

Improvising Operational Productivity of Inventory Management in a Retail Store

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ABSTRACT

Retail stores are facing problems like discrepancies, damages, pilferages and delay time in the inventory storage in all the sectors of store owing to lack of proper stacking. This paper is mainly emphasis to improve productivity of inventory management in toy section in retail stores. And the paper also recommends strategy for both productivity and profitability in toys section. This can be solved and prevented in the future by recommended changes in the SOP. The wastage and loss can be eliminated by this process. We have mainly used structured survey questionnaire and personnel interview for this study.

Keywords: Productivity, Inventory management, discrepancies, retail stores

1. INTRODUCTION

Inventory refers to the goods stocked for future use. Every retail chain has its own warehouse to stock the merchandise to be used when the existing stock replenishes. The retailer keeps a track of the stocked goods and makes sure there is surplus inventory to avoid being “out of stock”. Such a process is called as inventory management.

A day has gone when clients had restricted alternatives for shopping. In the present situation, if a customer does not locate the sought stock at one retail shop, he has a second brand to depend on. A retailer can't stand to free even a solitary customer. It is truly essential for the retailer to hold his current customer and in addition pull in potential purchasers. The retailer must guarantee that each customer leaves his store with a grin. Inaccessibility of stock, void racks leave a negative impact on the clients and they are hesitant to visit the store in not so distant future. Inventory management prevents such situations.

This paper is to show the discrepancies, damages and pilferages happening in the products and its operations and to recommend possible ways to overcome it.

The toys section is taken as an example for this paper and the research is carried out in Central Mall Bangalore, India.

The objective of the paper is to increase the profitability of toys category by means of reduction in shrinkage rate from vendor to customer. The damage and pilferage contribution in a

retail store in general is 15% of shrinkage and thus reduction of shrinkage is of paramount importance to improve profitability.

This paper is limited to toys only and the warehouse management is not covered. The pilferages could not be tracked and solved. The storage and handling procedures in the vendor warehouse is not analyzed. There was a time constraint in studying the benchmarking processes and competitive studies.

2. LITERATURE REVIEW

“Inventory” means physical stock of goods, which is kept in hands for smooth and efficient running of future affairs of an organization at the minimum cost of funds blocked in inventories. The fundamental reason for carrying inventory is that it is physically impossible and economically impractical for each stock item to arrive exactly where it is needed, exactly when it is needed [18].

Inventory management is the integrated functioning of an organization dealing with supply of materials and allied activities in order to achieve the maximum co-ordination and optimum expenditure on materials. Inventory control is the most important function of inventory management and it forms the nerve center in any inventory management organization. An Inventory Management System is an essential element in an organization. It is comprised of a series of processes, which provide an assessment of the organization’s inventory.

Inventory management is defined as a science based art of ensuring that just enough inventory stock is held by an organization to meet demand [1], [2].

Inventory management refers to all the activities involved in developing and managing the inventory levels of raw materials, semi-finished materials (working-progress) and finished good so that adequate supplies are available and the costs of over or under stocks are low [4]. Inventory record inaccuracy refers to the discrepancy between physical and recorded inventory levels, and is a pervasive problem in retailing and it causes loss to the company [5]. Inventory record inaccuracy can be attributed to shrinkage (e.g., spoilage and theft), transaction errors, and misplacement. Because it is difficult to fully eliminate these execution errors, IRI becomes a norm rather than an anomaly in the retail sector [6].

Inventory control is vitally important to almost every type of business, whether product or service oriented. Inventory control touches almost every facet of operations. A proper balance must be struck to maintain proper inventory with the minimum financial impact on the customer. Inventory control is the activities that maintain stock keeping items at desired levels. In manufacturing since the focus is on physical product, inventory control focus on material control [16]. Inventory control is the supervision of the storage, supply and accessibility of items to ensure an adequate supply without excessive oversupply [3].

The lean principles and techniques can be successfully applied in the retail sector. In the retail sector, lean approach improves operational flows. The concept of lean retailing is to give quick response to fluctuations in demand rather than holding large stocks. Lean retail enables faster movement of goods from suppliers to sales locations. The application of lean principles,

Radio Frequency Identifier (RFID) technology and inventory management at the level of individual items significantly contributes to creating value for customers and retailers [15].

