017 & 33.87 in the year 2018 . It indicates the Finished Goods is decrease year to year . From 2017 to 2018.

Comparison of Turnover Ratio:

Table 4.5 showing data comparison of turnover ratios from 2015-2018

Turnover ratio	2015	2016	2017	2018
Raw materials	15.31	17.39	16.71	17.76
Work in process	15.77	18.89	19.32	17.08
Finished goods	46.37	49.29	38.99	33.87
Inventory	7.73	7.97	7.56	7.42

Graph 4.5 showing for comparison of turnover ratio 2015-2018



HOLDING DS PERIODS

Inventory Holding Period :

No of days in a year

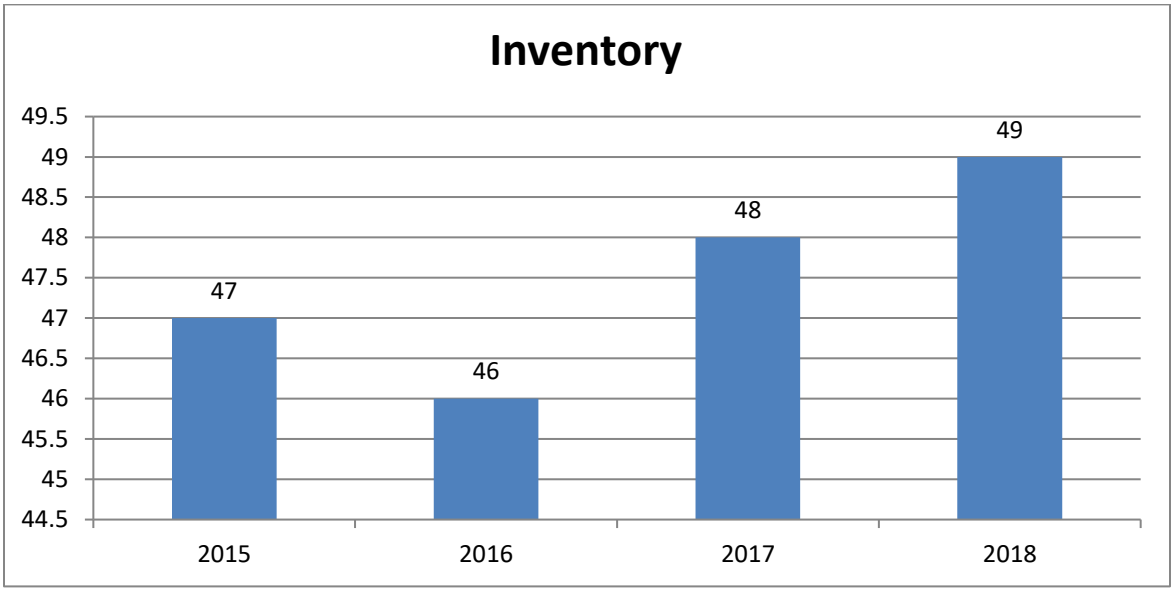
Inventory holding period = ----------

Inventory turnover ratio

Table 4.6 showing data for the inventory holding period from 2015-2018

Period	No of Days	Inventory Turnover Ratio	Holding Period
2015	365	7.73	47
2016	365	7.97	46
2017	365	7.56	48
2018	365	7.42	49

Graph 4.6 showing for the inventory holding period



INTERPRETATION:

The above table shows that the Inventory Holding period. It was 47 in the year 2015, 46 in the year 2016, 48 in the year 2017& 49 in the year 2018. The holding period is low in the year 2016. It was benefit to the company.

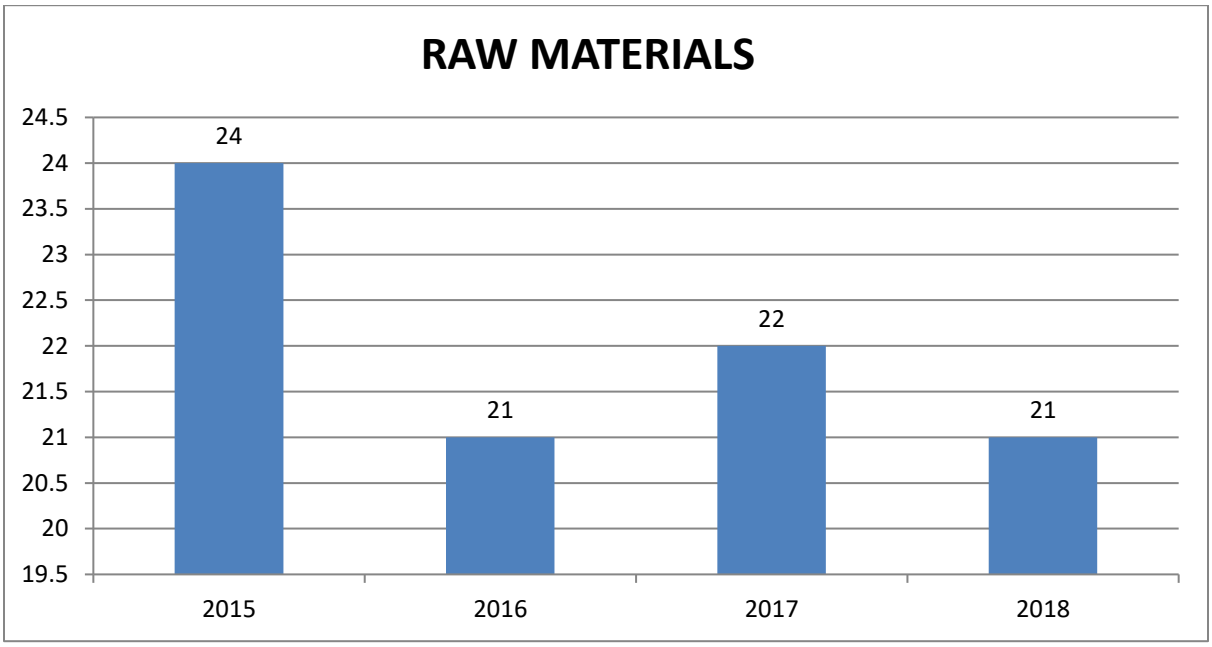
Raw Materials Holding Period :

$$\text{Raw Materials Holding Period} = \frac{\text{No. of Days}}{\text{Raw Material Turnover Ratio}}$$

Table 4.7 showing data for the raw material holding period for 2015-2018

Period	No of Days	Raw Material Turnover Ratio	Holding Period
2015	365	15.31	24
2016	365	17039	21
2017	365	16.71	22
2018	365	17.76	21

Graph 4.7 showing for the raw material holding period



INTERPRETATION:

The above table shows that the Rawmaterial Holding periad. It was 24 days in 2015, 21 days in 2016, 22 days in 2017& 21 days in 2018. So in the year 2016& 2018 Rawmeterial Holding periad is low, it was beneficial to the company.

