AN EMPIRICAL ANALYSIS OF INVENTORY SHRINKAGE IN RETAIL SECTOR OF INDIA

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Abstract - Shrinkage in inventories is recognized as the top-notched constraint which is nagging the nose of all the retail stores as it is the unwanted loss of inventory due to some unethical ways like shoplifting, theft, mishandling, improper conditioning and positioning, mismanagement, inefficient logistics, etc., It is mainly been recognized by every sort of retail store and affects the revenues and sales percentage of the company along with the integrity, costing, and technologies as well. Though there are many modern techniques which have been initiated to prevent this uncertainty like VMLs, RFID, CCTV, etc., and they have proved to be highly effective however they also failed to drag the problem out of the inventory management system. This study is thoroughly been performed on the same problem where the basic nerves have been held and mis-happenings have been extracted to find the best possible conclusion for the same. Nowadays, the emerging technology is driving through the pores of the problems and driving through them smoothly and this can only help the industries of expel this problem out. The combined usage of AI and ML is cherishing the inventory management and helping the industries to cope with the problems by keeping a track of everything. So the complete analysis includes the extraction of key to huge reasons of the shrinkage as per the industrialists and experts in different firms and best possible solutions to it in practices.

Keywords – Inventory, shrinkage, Retail sector, India

INTRODUCTION

Inventory represents one among the foremost necessary assets of a business because of the turnover of the inventory along of the primary sources of revenue generation and resultant earnings for the shareholders of the corporate. Inventory is listed on a company's balance sheet as a current asset, and act as buffer between output and order fulfilment (Atal, & Ozer, 2005).Since, inventory can be very valuable for a company and its management should be consider and thus, inventory management plays a vital role in management of the inventories (Brown, Jones, Terris & Steffy, 1987).The three categories of inventory include – raw materials, work-in-progress and finished goods. Raw materials are the unprocessed or unmanufactured materials used in the manufacturing of goods. Examples are aluminium, plastics for the manufacturing of phones etc. Work-in-progress inventory are the partially finished or manufactured goods either waiting for completion or resale. For example – a partially completed yacht or a half-assembled airliner would be work-in-progress. Finished goods inventory are products that have completed production and are ready purchasable. Retailers typically refer this inventory as a merchandise. Examples include

electronics, clothes and cars held by retailers (Hong & Danylenko, 2020). Moreover, Last-in-last-out (LIFO), First-in-first-out (FIFO) and weighted average approach are three most useful ways to determine inventory. The Last-in-first-out (LIFO) method says that value of the remaining inventory relies on the earliest purchased materials whereas, FIFO says that the value of the remaining inventory relies on the newest purchased materials. The weighted average method signifies both inventory and therefore the cost of products sold based on the average cost of all the materials bought during the amount (Kudde, Erdogan & Ilze, 2019).

However, shrinkage is the inventory loss due to circumstances such as employee theft, shoplifting, administrative error, vendor fraud, damage, being stolen from manufacturer or at the time of sale, and inadequate inventory management. In terms of accounting, it is said that it occurs when a retailer has fewer items in stock than in the inventory list due to the described errors (DeHoratius, Mersereau & Schrage, 2008). This leads to loss of profits because the goods which are bought aren't ready to be sold. This affects earnings, if there is increase in shrinkage then the profits of the corporate decreases. Because of this, many retailers continue to extend prices to account for the losses channelling the value of the shrinkage onto the purchasers/customers (Beck, Bilby, Chapman, 2003).Inventory management is important for both industry and big retailers. Processing high amount of inventory for an extended time is typically not advantageous for a business due to storage costs, spoilage costs, and therefore the threat of obsolescence (Song & Mieghem, 2020). Having inadequate inventory, however, often has its disadvantages. For example- the company runs the risk of loss of market share and losing income from future sales. Inventory management like just-in-time, inventory cost reduction etc, helps to track inventories flows and thus if managed properly helps to reduce shrinkage (Hasan, Daryanto, Roy & Feng, 2020).