The foremost objective of inventory management and control is to inform managers how much of a good to re-order, when to reorder the good, how frequently orders should be placed and what the appropriate safety stock is, for minimizing stock-outs [7]. The EOQ (Economic Order Quantity) has been previously defined as the ordering quantities which minimizes the balance of cost between inventory holding costs and re-order costs [1], [7].

The studies show that how sharing demand and inventory data can improve the supplier's order quantity decisions in models with known and stationary retailer demand [8], [9], [10], [13] and also measure the benefit of sharing the parameters of the retailer's ordering policy with the supplier and forecast for future demand [10], [11].

3. PROCESS STUDY

The process consists of analysing and documenting the forward and reverse loop of the goods movement from vendor to customer and from customer to vendor.

The forward and reverse loops have three zones: a) Zone One -Receiving bay; b) Zone Two-Warehouse; c) Zone Three -Floor and Storage where the entire activity takes place.

3.1 Process Layout Description

This process layout shown above is considered with respect to complete forward and reverse movement of toys in the mall.

3.1.1 Forward Loop- The consignment of toys cartons brought by the vendor is unloaded in the receiving bay. The vendor brings the cartons either through courier or by direct. From the receiving bay, after the checking and verifying processes the toys cartons are carried to the warehouse in-warding area where the cartons are removed and toys are taken for scanning. After scanning the GRN is issued and then it is taken for tagging. Soft tags are used for toys. It is then repacked and put in the carton and sent to the floor using trolleys. The toys are then taken from the carton and are displayed in the respective racks. The excess toys are taken to the stock room (Figure 1).

3.1.2 Reverse Loop- The customer returns the damaged and malfunctioning toys to customer desk. From the customer desk, the toys are moved to the damage stock room. It is then taken to the warehouse outward area and outbound scanning is done and then it untagged in the tagging section. By using the trolleys or hand these damaged toys are taken to the underground and later sold for scrap value. Some of the damaged toys are sent back to the vendor (Figure 2).