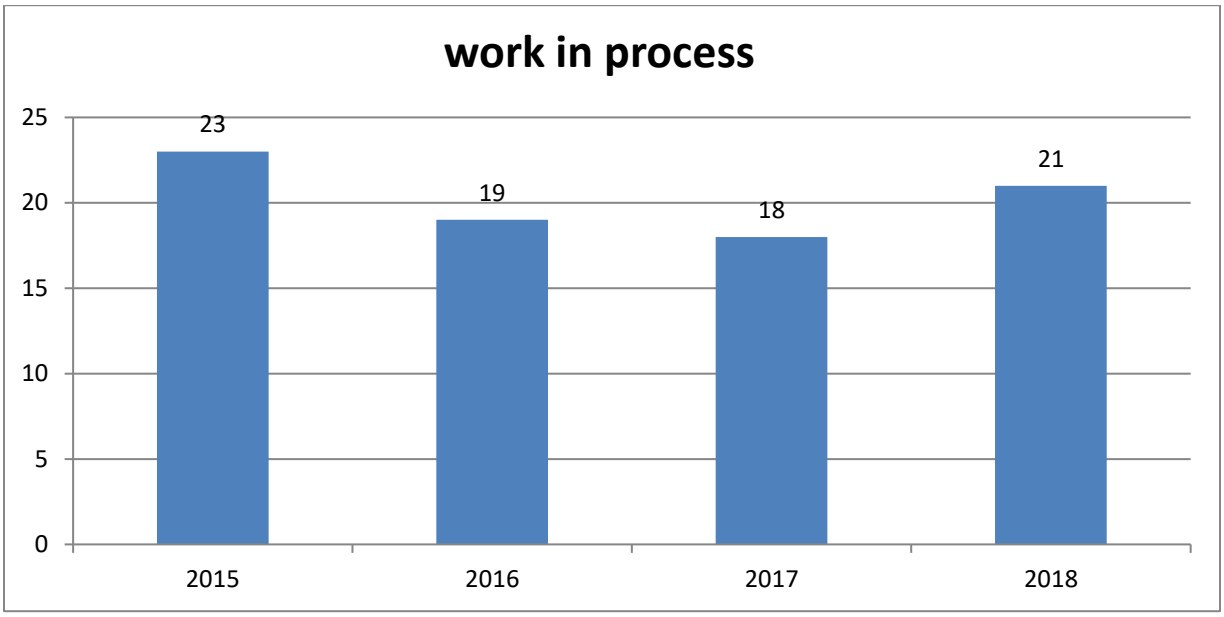
Work In Process Holding Period :

$$\text{Raw materials holding period} = \frac{\text{No of days in a year}}{\text{Work in process turnover ratio}}$$

Table 4.8 showing data for the work in process holding period from 2015-2018

Period	No of Days	Work in Process Turnover Ratio	Holding Period
2015	365	15.77	23
2016	365	18.89	19
2017	365	19.32	18
2018	365	17.08	21

Graph 4.8 showing for the work in process holding period



INTERPRETATION:

The above table shows that the Work-in-progress Holding periad. It was 23 days in 2015, 19 days in 2016, 18 days in 2017& 21 days in 2018. So the Holding perid is very less in the year 2017, 18 days it was benefit to the company.

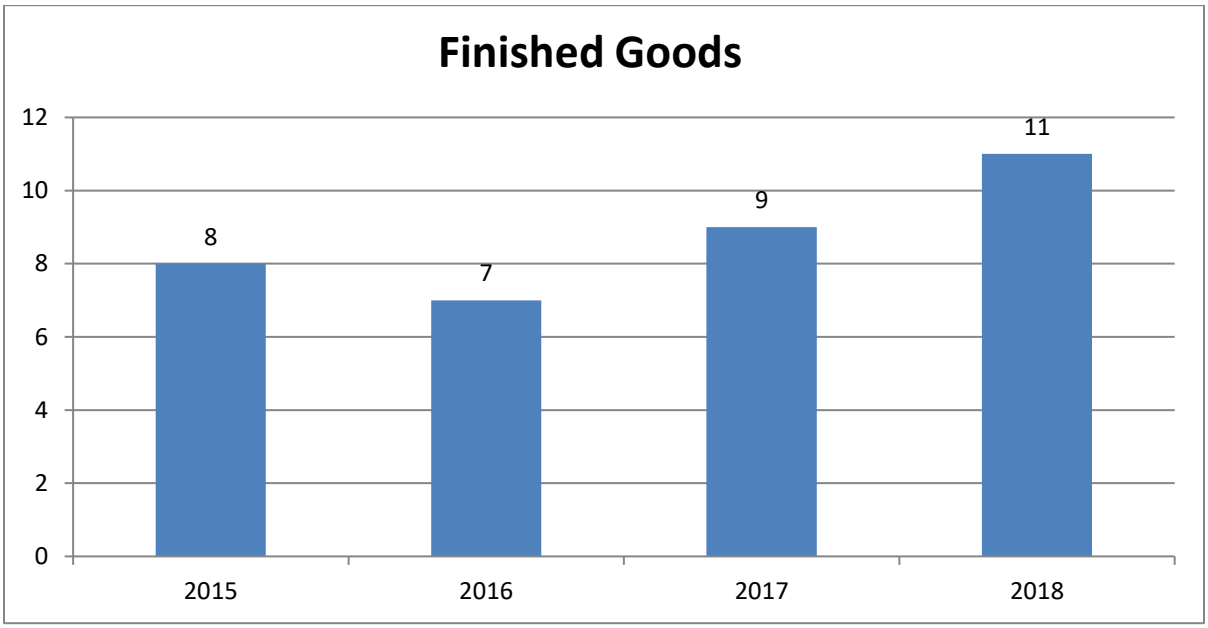
Finished Goods Holding Period :

$$\text{Finished goods holding period} = \frac{\text{No of days in a year}}{\text{Finished goods Turnover Ratio}}$$

Table 4.9 showing data for the finished goods holding period form 2015-2018

Period	No. of days	Finished Goods Turnover Ratio	Holding Period
2015	365	46.37	8
2016	365	49.29	7
2017	365	38.99	9
2018	365	33.87	11

Graph 4.9 showing data for the finished goods holding period



INTERPRETATION:

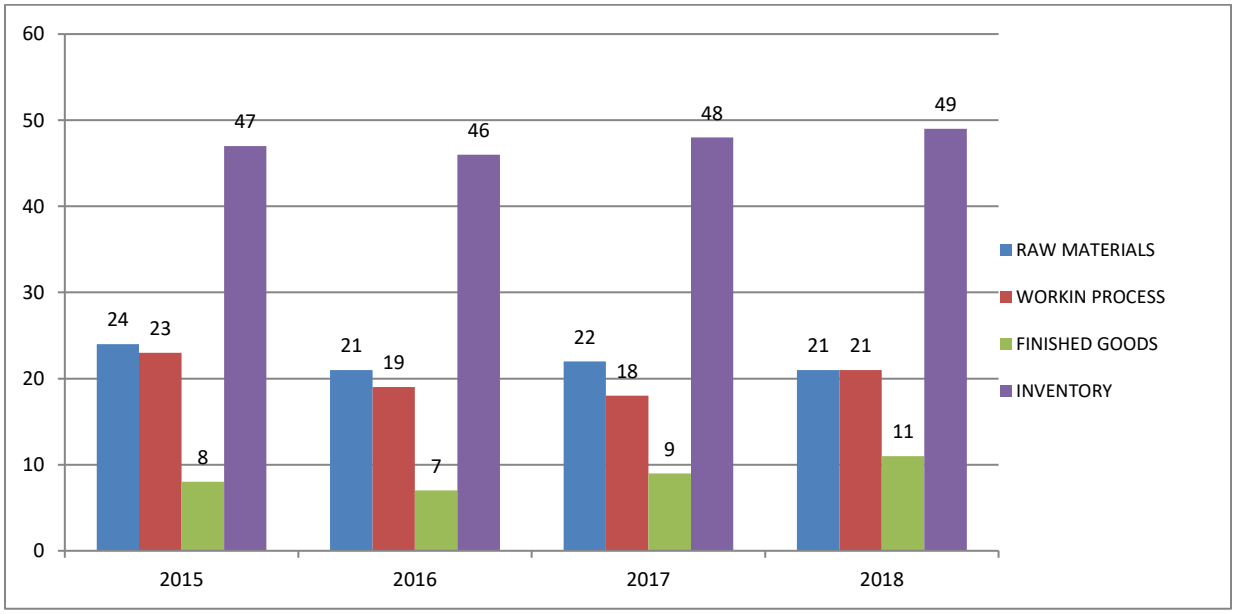
The above table shows that the Finished goods Holding period. It was 8 days in the year 2015, 7 days in the year 2016, 9 days in the year 2017& 11 days in the year 2018. So the year 2015, holding period is low & turnover is high so company again maintains that level that is benefit to the company.