There are number of reasons for the inventory shrinkage, not only due to damaged goods, stolen products, or employee theft. Administrative error can be one of the reasons of shrinkage in inventory. For example - one of the employees might miscount items and due to this the vendor, who supplies the product makes error in supplying the goods (Choi, Rabinovich & Richards, 2019). In some cases, there might be a chance when vendor may commit fraud and supplies less goods, regardless what actually purchased. A common way might be either stealing or shoplifting. Few reasons highlighted for inventory shrinkage are: damage, expire items, miscounted inventory, employee theft, and shoplifting. After the analysis of previous studies, projects and reports, the present study has come across enormous fillers related to the inventory where shrinkage is the first and foremost problem been recorded as it inserts a huge attenuation in the books of account and leads toward losses of material and resources. The present study shows various ways for excluding the problems like JIT, RFID, security patches, etc. They have been proved to be effective but still unable to put an end (kill use another word) the chances to shrinkage especially in retail stores. So, present study engrossed each and every aspect of shrinkage and its way to calculate and most probably the mediocre solution for complete prevention.

LITERATURE REVIEW

Brief para regarding previous study conducted through research papers, websites, journals, government reports. The studyhave engrossed various aspects of shrinkage in retail sector, there is no definitive method to measure or monitor shrinkage, it is often overlooked in the supply chain; data is important for determining when and where loss is happening and that many retailers gather data at product, SKU or every six months. These findings suggest that retailers are challenging to evaluate because of differences between approaches and that many retailers surveyed have potential to boost market shrinkage by implementing known business practices (Ti-Jun Fan, 2014).

Firms used statistical retrograde steps in a large retail chain to apply to explanatory variables including employees, defence, and the architecture of the shop and the demographics of the region in question. The retailer's predictions of shrinking and strong associations of potential causative variables have had significant measurement errors. It has led our model to offer poor shrinkage estimates for specific shops, but the simulations are extremely statistically relevant, meaning that the cumulative (and thus aggregate)

effect of policy shifts in hundreds of stores can be reliably predicted. As a consequence, employees and clients will congest more easily than other conventional structured security procedures, such as CCTV and detectives (Nicole, Adam & Linus, 2005).

According to Hollinger and Langton (2005), the shrinkage has been falling in higher shrinkage countries such as United States and United Kingdom. The shrinkage is stable in lower shrinkage countries. The reasons are using of high security tagging like cc cameras everywhere that are visible to customers. Due to this usage the people are committing less crime as they fear for getting caught in cc cameras.According to National Retail Federation Survey (2019), the average rate of shrinkage in the retail industry is 1.38 percent of its sales. The value or percentage of value has been almost same since the year 2014. For us 1.5 percent nearly didn't means much but it is a huge value of loss for the retail stores. But the 1.38 percent retail shrinkage has caused $ 50 billion loss in year 2018. For suppose if your retail store earns $1 million with a gross margin of 50 percent, your shrinkage rate at 2 percent will get you losses around $10,000 which is a significant value.The above survey also indicated that this situation is changing day by day. With the increase in the online shopper's day by day, it is bringing new challenges and fraud risks for the companies. Those survey showed that the budget of loss prevention efforts is increased by 44.5 percent by implementing new technology by hiring IT staff with analytical, cyber security, investigative skills to combat the fraud. The survey also stated that the customers also sometimes attempt to return the stolen goods back to the retail store to receive cash (DeHoratius, 2008; Atalı, 2005; Donselaar and Woensel, 2006; Beck in 2004)

RESEARCH GAP

After reviewing various study Nicole DeHoratius, et. al. (2005) proposed the inaccuracy of records in various retail inventory, the discrepancy between the recorded quantity and the actual inventory. Donselaar and Woensel (2006) they suggested the use of RFID technology in retail sectors in both manufacturers and retailer's sector because of the current inventory control system which does not take account of the inventory loss due to the shrinkage. Atali et. al. (2005) distinguishes in their paper about the three main sources of inventory discrepancies, where shrinkage was considered. Beck et. al. (2002) distinguished that employee theft appears to be the major causes of inventory shrinkage in which major companies does not know the causes. None of these has focussed on determine the relationship between shrinkage and operational failures as well as there are no official government reports regarding this, and so there's a research gap which we tend to focused. Therefore, this research will focus on the operation issues which effects the inventory, analysing various sources of data, determine the relationship between shrinkage and operational failures. Finding out capable reason of occurring of shrinkage and the technologies related with the minimizing effects of shrinkage in inventory.