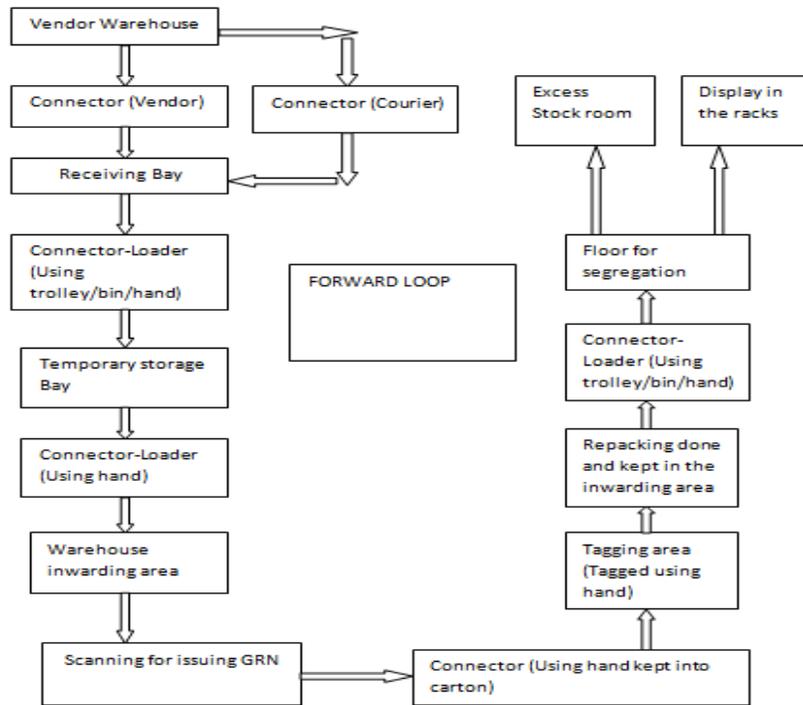


Figure: 1. Process layout forward loop

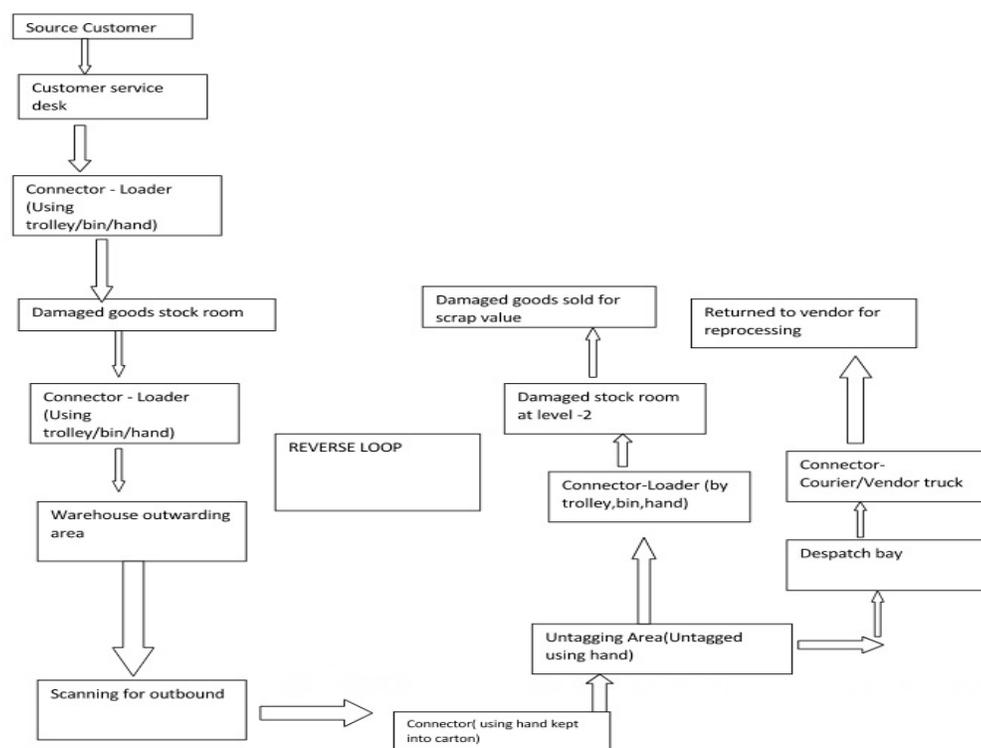


Figure: 2. Process layout reverse loop

4. TOUCH POINTS

Figure 3 is showing 3 zones where different touch points have observed: **i) The receiving bay-** The cartons are carried by hand and sometimes by trolley. Following are the touch areas for this zone: a) The temporary store room on the ground floor- cartons are carried by hand, b) The service elevator- cartons are carried by hand or sometimes by trolley, c) The permanent store room – This is in the warehouse and there are no observable damage noted in this zone; **ii) Warehouse** – subsequently the of warehouse are : a) Scanning booth – The goods are scanned here by the warehouse personnel, b) Tagging booth-The goods are tagged using RFID tag (soft tag or hard tag depending upon material of the good, tagging position depends upon minimal damage area for the goods, non visibility to the customer while looking, also easy removal while removing the tag at the billing counter), c)Service elevator- Movement of goods from scanning booth to the elevator. For battery operated products, there is no inspection point in the warehouse to check for internal damage. Hence the root cause for product damage in battery operated products can't be determined. After tagging the goods in the warehouse they aren't fit to be packed in the same cartons that they come in ; and **iii) Floor and store room** – this has Service elevator, arrangement in racks and loading and unloading touch points.

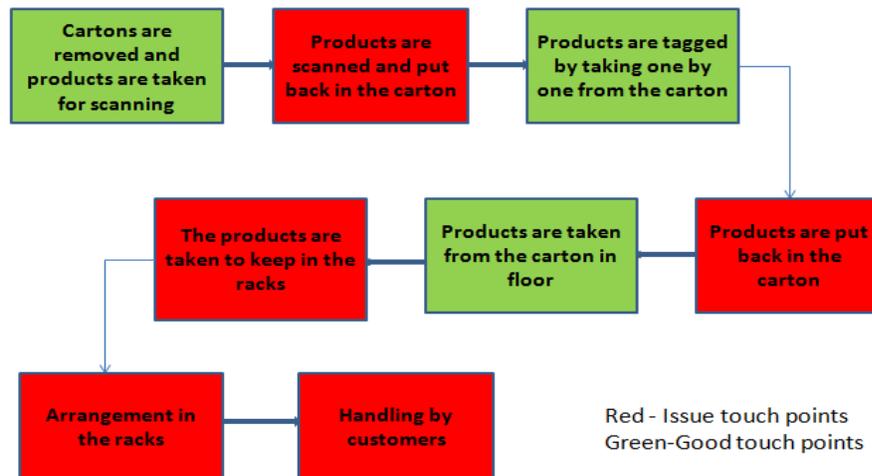


Figure: 3.Touch points

Surveys

The surveys are conducted for floor staffs, warehouse staffs and customer service desk staffs. This gave a brief idea about their problems, difficulties and grey areas. They provided their views, recommendations and processes happening in the entire operations.