Comparison of Inventory Holding Period:

Table 4.10 showing comparison data for the inventory holding period from 2015-2018

Inventory	2015	2016	2017	2018
Raw Materials	24	21	22	21
Work In Process	23	19	18	21
Finished Goods	08	-07	09	11
Inventory	47	46	48	49

Graph 4.10 showing for all the inventory holding periods



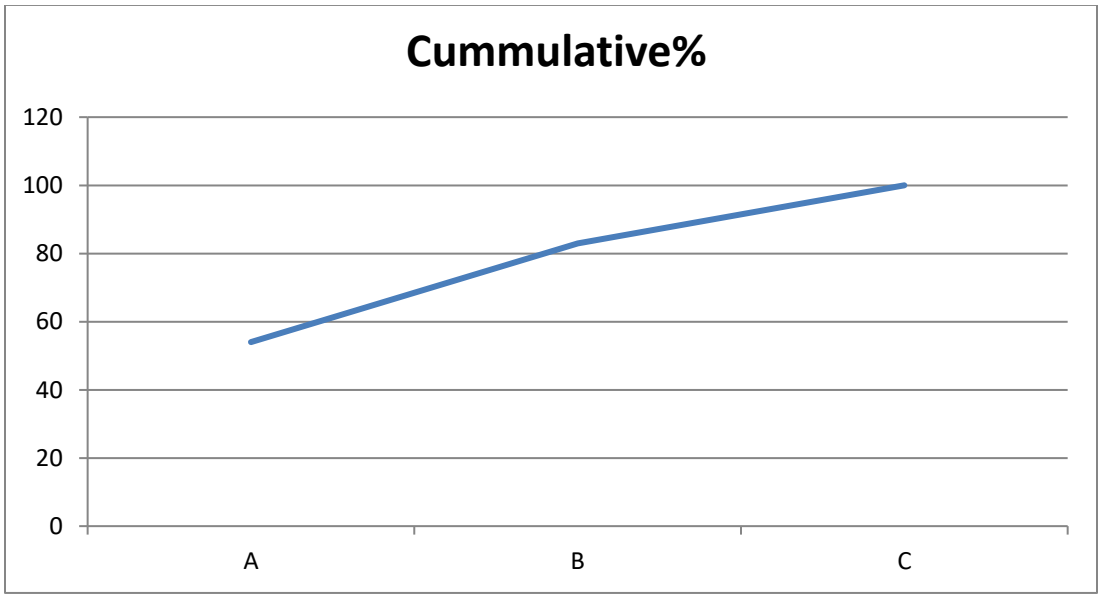
ABC CLASSIFICATION

ABC Analysis for 2015

Table 4.11 showing data for the abc analysis for 2015

CLASS	VALUE	% OF VALUE	CUMMULATIVE%	ITEMS
A	16803152	54	54	102
B	8785515	29	83	151
C	5276050	17	100	327
	30864717			

Graph 4.11 showing data for abc analysis for 2015



INTERPRETATION:

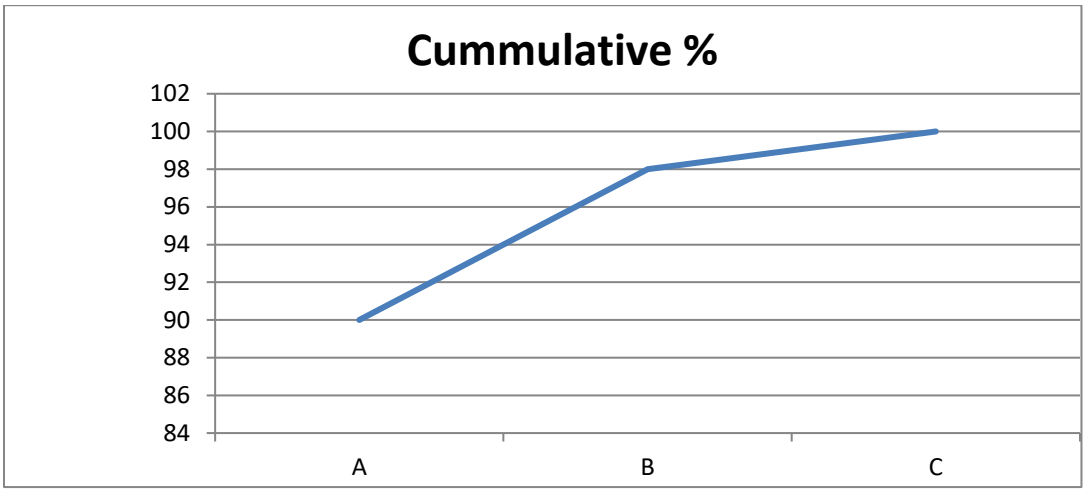
In the year **2015**there are 102 items which constitutes their value of 54% in the total value which comes under "A" category.151 items which constitutes 29% in the total value which comes under "B" category and 327 items which constitutes 17% in the total value which comes under "C" category.

ABC Analysis for 2016

Table 4.12 showing Data ABC analysis for 2016

Class	Value	% Of value	Cumulative %	Items
A	67963606	90	90	90
B	6330760	8	98	124
C	1538254	2	100	385
	75832620			

Graph 4.12 showing ABC analysis for 2016



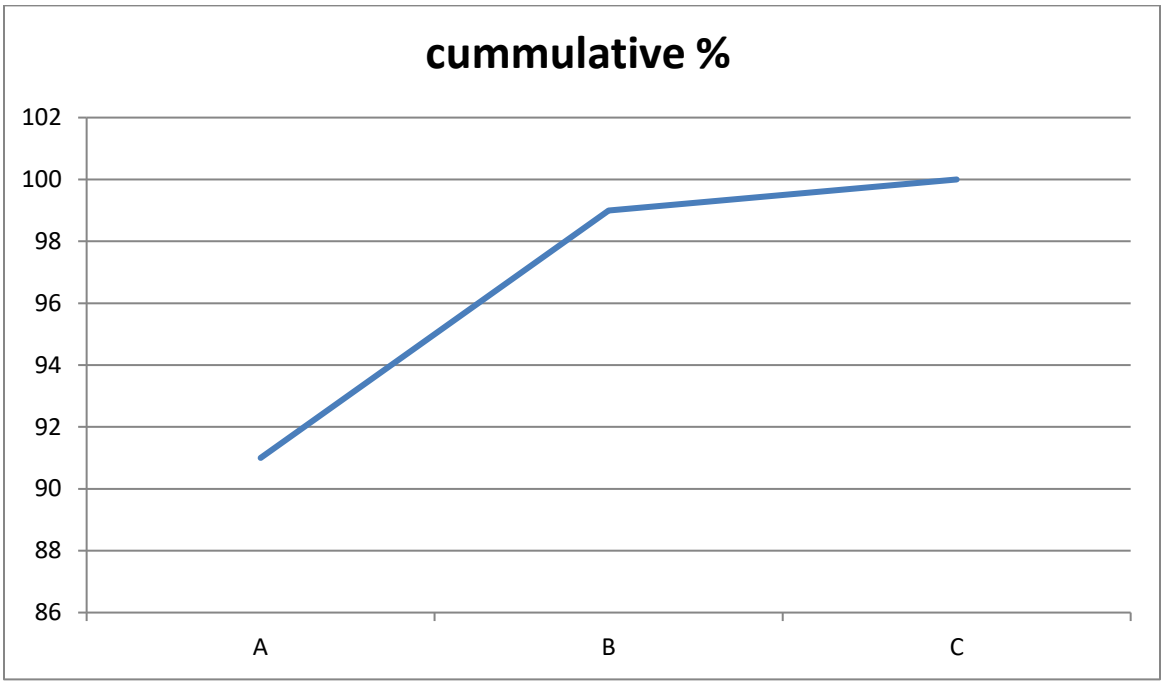
INTERPRETATION:

In the year **2016**there are 69 items which constitutes their value of 90% in the total value which comes under "A" category.124 items which constitutes 8% in the total value which comes under "B" category and 385 items which constitutes 2% in the total value which comes under "C" category.