RESEARCH METHODOLOGY

This study is conducted with retail sectors in India. Firstly, a in depth analysis of the existing literature was being done later, it is tested for the validity using the the data collected from the managers/owners of the Retail stores in India.Survey method was used for achieving the objectives of this study as it is considered to be highly efficient way in gathering a huge reservoir of data, thus increasing the validity of the result. The present research used different number of parameters to gauge each variable. A 5-point Likert scale has been used where '1' signifies 'strongly disagree', '2' signifies 'Disagree', '3' signifies 'Neutral', '4' signifies 'Agree' and '5' represents 'Strongly Agree'.This data for the purpose of this research was collected from the Indian Retail Enterprises during September to October 2020 via online google forms. The targeted population is Indian Retail Enterprises. Due to the presence of the pandemic COVID-19, it was not feasible to gather the data from all the required retail stores, so convenience sampling was used by the researchers. In total 294 responses are received. After the process of cleaning the data and completeness of the questionnaire andremoving the outliers, incomplete responses, and normality,211 usable responses weretaken for analysing statistically.The data was collected from managers/owners ofretail sectors companies.

DATA ANALYSIS AND RESULTS

After conducting a survey throughout various retail chains, results conclude the various ways of shrinkage and how it occurs even after the obstructions made by the system with various alternatives and preventive measures. Basically, shrinkage in inventories is one of the industrial problems which cannot easily be eliminated from the system at once, though companies and firms have tightened up their seatbelts and working cats and dogs in every possible vertical to get rid of this waste of expense and revenue. There are many proven methods to reduce this severe issue like VMSs, RFIDs, CCTVs, etc., but nothing is successful and can give a full proof solution which can eliminate this problem.

REASON FOR SHRINKAGE IN INVENTORIES

The table 1 shows the various reasons for shrinkage in inventories. The main reason for shrinkage in inventories is theft as more than 51 respondents with 23.9 percentage responded that theft is the main reason for the shrinkage. The damage in the store accounts for 22.9 percent, as 48 respondents responded that shrinkage is due to damage in store. The loss, physical & virtual loss, mismatch of stock stood at 18.5 percent, 17.8 percent,16.9 percent respectively as they are also one of the main reasons of shrinkage in inventories.

Table: 1. Reason for shrinkage in Inventories

Sr. No	Particulars	Frequency	Percent
1.	Theft	51	23.9
2.	Damage in store	48	22.9
3.	Loss	39	18.5
4.	Physical & virtual loss	38	17.8
5.	Mismatch of stock according to your system (ERP)	35	16.9
6.	Total	211	100

HOW OFTEN YOUR ORGANIZATION CALCULATE SHRINKAGE

Table 2 describes that most of the industries and retail chains measure their amount and quantity of products every week to organize a drill to order the products for the layouts and TGs of discrete products. As per the analysis and survey performed, the below table shows that most companies calculate their shrinkage after every quarter and every month mostly. If we see below table, it can be seen that 104 respondents with 49.3percent each have said us that their companies are calculating shrinkage every quarter and every month. Only 3 respondents accounting for 1.4percent have said that their company is calculating the shrinkage half yearly.