5. ANALYSIS & FINDINGS

There has been no observable damages in Zone one and Zone two. The major damages and discrepancies were found in Zone three (Both floor and back store rooms) and these are analyzed.

5.1. Vendor Inward Discrepancy

It occurs due to shortage in Purchase order (PO), excess in PO, damage in products during the inward process etc. As shown in the figure 8, Funkskool contributes the maximum discrepancy (70%) followed by Mattel Toys (13%). Figure 4 shows the discrepancy percentage of each toys brands (Figure 4).

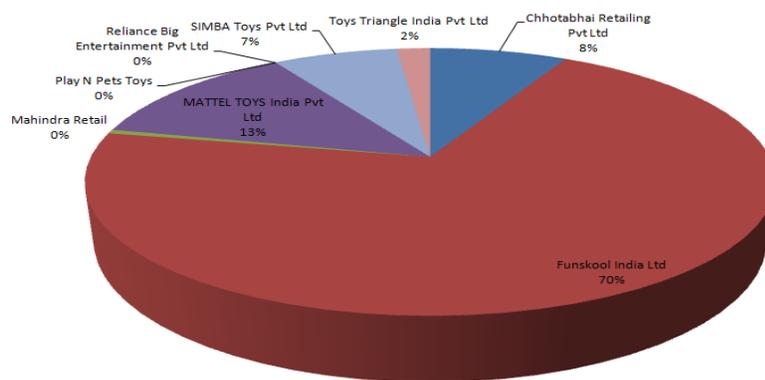


Figure: 4. Vendor inward discrepancy

5.2. Zone Three-General stock

5.2.1. Damage Analysis with Total system Stock

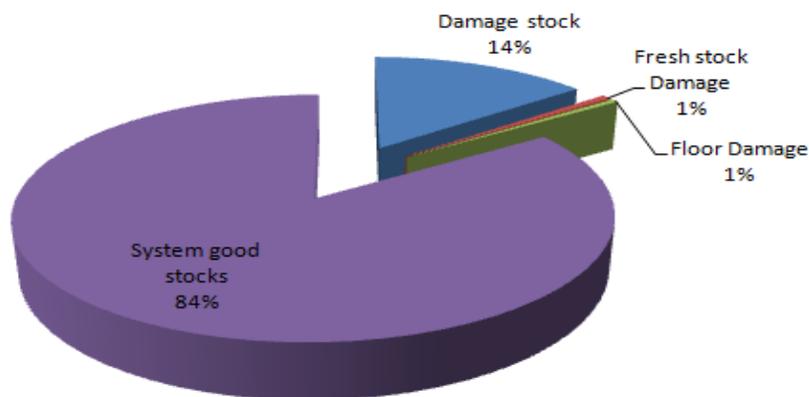


Figure: 5. Damage Analysis with Total system stock

The Figure 5 above shows that the system good stock occupies 84% of the total stock. The total damage stock occupies 16% of the total stock. (Figure 5)

Total damage stock= Damage stock+ Fresh stock damage + Floor damage.