Table 4.13 showing data for ABC Analysis for 2017

Class	Value	% of value	Cumulative %	Items
A	73880742	91	91	92
B	6858300	8	99	176
C	862667	1	100	310
	81601709			

Graph 4.13 showing for the abc analysis for the 2017



INTERPRETATION:

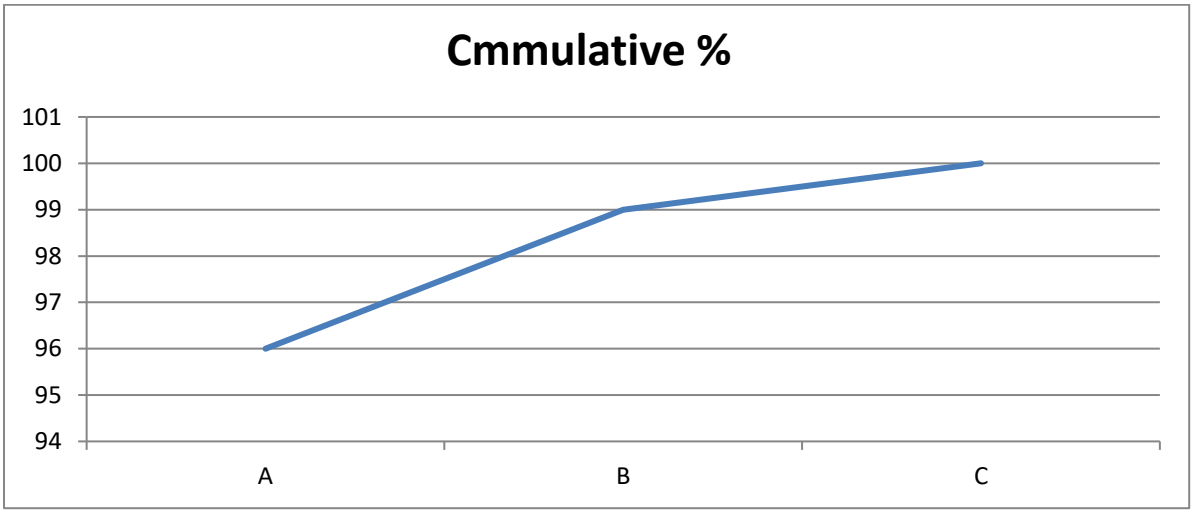
In the year **2017**there are 92 items which constitutes their value of 91% in the total value which comes under "A" category. 176 items which constitutes 8% in the total value which comes under "C" category.

ABC Analysis for 2018

Table 4.14 showing data for the abc analysis for 2017

Class	Value	% of value	Cumulative %	Items
A	375515268	96	96	10
B	12049495	3	99	36
C	3935710	1	100	532
	391500473			

Graph 4.14 showing for the abc analaysis for 2018



INTERPRETATION:

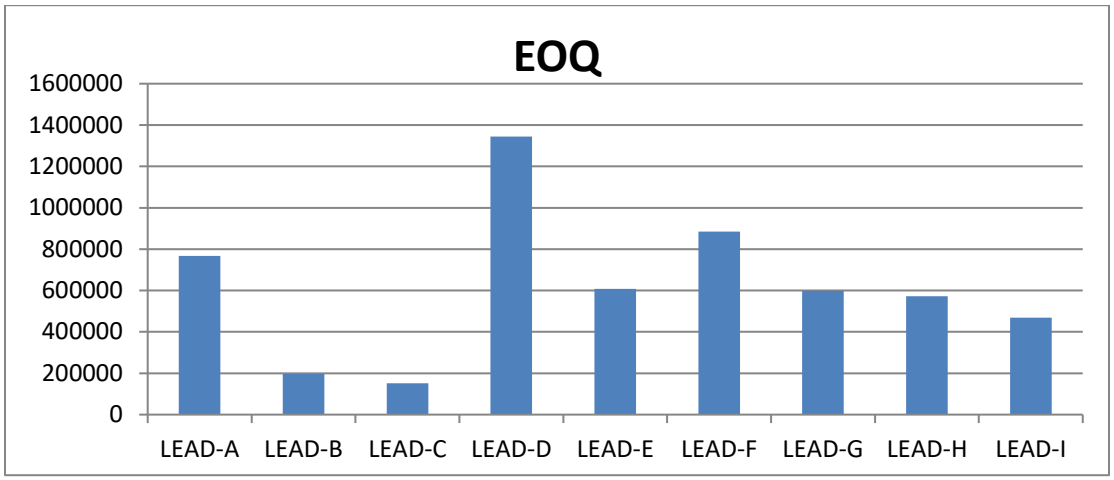
In the year **2018**there are 10 items which constitutes their value of 96% in the total value which comes under “A” category. 36 items which constitutes 3% in the total value which comes under “B” category and 532 items which constitutes 1% in the total value which comes under “C” category.

ECONOMIC ORDER QUANTITYS

Table 4.15 showing data for the EOQ for 2015

Description	Annual consumption	Total ordering cost	Carrying cost	EOQ
LEAD-A	132827193.20	7396	3.339561035	767007
LEAD-B	10667526.61	540	0.300133651	195923
LEAD-C	5238997.96	289	0.131719665	151622
LEAD-D	362802426.40	22155	8.904450803	1343638
LEAD-E	82222161.09	5302	2.362562052	607488
LEAD-F	151503021.70	10305	3.990497753	884577
LEAD-G	90219604.18	5261	2.646367148	598927
LEAD-H	75688159.84	4210	1.948271607	571933
LEAD-I	51622360.50	2762	1.297897061	468733

Graph 4.15 showing for the EOQ for 2015



INTERPRETATION:

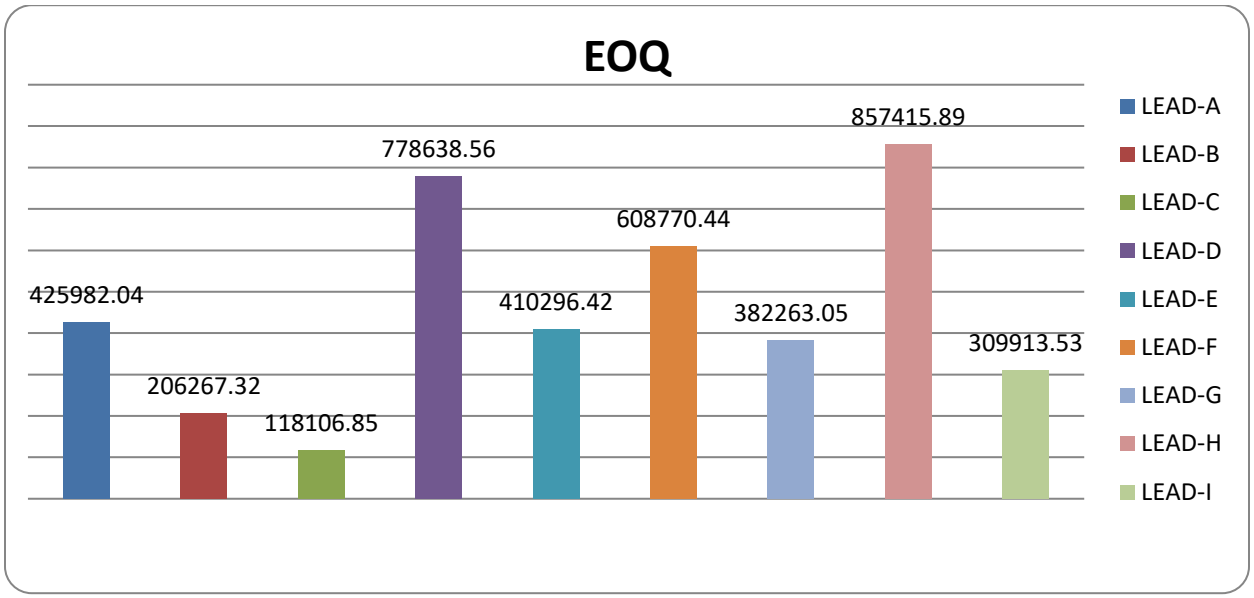
The above data indicates the item wise economic order quantity. In the year **2015** indigenous items like Lead-A and Lead-C are increased based on the company orders and the EOQ respectively. To note that the quantity any how per order will be influenced by minimum shipment quantity transportation cost and supplier capability.