Table: 2. How often your organization calculate shrinkage

Particulars	Frequency	Percent
After Every Quarter	104	49.3
Every month	104	49.3
Half-Yearly	3	1.4
Total	211	100.0

MOST PRONE SECTION OR PRODUCT FOR SHRINKAGE

From table 3 it can be seen that apparels and fashion are most prone to shrinkage as 106 respondents that accounts for 50.2 percent have responded that apparels and fashion products are most getting shrinkage in the retail chainsas they are been wore inside the trial rooms and walked away easily or can be hide due to small size or no RFID tags due to different quality and company products. The FMCG goods stands as the second most prone products of shrinkage as 69 respondents accounting for 32.7 percent said that FMCG is main prone product in their stores. The shoes and accessories category stands at third most prone to shrinkage as 18 respondents accounting 8.5 percent said that it is the main prone section in their retail chains. The Sports equipment's and perishable & fragile goods stood at fourth and fifth most prone sections of shrinkage as they account for 5.7 percent and 2.8 percent respectively.

Table: 3. most prone section or product for shrinkage

Particulars	Frequency	Percent
Apparels and Fashion	106	50.2
FMCG goods	69	32.7
Perishable and Fragile Products	6	2.8
Shoes and accessories	18	8.5
Sports Equipment's	12	5.7
Total	211	100.0

WHETHER THE SHRINKAGE IS A COMMON PROBLEM IN OTHER TYPE OF INDUSTRIES EXCEPT RETAIL SECTORS?

Table 4 represent that 204 respondents out of 211 respondents feel that shrinkage is common problem in other types of industries as well. Only 3 respondents accounting for 1.4percent feel that shrinkage is not a common problem in other industries. The other 2 persons accounting for 0.9percent are not sure about the shrinkage in other industries so they responded 'maybe'. Though shrinkage in inventory gives an adverse effect on revenues of the retail stores mainly but as per the survey, many or can say all sort of organizations face this issue due one or the other reason.

Table: 4. Shrinkage as a common problem

Particulars	Frequency	Percent
Maybe	2	.9
No	3	1.4
Yes	204	97.7
Total	211	100.0

THE PROCUREMENT, LOGISTICS OF MATERIAL AFFECTS THE SHRINKAGE IN INVENTORIES

Table no. 5 represents that procurement also plays a key role in the life cycle of retail stores which will also affect the shrinkage in inventories. From the below table it can be seen that 46 respondents accounting for 21.9percent have responded that system error from procurement team is the main reason for the shrinkage in inventories with respect to procurement. No proper scanning is the second main reason for the shrinkage in inventories as 42 respondents accounting for 19.9 percent responded that no proper scanning is their main reason. The system error stands at third place in the table as 35 respondents accounts for 16.4percent feel that the system errors such as incorrect scanning, improper swipe machines etc are causing the shrinkage in inventories. The transportation is at fourth position as 33 respondents corresponding to 15.8percent responded that it is the main problem for shrinkage in their retail sections. The poor handling and poor storage stands at fifth and sixth position respectively as 31 and 24 respondents respectively have responded that it is the major problem in their retail chains.

Table: 5. procurement, logistics of material affects the shrinkage in inventories

Sr. No	Particulars	Frequency	Percent
1.	Due to system error from procurement team	46	21.9
2.	No proper scanning	42	19.9
3.	Due to system error	35	16.4
4.	Transportation	33	15.8
5.	Poor handling	31	14.9
6.	Poor storage	24	11.1
	Total	211	100

EMPLOYEES KNOWLEDGEREGARDINGSHRINKAGE

Table no. 6 describes that it is necessary for each and every retail chain to train their employees for the challenge of shrinkage and make a separate consequence for shoplifting by the internal person of the organization as this is the most absurd issue to be faced on the daily basis. As we can see from the table,

163 respondents corresponding to 77.3percent have responded that their employees know about the challenges of shrinkage while 48 respondents corresponding to 22.7percent have responded that their employees don't know about the challenge of shrinkage.