5.3. Zone Three-Floor stock

5.3.1. Floor Display Damage

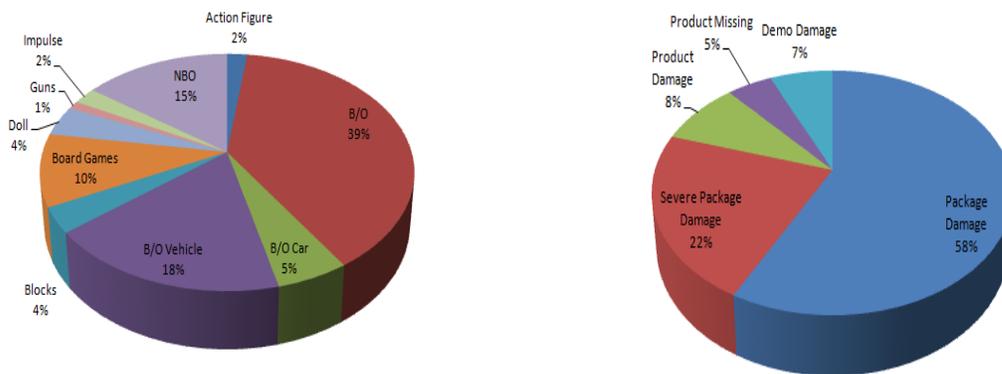


Figure: 6. Floor Display Damage

As shown in Figure 6, the floor damages occurs due customer handling, floor handling, arrangement in racks etc. It is divided into package damage, severe package damage, product damage, product missing and demo damage in this context.

The package damage occurs the maximum 58% and Severe Package damage is 22%. These package damaged toys can get in severe package damaged toys later if it is not cared properly. The B/O (Battery operated) along contributes 62% of the damages and NBO (Non battery operated) contributes 15% as shown in the Figure 6.

Table: 1. Floor Display Damage Quantities (Type of Damage)

Package Damage	Severe Package Damage	Product Damage	Product Missing	Demo Damage
60	23	9	5	7

The Table 1 shows the quantities of package damage, severe package damage, product missing and demo damage.

5.3.2. Zone Three-Back store room damage analysis

In the store room the stock are of two types:-

- Fresh stock –The excess Stock after in-warding is stored in the back stock room and hence fresh stock store room analysis has to be done for damages
- Damaged stock room-This room is where all damage stock once isolated from floor or from fresh stock is taken and stored for return to vendor or for scrap
Hence two type of analysis will be done:-

5.3.2.1 . FRESH STOCK STORE ROOM ANALYSIS

5.3.2.1.1 Fresh stock store room

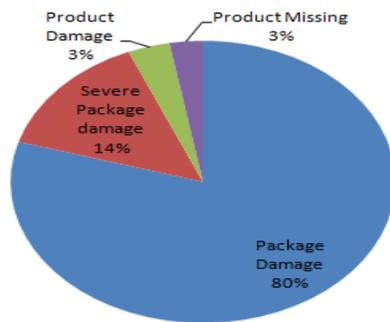


Figure: 7. Fresh stock room damage

Here as shown in the Figure 7, package damage contributes the highest which is of 80% and severe package damage contributes about 14% (Figure 7)

The product missing and product damage contributes about 3% respectively. The quantities of the fresh stock room damages are shown in above Table 1.

5.3.2.2. Damage stock room analysis

5.3.2.2.1. Damage Percentage with respect to MRP and Merchandise category

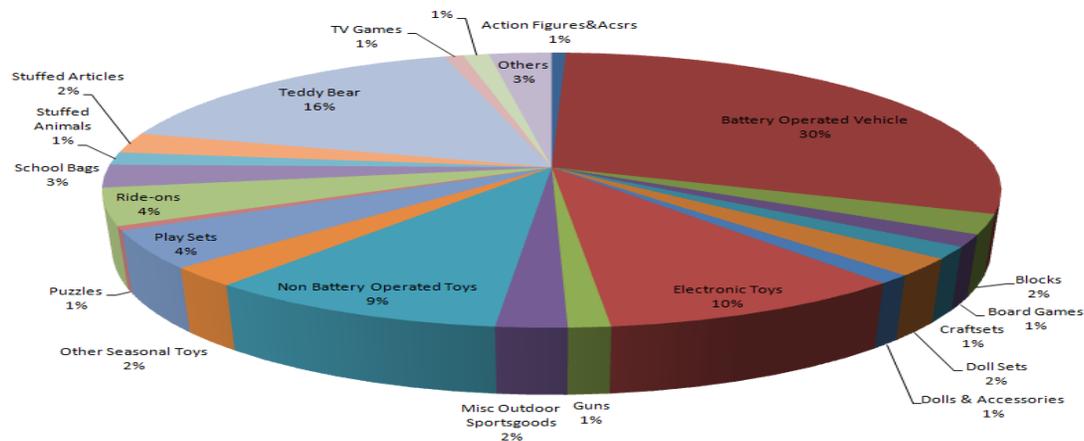


Figure: 8. Damage percentage with respect to MRP and merchandise category

As shown in the Figure 8, the battery operated and electronic toys along contribute 40% of damages as shown above. Teddy bear contributes 16% of damages. The non battery operated toys contribute about 9% of damages and play sets and Ride-ons share 4% each (Figure 8).