Economic Order Quantities

Table 4.16 showing data for the EOQ for 2016

Description	Annual consumption	Total ordering cost	Carrying cost	EOQ
LEAD-A	197502159.60	7624	15.81230149	425982.04
LEAD-B	23815321.44	923	1.033302007	206267.32
LEAD-C	8056951.10	281	0.324606244	118106.85
LEAD-D	371790043.10	11900	14.59495924	778638.56
LEAD-E	91534338.84	3739	4.066062402	410296.42
LEAD-F	166562629.34	7657	6.882704027	608770.44
LEAD-G	99352279.40	3321	4.515980384	382263.05
LEAD-H	79324194.96	14050	3.031998152	857415.89
LEAD-I	52048334.70	1910	2.070089408	309913.53

Graph 4.16 showing for the EOQ for 2016



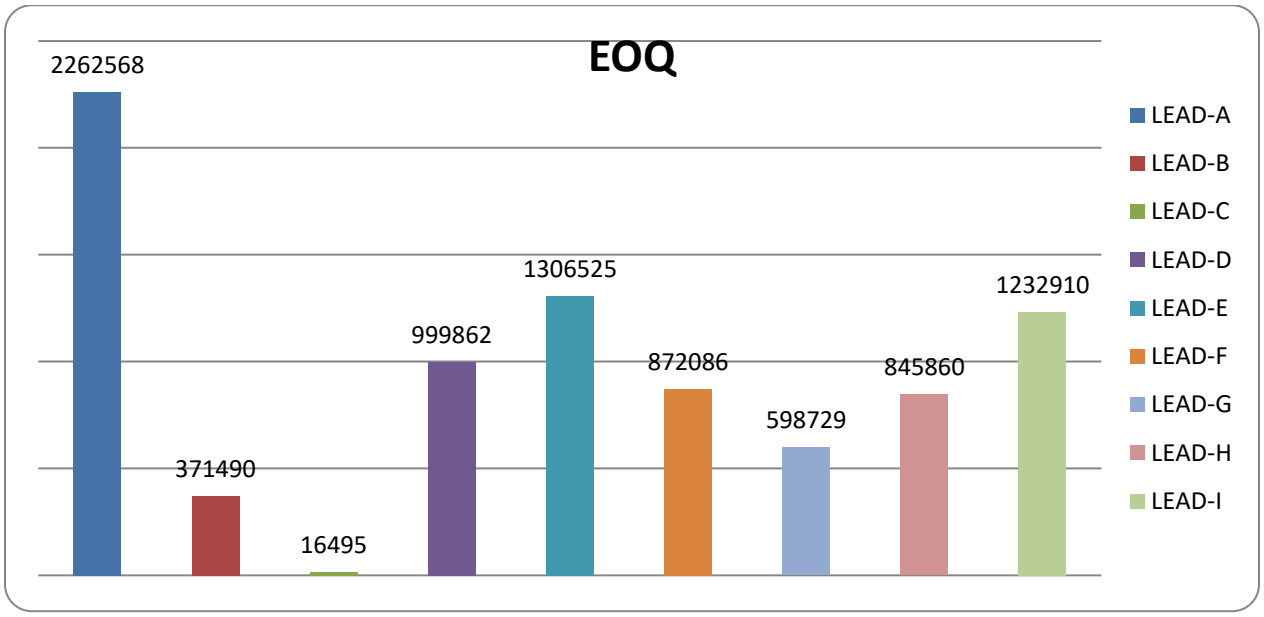
INTERPRETATION:

The above table indicates the item wise economic order quantity.In the year 2016 indigenous items like Lead-A, Lead-D and imported items like Lead-F, Lead-H increased as compared to the year 2015 respectively. To note that the quantity anyhow per order will be influenced by minimum shipment transportation cost and supplier capability.

Table 4.17 showing data for the EOQ for 2017

Description	Annual consumption	Total ordering cost	Carrying cost	EOQ
LEAD-A	759398976	2770	0.821819293	2262568
LEAD-B	12287610	758	0.134980812	371490
LEAD-C	10145470	146	10.88744244	16495
LEAD-D	148666539	415	0.123427151	999862
LEAD-E	248082560	820	0.238343931	1306525
LEAD-F	122637708	355	0.114488865	872086
LEAD-G	77201388	180	0.077529479	598729
LEAD-H	36142807	321	0.032430905	845860
LEAD-I	128348532	693	0.117028297	1232910

Graph 4.17 showing for the EOQ for 2017



INTERPRETATION:

The above table indicates the item wise economic order quantity. In the year 2017 indigenous items like Lead-A , Lead-D and imported items like Lead-F , Lead-H decreased as compared to the year 2016 respectively. To note that the quantity anyhow per order will be influenced by minimum shipment quantity transportation cost and supplier capability.