Table: 6. Employees knowledgeregarding shrinkage

Particulars		Frequency	Percent
Employees known about the challenge of shrinkage?	Yes	163	77.3
	No	48	22.7
Total		211	100

EMPLOYEE RESPOND IF THEY CATCH THEIR CO-WORKER STEALING

Table no. 7 describes that it is really important to react strictly when the people of the own organization are caught contributing in the shrinkage as they are the traitor to the organization though sometimes it is not intentionally but a team must look after the in-depth reason or misunderstanding happened there and then. As we can see from the table, termination stood at first as 54 respondents contributing 25.4 percent responded that their organisation terminates the employee immediately is caught stealing. The complaining to higher authorities stood at second place contributing 24.4percent as 51 respondents have responded that they will have to report to the higher authorities immediately and the they will take necessary action. The file of case stood at third position as 36 respondents making up 17percent have said that their company will file a case against the employee if caught stealing. The recovery & warning, Fines stood at fourth and fifth position as they have contributed 16.3 and 16.9percent respectively as some companies give them a chance to change by giving warnings and collecting fines.

Table: 7. Employee respond if they catch their co-worker stealing

Rank	Particulars	Frequency	Percent
1.	Termination	54	25.4
2.	Complain to higher authorities	51	24.4
3.	File a case against him/her	36	17
4.	Recovery and warning	35	16.3
5.	Fines	35	16.9
	Total	211	100

TRAINING FREQUENCY OF THE EMPLOYEES

Table no. 8 includes the frequency of employee training and explains that training is the most integral potion to be given to each employee in a stipulated time frame within an interval to make sure that all the employees learn and grow with the organization and also can take the decision against the shrinkage autonomously.The table represents how frequently training is provided to employees, 127 respondents corresponding to 60.2 percent said that their company will conduct trainings monthly to develop them with new changes every month. On the other hand, 84 respondents corresponding to 39.8percent said that their company will provide trainings quarterly to its employees.

Table: 8. Training frequency of the employees

Sr. No	Particulars	Frequency	Percent
1.	Monthly	127	60.2
2.	Quarterly	84	39.8
	Total	211	100

FREQUENCY OF SECURITY CHECK RELATED TO SHRINKAGE

Table no. 9 explains the frequency of security check in the retail industry. Security areactually important on the daily basis just because to make sure about which part of the store is most prone to shrinkage, whether the layout is completely equipped with all the safety measures which are installed to reduce the shrinkage rate and identify what sort of products are there in a usable condition. The below table shows that 48 respondents making up 22.9percent have informed that their company will do security checks Daily related to the shrinkage. The Weekly security checks stood at second position as 44 respondents

making up 20.9percent responded that their company is performing security check weekly once to check regarding shrinkage. The Monthly security checks stood at third position as it is also being done in some companies as 36 respondents contributing 17.4percent responded that their company conducts security checks every month to check regarding shrinkage. The quarterly security checks stood at fourth place as they are also done at some companies as 31 respondents corresponding to 14.8percent have said their company will check the security quarterly for shrinkage issues. The half yearly and yearly security checks stood at fifth and sixth position contributing 13.8percent and 10.2percent respectively regarding security checks related to shrinkage.

Table: 8. Frequency of security check related to shrinkage

Sr. No	Particulars	Frequency	Percent
1.	Daily	48	22.9
2.	Weekly	44	20.9
3.	Monthly	36	17.4
4.	Quarterly	31	14.8
5.	Half Yearly	30	13.8
6.	Yearly	22	10.2
	Total	211	100

SOFTWARE USED IN SHRINKAGE CALCULATION

Table no. 10 is dealing with software used in calculation in the retail sector. Most of the firms do not reveal the software being used for managing the shrinkage and maintaining the data about the same but the most commonly used is SAP (Systems Applications & Products in Data Processing) ERP(Enterprise Resource Planning) as 87 respondents making up 41.5percentinformed that their company is using it for calculating shrinkage rate. The second position is followed by MS Excel as 81 respondents contributing 38.5percentinformed their company is using it because of their accessibility and versatility of working. The remaining 43 respondents making up 20percent have informed that their company is using stock and business as a way to calculate the shrinkage in their retail chains.