5.3.2.2.2. *Damage Percentage with respect to MRP and Brand*

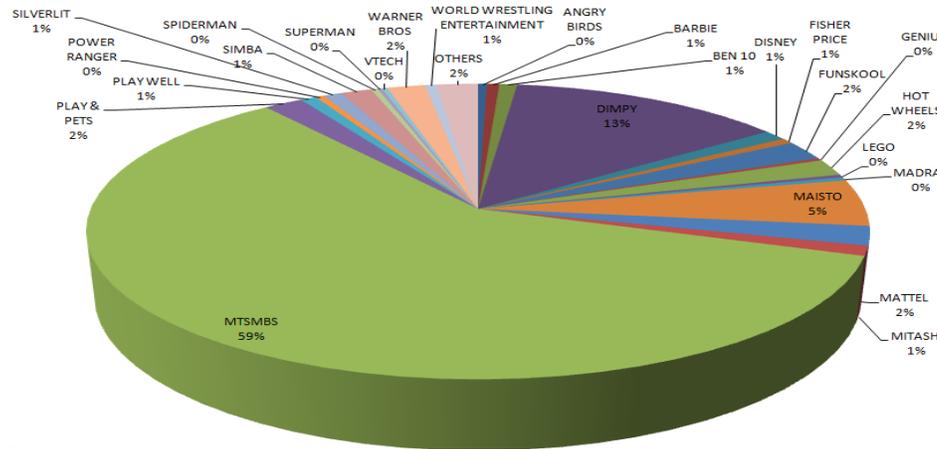


Figure: 9. Damage Percentage with respect to MRP and Brand

The Figure 9 shows that MTSMBS (Mera Toy) contributes 59% damages and that is the maximum followed by Dimpy (11%) and Maisto (5%). All the other brands contribute to less than 3%.

5.3.2.2.3. *Damage stock to total system stock*

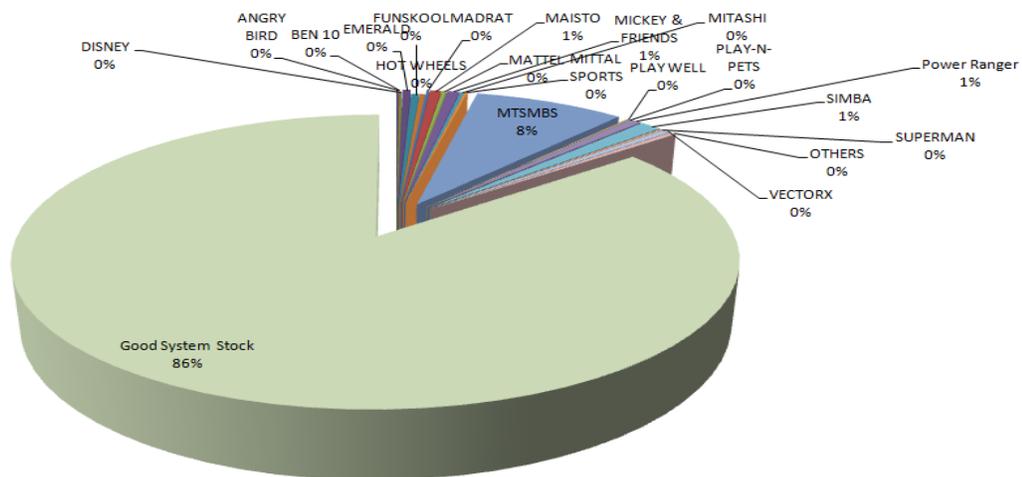


Figure: 10. Damage stock to total system stock

As shown in Figure 10, the MTSMBS (Mera Toy) contributes 8% of total system stock which is the maximum. All other brand contributes 1% or less(Figure 10).