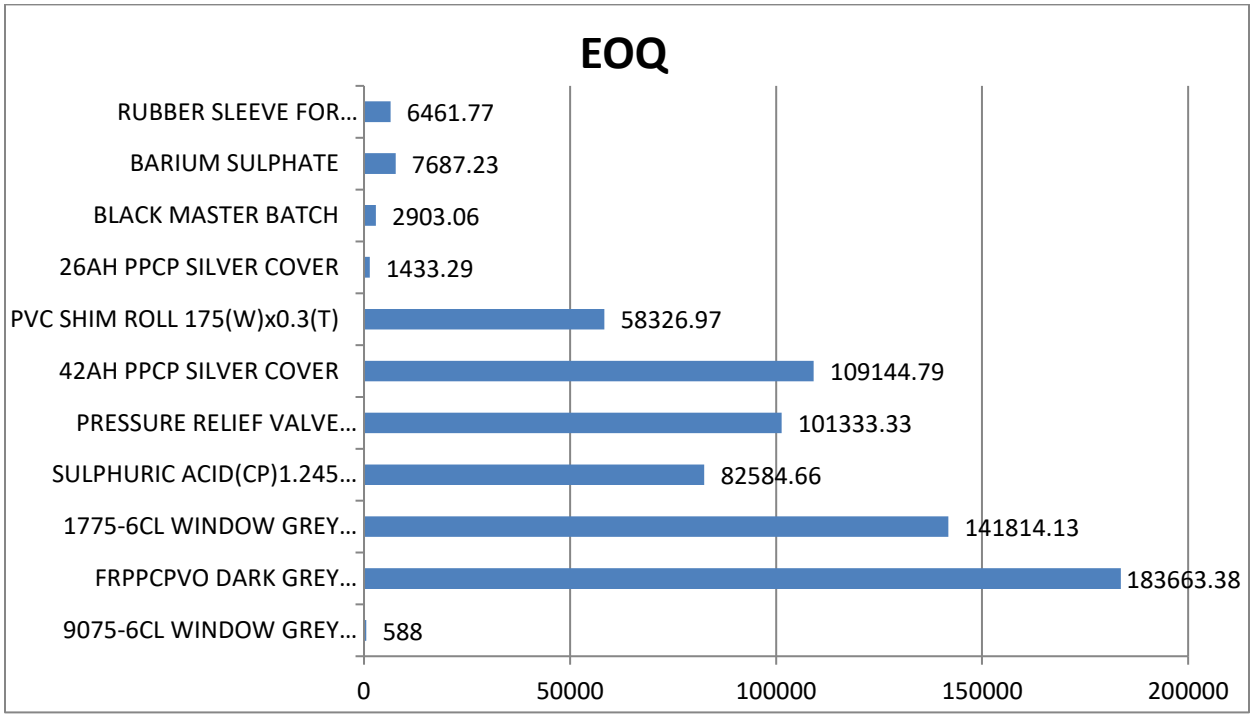
Economic Order Quantities

Table 4.18 showing data for the EOQ analysis for the 2015

Description	Annual consumption	Total ordering cost	Carrying cost	EOQ
9075-6cl window grey troy	76216,320	26800	11.78	588889.4
Frppcpvo dark grey colour	75391,463	22000	10.012	575608.24
1775-6cl window grey tray	19118,160	26800	12.65	284616.57
pressure relief valve vent seal (ps)	11267,376	20200	9.56	218209.26
Sulphuric acid (cp)1.245 @27 deg.c	10889,934	28600	6.5	309566.5
26ah ppcp silver cover	9767,363	10600	1.08	138468.39
42ah ppcp silver cover	7627955	10600	2.78	241184.61

Rubber sleeve for 20*2mm connector	5646620	9520	3.56	173781.18
Black master batch	3169636	22600	10.45	117088.91
Barium sulphate	2291535	16000	4.56	126810.67
Pvc shim roll 175(w) x0.3(t)	2161964	19600	2.2	196270.9

Graph 4.18 showing for the EOQ analysis for 2015



INTERPRETATION:

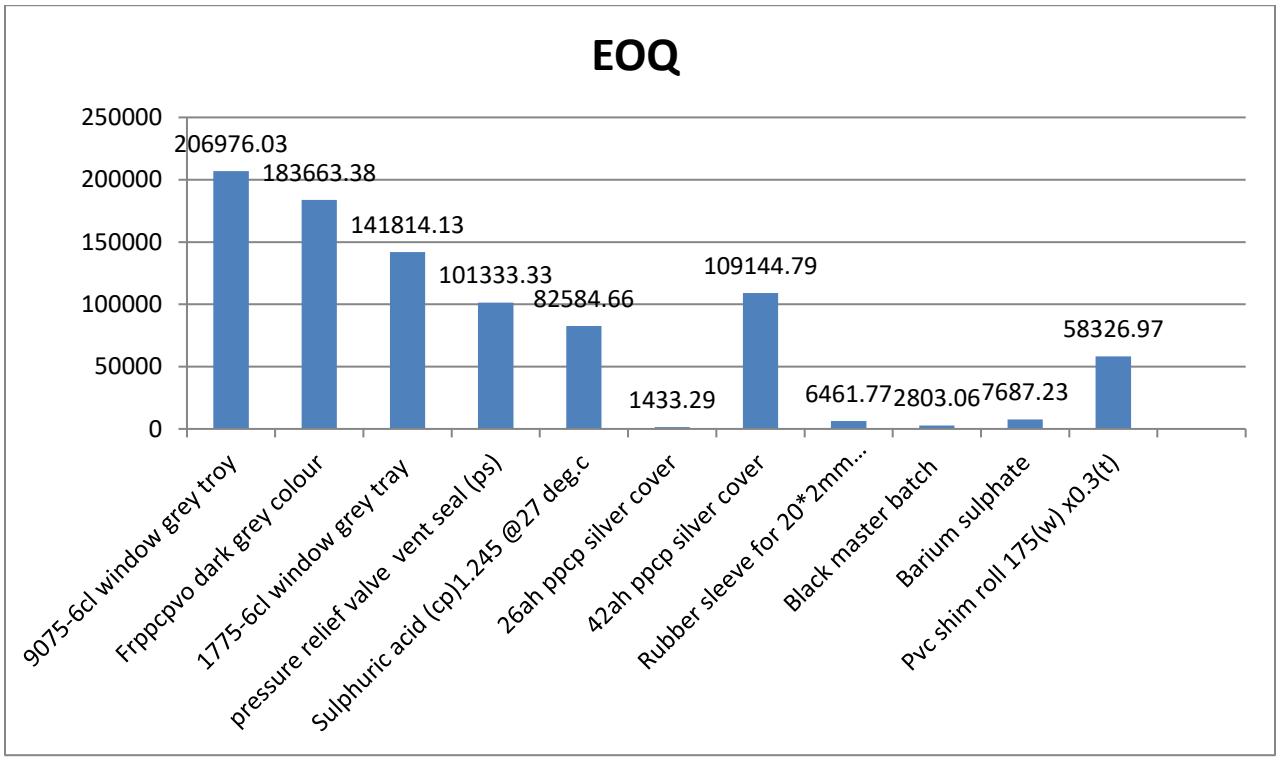
Inventory turn over ratio was 8% in the year **2015**and it was continuously increased to 14% in the year 2018 where inventory turnover ratio was increasing year to year subsequently sales are also increased. In the year 2017 graph you can see that window grey tray,sulphuric acid, were used in a lot as compared to 2015 the window grey tray was as same.

Table 4.19 showing data for the EOQ analysis for 2016

Description	Annual consumption	Total ordering cost	Carrying cost	Eoq
9075-6cl window grey troy	10531424.00	24000	11.78	206976.03
Frppcpvo dark grey colour	8441492.87	20000	10.01	183663.38
1775-6cl window grey tray	5628480.00	22600	12.65	141814.13
pressure relief valve vent seal (ps)	1313875.91	25400	6.50	101333.33
Sulphuric acid (cp)1.245 @27 deg.c	1646499.10	19800	9.56	82584.66

26ah ppcp silver cover	478	7650	3.56	1433.29
42ah ppcp silver cover	699216.96	9200	1.08	109144.79
Rubber sleeve for 20*2mm connector	3062.00	15000	2.20	6461.77
Black master batch	2042.47	20100	10.45	2803.06
Barium sulphate	10364.11	13000	4.56	7687.23
Pvc shim roll 175(w) x0.3(t)	562956.30	8400	2.78	58326.97

Graph 4.19 showing for the EOQ analysis for 2016



INTERPRETATION:

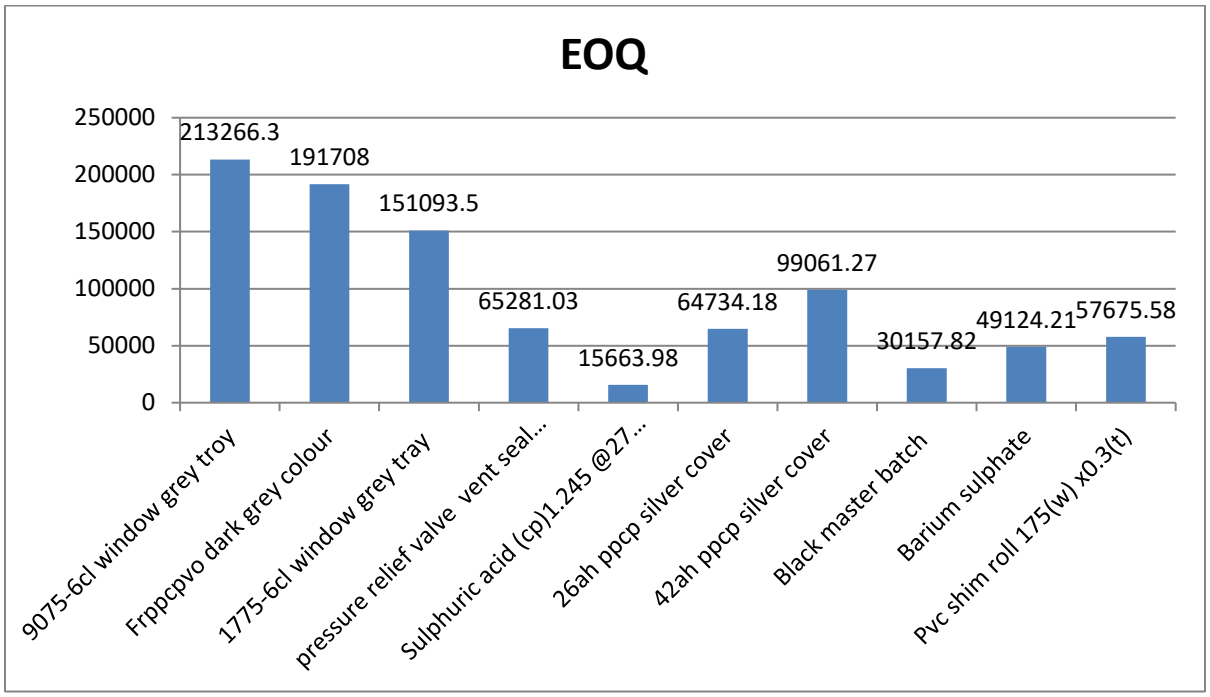
In the year **2016** graph you can see that window grey tray, sulphuric acid, were used in a lot as compared to 2015 the window gray tray was as same.

Table 4.20 showing data for the EOQ analysis for the 2017

Description	Annual consumption	Total ordering cost	Carrying cost	Eoq
9075-6cl window grey troy	10715683.29	25000.00	11.78	213266.3
Frppcpvo dark grey colour	10219086.68	18000	10.01	191708
1775-6cl window grey tray	6811081.47	21200.00	12.65	151093.5
pressure relief valve vent seal (ps)	1131695.10	18000.00	9.56	65281.03
Sulphuric acid (cp)1.245 @27 deg.c	37294.77	15000.00	4.56	15663.98
26ah ppcp silver cover	636410.18	21400.00	6.50	64734.18
42ah ppcp silver cover	623422.81	8500.00	1.08	99061.27

Black master batch	250111.23	19000.00	10.45	30157.82
Barium sulphate	505350.78	8500.00	3.56	49124.21
Pvc shim roll 175(w) x0.3(t)	616506.38	7500.00	2.78	57675.58

Graph 4.20 showing for the EOQ analysis for the 2017



INTERPRETATION:

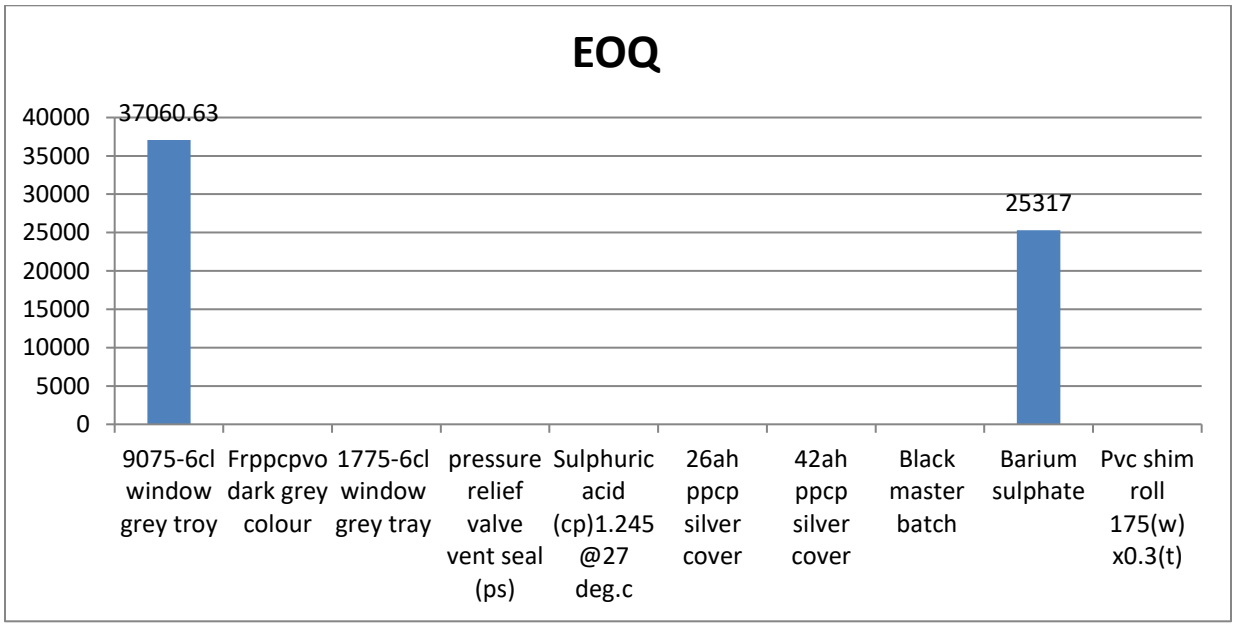
In the year **2017** graph you can see that window gray tray, sulphuric acid, were same in a lot as compared to 2016 the window gray tray was as same.

Table 4.21 showing data for the EOQ analysis for the 2018

Description	Annual consumption	Total ordering cost	Carrying cost	Eoq
9075-6cl window grey troy	577847	14000	11.78	37060.63
Frppcpvo dark grey colour	-	-	-	-
1775-6cl window grey tray	(0)	-	-	-
pressure relief valve vent seal (ps)	-	-	-	-
Sulphuric acid (cp)1.245 @27 deg.c	-	-	-	-
26ah ppcp silver cover	-	-	-	-
42ah ppcp silver cover	-	-	-	-

Black master batch	-	-	-	-
Barium sulphate	358438	8950	10.01	25317
Pvc shim roll 175(w) x0.3(t)	-	-	-	-

Graph 4.21 Showing for the EOQ analysis for 2018



INTERPRETATION:

When comparing to the year 2017 we can easily find out that the windows tray, barium sulphate material were ordered a lot in all the years where they completely depend upon imports from out.

CHAPTER 5

FINDINGS SUGGESTIONS AND CONCLUSION

Findings:

• Inventory turnover ratio increased by 7.73 times in 2015, decrease in 2017 in 2017 in 2017, decrease in sales in 2019, but decrease in turnover.

• Raw Material Turnover Ratio is 15.31 times in 2015, 17.39 times in 2016, 16.76 in 2017, 17.76 in 2018. This ratio was high in the year 2017 and sales increased during that year.

In 2015 the processing turnover ratio was 15.77 times in 2015, 18.89 in 2016, 19.32 times in 2018 and 17.08 times in 2018. This ratio decreased in comparison to the previous year in 2018.

• The finished goods turnover ratio is 46.37 times in 2015, 49.29 times in 2016, 38.99 times in 2018 and 33.87 times in 2018. The ratio decreased but the sales of the company increased.

• Inventory Holding Period is a transition period of 47 days, 46 days, 48 days and 49 days from 2015 to 2018, with variations from year to year. The conversion period is low, so it indicates that the payments of the supplier are faster.