Table: 10. software used in shrinkage calculations

Sr. No	Particulars	Frequency	Percent
1.	SAP ERP	87	41.5
2.	EXCEL	81	38.5
3.	Stock and Business	43	20
	Total	211	100

FREQUENCY OF CCTV RECORDINGS CHECK

Table 11 describes the frequency of CCTV's recording check in retail sector. CCTVs are installed to make sure whether the customers or the employees are facilitated in a better condition with a mesmerizing experience with the store which also includes the uncertainty measurement and reason of shrinkage in a particular section or layout. The below table shows that 57 respondents making up 26.4percent have informed that their company do CCTV checks Daily related to the shrinkage. The Weekly CCTV checks stood at second position as 44 respondents making up 24.4percent responded that their company is performing CCTVcheck weekly once to check regarding shrinkage. The Monthly CCTV checks stood at third position as it is also being done in some companies as 36 respondents contributing 16.9percent responded that their company conducts checks every month to check regarding shrinkage. The quarterly CCTVchecks stood at fourth place as they are also done at some companies as 23 respondents corresponding to 11.3percent have informed their company will check the security quarterly for shrinkage issues. The half yearly and yearly CCTV checks stood at fifth and sixth position contributing 10.3percent and 10.7percent respectively regarding CCTV checks related to shrinkage.

Table: 11. Frequency of CCTV recordings check

Sr. No	Particulars	Frequency	Percent
1.	Daily	57	26.4
2.	Weekly	52	24.4
3.	Monthly	36	16.9
4.	Quarterly	23	11.3
5.	Half Yearly	21	10.3
6.	Yearly	22	10.7
	Total	211	100

INFORMATION REGARDING GREATESTNUMBER OF SALES

As per the analysis Table 11 mentioned that, October is the month with the peak of sales in a year as 85 respondents making up 40.3percent have responded that their firm is having most sales in the month of October. The reason is the shift in the season from summers to winter is the main reason for high sales in October. The January stands at second position in terms of the greatest number of sales as 55 respondents making up 26percent have said that their firm is having most sales in the month of January because of new year celebrations and offers. The December month stands at third position as 45 respondents making up said that 21.3percent have informed that their firm is making up most sales in the month of December. The November and August stood at fourth and fifth place with 10.4percent and 1.9percent respectively in terms of the greatest number of sales.

Table: 11. Information regarding greatestnumber of sales

Particulars	Frequency	Percent
August	4	1.9
December	45	21.3
January	55	26
November	22	10.4
October	85	40.3
Total	211	100.0

FREQUENCY OF SHRINKAGE RATE ON PEAKS SALES

Table 12 describes about the shrinkage rate on peak sales in retail sector. Shrinkage rate remains constant with the number of sales as the survey results with 0-5percent of shrinkage of the total sales amount in the peak season as all the 211 respondents making up 100percent has informed that their firm's shrinkage has always been lying between 0 to 5 percent only.

Table: 12. Frequency of shrinkage rate on peaks sales

Particulars	Frequency	Percent
0-5percent	211	100.0

FREQUENCY OF FLUCTUATION OF SHRINKAGE WITH SALES

Table 13 explains that, 164 respondents making up 77.7 percent has informed that the shrinkage does not fluctuate with the number of sales while the remaining 45 respondents making up 22.3percent have informed that their firm experiencing shrinkage fluctuation with respect to the number of sales.

Table: 13. Frequency of fluctuation of shrinkage with sales

Sr. No	Particulars	Frequency	Percent
1.	Yes	45	22.3
2.	No	164	77.7
	Total	211	100

INFORMATION REGARDING THE ADVERSE EFFECT OF SHRINKAGE ON SKU'S

Table 14 describes about the adverse effect of shrinkage on SKU. Though the SKUs are not much affected with the shrinkage however vacancy of the SKUs will result in the wear and tear of the units if kept for a long span which indirectly results in the shrinkage of the inventory however this mostly occurs for the perishable and fragile products but most of the times its stands neutral.From below table, 72 respondents making up 34.1percent with 3 on Likert scale is at first position have informed that adverse effect of shrinkage is neutral on SKU's. Also, the second position making up 50 respondents making up 23.7percent have responded 4 on Likert scale which means that they agree that the shrinkage has an adverse effect on the SKU's. As shown, 40 respondents making up 19percent with 5 on Likert scale strongly agrees that shrinkage has much adverse effect on the SKU's. The remaining respondents with 37 respondents responding 2 on Likert scale meaning that they disagree about the adverse effect of shrinkage on SKU's while the other 12 respondents making 1 on Likert scale said that they strongly disagree about the adverse effect of the shrinkage on SKU's.