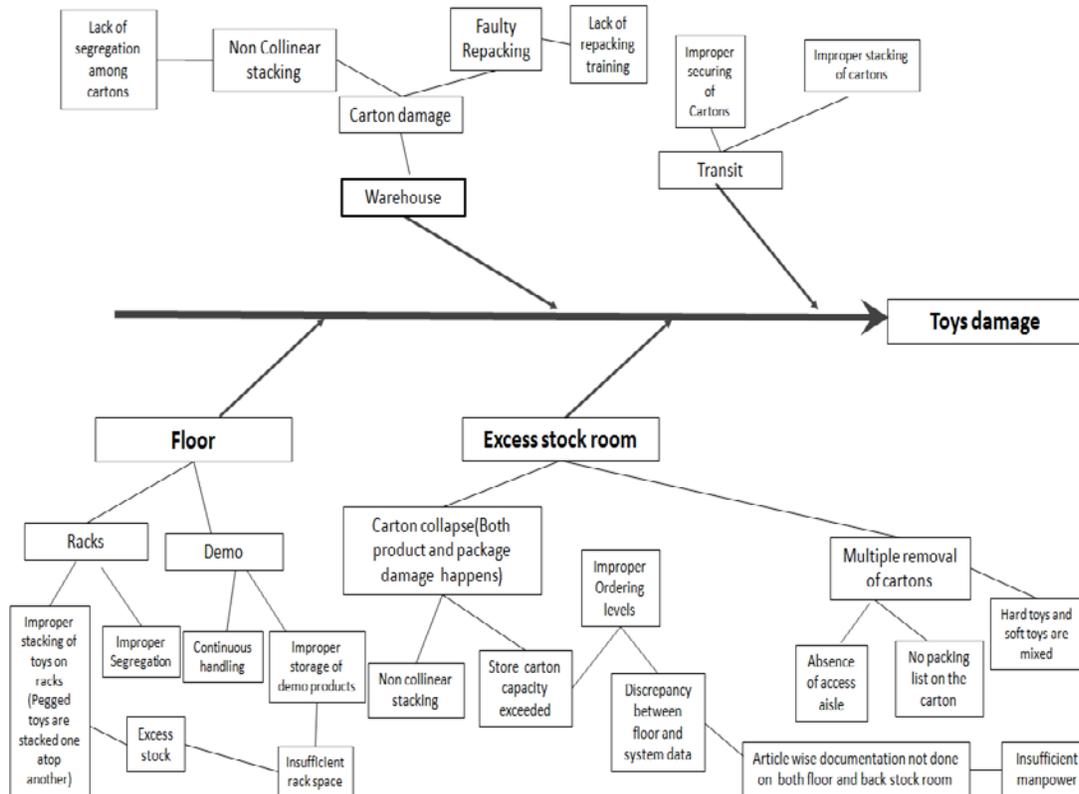


Figure: 11. Root cause analysis for damage by using Ishikawa diagram

5.4. Root causes for damage

- Insufficient manpower at floor-At present there is no floor staff to keep tab on the inventory status in back stock room.
- There is no access aisle space in back stock room.
- Fresh stock cartons are stacked irregularly in the stock room
- Lack of proper documentation of stock in floor.
- Over utilization of racks in the display floor
- Multiple removal of stock from back stock room every time stock is to be replenished on the floor. This is due to absence of packing list for the cartons in the excess stock room (Packing list- It is a list describing the stock stored in the cartons by description, quantity and MRP)

6. Recommendations

Following are the recommendation for warehouse, shop floor and Back stock room:-

Warehouse

- Tagged goods have to be packed carefully in a bigger carton in the presence of a floor staff.
- Separate staff to inspect the Battery operated toys while in- warding.

Shop Floor

- Physical counting of stock in every two months.
- Weekly damage stock removal from floor.

Back stock room

- Damage stock has to be out warded on bi monthly basis.
- 3 cartons stacking height has to be followed .
- Co-linearity in stacking has to be followed.
- There should be a packing list for all the fresh stocks.

7. CONCLUSIONS

This paper deals with improving productivity and profitability by improvising the inventory management of toys. The analysis is carried out in the zone three (floor and back store room). The Mera Toy brand contributes to the maximum damage and also package damage is the most. In fresh stock store room the damage happens mainly due to abnormal carton stacking and multiple removals each time due to lack of access aisle and packing list. For battery operated products there is no inspection point in the warehouse to check for internal damage. Hence, root cause for product damage in battery operated products cannot be determined. The documentation of products in fresh stock store room is not happening. This results in removal of all fresh stock in excess store room increasing the damage in handling.

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BIOGRAPHY

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