• A, B & C analysis under ABC Analysis shows two methods based on the percentage of total items and the 'A' items are low but the value of the consumption is high.

• The 'B' and 'C' class items of 2015 will increase by 2018, where the value is higher.

• Finally a 'class' factor decreases as compared to 2015.

As an order of collecting orders is not subject to the requirement of the received commands, an important part of the inventory takes place as it moves.

• When ordering customer orders, the company does not follow the correct policy order.

SUGGESTIONS

The inventory turnover ratio indicates whether inventory investment is the right limit or not. Quickly measures inventory sales. It is necessary to maintain a turnover ratio greater than the lower ratio. A good ratio indicates a good inventory system and reflects effective business activities.

• The company must improve its inventory holdings over all years impacting the company's sales.

• According to EOQ, the company must comply with the financial size of the company for adjustable purchases on a regular order on its EOQ basis. This will reduce the profitability.

Evaluation of 70% of A-Items to concentrate on these values under ABC Analysis.

• The Company should try to "get the right time to the right place at the right time".

• Company must place inventory items according to risk and opportunity.

• The company must distinguish between affected items, critical items (higher risk, greater allowance).

CONCLUSION

The company will reduce the order cost by following the correct inventory management technique. Just-in-time (JIT) means that it intends to reduce costs, continuous improvement philosophy, quality improvement, performance improvement, delivery improvement, flexibility enhancement, increase innovation, adding and removing activities (or waste).

JIT is not about automation. It eliminates garbage, but helps maintain inventory by providing an environment that can process and simplify the processes. A collection of techniques used to improve operations. May be a new manufacturing system used to produce goods and services. When successful implementation of JIT principles, significant competitive benefits are achieved, JIT principles can be applied to all parts of the organization: action, purchase, operations, distribution, sales, accounting, design etc.

JIT generally identifies seven major types of elimination: waiting / waste time waste, transport waste, inventory waste, processing waste, motion waste, waste of products, waste of products

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ANNEXURE

Balance Sheet Comparison

	2018	2017	2016	2015	2014
EQUITIES AND LIABILITIES					
SHAREHOLDER'S FUNDS					
Equity Share Capital	0.00	42.38	42.38	42.38	42.38
Total Share Capital	**0.00**	**42.38**	**42.38**	**42.38**	**42.38**
Reserves and Surplus	0.00	3,564.51	3,240.40	2,966.17	2,769.60
Total Reserves and Surplus	**0.00**	**3,564.51**	**3,240.40**	**2,966.17**	**2,769.60**
Total Shareholders Funds	**0.00**	**3,606.89**	**3,282.78**	**3,008.55**	**2,811.98**
NON-CURRENT LIABILITIES					
Long Term Borrowings	0.00	4.14	600.00	600.00	0.00
Other Long Term Liabilities	0.00	3.86	3.91	4.30	4.51
Long Term Provisions	0.00	42.68	52.08	47.92	37.44

Total Non-Current Liabilities	**0.00**	**50.68**	**655.99**	**652.22**	**41.95**
CURRENT LIABILITIES					
Short Term Borrowings	0.00	0.00	0.04	0.00	371.07
Trade Payables	0.00	2,713.11	2,157.31	2,101.96	1,984.02
Other Current Liabilities	0.00	2,202.85	1,237.23	1,267.70	1,297.70
Short Term Provisions	0.00	314.52	395.56	378.40	314.93
Total Current Liabilities	**0.00**	**5,230.48**	**3,790.14**	**3,748.06**	**3,967.72**
Total Capital And Liabilities	**0.00**	**8,888.05**	**7,728.91**	**7,408.83**	**6,821.65**
ASSETS					
NON-CURRENT ASSETS					
Tangible Assets	0.00	1,142.60	1,168.79	1,199.36	1,284.02
Intangible Assets	0.00	76.06	86.12	99.06	115.52
Capital Work-In-Progress	0.00	116.48	67.78	44.28	31.93
Fixed Assets	**0.00**	**1,335.14**	**1,322.69**	**1,342.70**	**1,431.47**

Non-Current Investments	0.00	0.17	16.23	16.31	16.39
Deferred Tax Assets [Net]	0.00	117.30	78.36	48.96	15.23
Long Term Loans And Advances	0.00	21.56	380.60	422.20	401.53
Other Non-Current Assets	0.00	457.44	7.23	6.69	7.48
Total Non-Current Assets	**0.00**	**1,931.61**	**1,805.11**	**1,836.86**	**1,872.10**
CURRENT ASSETS					
Current Investments	0.00	270.45	0.08	0.08	0.08
Inventories	0.00	1,153.55	940.25	939.57	893.82
Trade Receivables	0.00	2,787.78	3,063.33	3,390.93	3,157.52
Cash And Cash Equivalents	0.00	1,491.66	1,189.16	573.59	225.96
Short Term Loans And Advances	0.00	24.62	330.78	278.08	277.45
OtherCurrentAssets	0.00	1,228.38	400.20	389.72	394.72
Total Current Assets	**0.00**	**6,956.44**	**5,923.80**	**5,571.97**	**4,949.55**
Total Assets	**0.00**	**8,888.05**	**7,728.91**	**7,408.83**	**6,821.65**

Profit and Loss comparison

	2018	2017	2016	2015	2014
INCOME					
Revenue From Operations [Gross]	**6,613.36**	**9,249.20**	**9,056.87**	**8,545.58**	**8,054.29**
Less: Excise/Sevice Tax/Other Levies	0.00	287.78	541.31	530.43	423.64
Revenue From Operations [Net]	**6,613.36**	**8,961.42**	**8,515.56**	**8,015.15**	**7,630.65**
Other Operating Revenues	76.76	125.90	132.81	125.12	102.62
Total Operating Revenues	**6,690.12**	**9,087.32**	**8,648.37**	**8,140.27**	**7,733.27**
Other Income	84.01	120.97	65.27	13.04	17.28
Total Revenue	**6,774.13**	**9,208.29**	**8,713.64**	**8,153.31**	**7,750.55**
EXPENSES					
Cost Of Materials Consumed	3,755.62	5,060.67	4,641.36	4,560.51	4,487.19

Purchase Of Stock-In Trade	582.11	357.12	401.59	321.64	305.88
Operating And Direct Expenses	0.00	538.29	507.69	466.42	405.85
Changes In Inventories Of FG,WIP And Stock-In Trade	-50.38	-65.51	66.64	-48.56	43.98
Employee Benefit Expenses	529.50	796.30	767.82	749.87	705.20
Finance Costs	53.90	77.31	84.92	91.16	104.95
Depreciation And Amortisation Expenses	92.76	157.97	150.95	159.79	112.81
Other Expenses	1,415.48	1,664.38	1,516.62	1,377.89	1,229.48
Total Expenses	**6,378.99**	**8,586.53**	**8,137.59**	**7,678.72**	**7,395.34**

ACHARYA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF MBA

PROJECT (17MBAPR407) -WEEKLY REPORT

NAME OF THE STUDENT: SAGAR.S

INTERNAL GUIDE: PROF MALLIKA B K

USN: 1AY17MBA46

COMPANY NAME: ABB INDIA LIMITED

WEEK	WORK UNDERTAKEN	EXTERNAL GUIDE SIGNATURE	INTERNAL GUIDE SIGNATURE
3rd Jan 2019 – 9th Jan 2019	Industry Profile and Company Profile		
10th Jan 2019 – 17th Jan 2019	Preparation of Research instrument for data collection		
18th Jan 2019 – 25th Jan 2019	Data collection		
26th Jan 2019 – 2nd Feb 2019	Analysis and finalization of report		
3rd Feb 2019 – 9th Feb 2019	Findings and Suggestions		
10th Feb 2019 – 16th Feb 2019	Conclusion and Final Report		

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