Table: 14. Information regarding the adverse effect of Shrinkage on SKU's

Particulars	Frequency	Percent	Valid Percent	Cumulative Percent
1	12	5.7	5.7	5.7
2	37	17.5	17.5	23.2
3	72	34.1	34.1	57.3
4	50	23.7	23.7	81.0
5	40	19.0	19.0	100.0
Total	211	100.0	100.0	

EFFECTIVENESS OF THE RFID METHOD IN REDUCING SHRINKAGE

Table 15 explains about the effectiveness of RFID method. RFIDs are the most effective and cheap way of reducing the shrinkage of inventory as the detector can easily detect the missing article whenever the tool is moving out of the store. From below table, 74 respondents making up 33.2percent have informed that they Agree that RFID method is an effective way to reduce the shrinkage in inventories. On the other hand, 66 respondents making up 31.3percent have responded neutrally that they neither agree nor disagree about the effectiveness of the shrinkage in inventories. Also, 42 respondents making up 19.9percentresponded that they strongly agree that RFID technology is highly effective in reducing shrinkage in inventories. The shrinkage using the RFID cannot be detectedif it is performed instore which is mostly done for the eatable items and confectionary and stationary. So, 28 respondents have responded making up 13.3percent have informed that they strongly disagree as they feel RFID is ineffective in reducing shrinkage in inventories. In the same way, 5 respondents making up 2.4percent have said that the strongly disagree as they also feel RFID is not at all effective in controlling shrinkage.

Table: 15. Effectiveness of the RFID method in reducing shrinkage

Particulars	Frequency	Percent	Valid Percent	Cumulative Percent
1	5	2.4	2.4	2.4
2	28	13.3	13.3	15.6
3	66	31.3	31.3	46.9
4	70	33.2	33.2	80.1
5	42	19.9	19.9	100.0
Total	211	100.0	100.0	

INFORMATION REGARDING THE ADVERSE EFFECT OF SHRINKAGE ON COMPANY'S REVENUES

Table 16 informs about the effect of shrinkage in company's revenue. Out of 211 respondents, 78 people making up 37percent have responded that they are neutral which means they neither agree or disagree about the effect the shrinkage effect on revenues. On the other hand, 47 respondents making up 22.3percent have responded that they disagree with the statement being asked as they feel disagree with it because they feel shrinkage does not have effect on revenues of company. But some respondents feel that

shrinkage has effect on revenues of company. As we can see from below table, 37 respondents making up 17.5percent have informed that the strongly agree that shrinkage is affecting the revenues of company. Also, 35 respondents making up 16.6percent have informed that they moderately agree that shrinkage is showing effect on the revenues of the company.

Table: 16. Information regarding the adverse effect of shrinkage on company's revenues

Particulars	Frequency	Percent	Valid Percent	Cumulative Percent
1	14	6.6	6.6	6.6
2	47	22.3	22.3	28.9
3	78	37.0	37.0	65.9
4	35	16.6	16.6	82.5
5	37	17.5	17.5	100.0
Total	211	100.0	100.0	

CONCLUSION

The findings after a study are performed in separate supermarket chains conclude the various types of shrinkage and how this happens with various alternatives and preventative steps even after obstruction of the mechanism. Basically, inventory decline is one of the manufacturing issues that cannot simply be avoided automatically, while businesses and companies have improved their seat belts and work-cats and dogs to reduce this excess of cost and profits in any vertical way possible. Many approaches to minimize this serious problem, such as VMSs, RFIDs, CCTV, etc., have proved their worth, but nothing can be effective and provide a complete proof solution to solve this question. Although we should expect modern, creative devices to help overcome this dilemma more exactly in the technical age in which most things are automatic.Many businesses use the SKUs and inventory to ensure the business or warehouse is less shrinkage by the third-party service suppliers as a 3PL or 4PL. There are dedicated businesses who already come up with new technical products that ensure that the product can be reused or filled out again until it breaks out of adequate conditioning with a particular function of testing the freshness of the product and the expiry date. In a near future, shrinking amounts will be marginal or zero for combined uses of AI and ML for IoT-enabled goods.

According to the analysis carried out in various retail industries theft accounts for the maximum percentage among all the potential reasons for inventory shrinking where second-hand damages show how many people lack in their ethics and values, and also cameras often cannot capture the thefts that are made in trials or anywhere in the dark. In certain worse situations, instead of savings like the case of dacoits, it is easier to abandon the goods as a robbery. Each article in many shops is subject to fraud and burn protection to ensure that half the product is saved.Each week most industry and retail chains measure the quantity and quantity of their products to order drills for the designs and TGs of discreet products. The analysis and survey indicate that every month and even after every 2 weeks in peak seasons, most companies measure their shrinkage, while some companies measure their shrinkage every quarter that depends entirely on the type and type of products that the store holds.According to the survey, the items most likely to decline are apparel and fashion products, and the second is the FMCG, because they are carried inside the test rooms and easily went away or can be hidden due to small sized tags or no RFID tags due to different quality and company products. Rest other products, but some tricks and safety equipment can be easily saved. Although inventory declines have an adverse impact on retail revenue primarily, but according to this study, many or all types of businesses are facing this problem for one cause or the other, as a couple of them have already listed.

As procurement and material logistics play a very important role in the retail business cycle, they also help to reduce the perishability and fragility of particular objects. As a consequence, inadequate management and storage means that shipping accounts for a significant percentage of the reason for product declines, while device error and scanning remain the top cause of decline because of acquisition and logistics.The challenge of shrinking and separate implications for shopping by the internal person of the organisation, is necessary for each and each retail chain to train its workers as this is the absurdist problem to confront on

a daily basis.It is very important for people of their own organization to react strictly when they are caught contributing to the decline as they are the traitor to the organisation, although it is not intentionally some of the time. Although most of the organizations responded directly to the decision of the higher authority and reacted first. Training shall be the most integral way for each employee to learn, develop and decide independently against the shrinkage within a specified time frame. In order to ensure that all employees learn and grow with the company.In fact, safety control is important on a daily basis simply because to see if the part in the store is most susceptible to shrinking, whether the layout is fully fitted with all safety actions installed to decrease the shrinkage rate and what products are in a usable condition. The figure shows, however, that in some place's inspections are carried out monthly and some even annually, depending on the type of products inside the store. CCTVs are installed to ensure that customers or employees have better access to a hypersensitive shop experience that also includes insecurity and shrinkage measurement in a given area or layout.

According to the analysis, October is the month of a year with the peak of sales, because we can conclude that the departure from summer in winter is subject to a shift in season depending on the sales volume and stock availability in the shop. The most commonly used companies do not reveal the software that is used to manage shrinkages and to maintain data on them but, due to its accessibility and versatility, SAP ERP is the most commonly used software. The market volume of the survey results in the decline rate is steady, with a decrease of 0-5 percent in the summer season. While decreasing prices are steady between 0-5 per cent, the sum of the products present and procured and sold on a regular basis fluctuates somehow.Even if the SKU are not much affected by the decline in the shrinkage process, the vacancy of the SKUs contributes to wear and tear of the devices, if held for a long time, indirectly reducing the inventory, but most of the time it is neutral for goods that are perishable and delicate. Fids are the most efficient and cost-effective means of minimizing product shrinkage, since the device can effectively identify the missing item as the instrument travels out of the shop but cannot detect the shrinkage if the key products and confectionary or stationary instore are mounted. But the shrinkage overall can be detected by this technology. Shrinkage does not impact the overall profits as it stays stable from 0-5percent of net earnings and revenues, but none of the firms nor companies show the real degradation or product volatility as a result of their image on the market, which is why this does not exist in the company's general terms and conditions.

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