Int. J Sup. Chain. Mgt Vol. 9, No. 2, April 2020

Delivery Process of Inbound Goods during the Supply Chain from Fulfillment Centers

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***Abstract*- Security in the worldwide supply chain could really compare to ever. Driven by dangers, for example robbery, and burglary, it is likewise progressively muddled. It is important to advance opportune and proficient stream of genuine business while shielding and verifying the supply chain from abuse, and decreasing its helplessness to interruption. By far most of the misfortunes are owing to retail burglary. This makes retail robbery one of the most serious issues confronting independent company retailers today. The environment, atmosphere and flow of work in the FC were enchanting and cheerful which thus made the work effortless. Initial weeks were about understanding the core elements of the fulfillment centers and also understanding the operational aspects of the company and importantly the flow of the operational process**

Keywords: *Supply chain, Inbound goods, Delivery process, process flow and Duplication*

1.Introduction- Inbound Supply Chain

E-Commerce has enormously amplified the significance of upgrading the inbound supply chain and opened up numerous regions of chance [1, 2]. Organizations can create efficiencies around there and furthermore empower their online business by utilizing their sellers to deliver items inbound to their own areas just as straightforwardly to their end users [3]. The development of E-Commerce has driven online retailers to progressively work intimately with different firms to improve the collection of request satisfaction administrations offered to clients [4]. Online retailers likewise have begun working with logistics specialist organizations to take advantage of assets and aptitudes to satisfy their clients' requests all the more viably and productively [5]. They have connected with them to upgrade their inbound supply chain works by controlling supplier deliveries both to the online retailer just as immediate shipments to the end client [5,6].

2. Objectives of the study

- To study and identify the various reasons as to how a product gets duplicated or damaged during the delivery process of the inbound goods.
- To identify the various causes for delivering the product that is not ordered.
- To identify the defects that occur the most and the reasons for the causes.
- To formulate a solution to improve the delivery process.

3. Need for the study

There are a number of stages a product undergoes before it actually gets delivered [7]. The possibility of the product getting duplicated or getting damaged is high. This study is basically for identifying the various causes for product duplication, defect and cause identification and find ways to enhance the delivery process. The objective is to determine dangers from the get-go all the while, and fortify the security of physical framework, movements, and data resources while looking to expand trade through modernizing supply chain foundation and procedures. The transportation service providers, just as shippers should likewise play it safe to ensure the inventory [8,9]. The transportation mode's subtleties and difficulties, nobody estimate fits-all arrangements exist ought to be empowered [10]. Rather, understanding the difficulties, concentrating best practices, and setting up a complete arrangement are basic segments. In order to stop such mishaps, retailers must first be familiar with the categories of duplications and damages, common methods used during such improper delivery process and know what to look for in customers who exhibit strange behavior. Retailers need to identify the effective tool to prevent duplication or damages. A good store management and inventory management skill should be identified and followed [11].

4. Research Methodology

The aim of the research is “To analyze the various reasons as to how a product gets duplicated or damaged during the delivery process”. Size of the example implies the number of sampling units chosen for the research. It answers, "How many deliverables should be analyzed ". Here the samples are fixed as 100.

SECONDARY DATA:

S.No	Date	Order No	Product GL	Quantity	Delivered status	Issue at Stage
1	4/1/2018	102907002	Health & Personal care	1	Yes	No Issue
2	4/2/2018	102904418	Health & Personal care	1	Yes	No Issue
3	4/3/2018	102951155	Health & Personal care	30	Yes	No Issue
4	4/4/2018	102951424	Health & Personal care	30	Yes	No Issue
5	4/5/2018	102906006	Health & Personal care	1	Yes	No Issue
6	4/6/2018	102903069	Health & Personal care	3	Yes	No Issue
7	4/7/2018	102951604	Health & Personal care	3	No	Stacking Region
8	4/8/2018	102909638	Consumer Electronics	2	No	Vendor Delivery
9	4/9/2018	102950432	Grocery	3	Yes	No Issue
10	4/10/2018	102948354	Baby	65	Yes	No Issue
11	4/11/2018	102947749	Baby	4	No	Packaging Department
12	4/12/2018	102951483	Office Products	6	No	Vendor Delivery
13	4/13/2018	102953421	Grocery	2	No	Packaging Department
14	4/14/2018	102952659	Office Products	5	No	Packaging Department
15	4/15/2018	102912023	Jewelry	5	No	Customer Return
16	4/16/2018	102911086	Jewelry	4	No	Customer Return
17	4/17/2018	102911945	Consumer Electronics	65	Yes	No Issue
18	4/18/2018	102953492	Consumer Electronics	2	Yes	No Issue
19	4/19/2018	102951690	Consumer Electronics	7	Yes	No Issue
20	4/20/2018	102952398	Consumer Electronics	4	Yes	No Issue
21	4/21/2018	102954314	Consumer Electronics	2	Yes	No Issue
22	4/22/2018	102957900	Office Products	1	Yes	No Issue
23	4/23/2018	102954460	Office Products	6	No	Vendor Delivery
24	4/24/2018	102916702	Office Products	8	Yes	No Issue
25	4/25/2018	102957934	Baby	3	Yes	No Issue
26	4/26/2018	102958132	Baby	1	Yes	No Issue
27	4/27/2018	102961069	Footwear	1	Yes	No Issue
28	4/28/2018	102961913	Footwear	1	Yes	No Issue
29	4/29/2018	102914528	Grocery	1	No	Vendor Delivery
30	4/30/2018	102958195	Footwear	1	Yes	No Issue
31	5/1/2018	102959169	Footwear	1	Yes	No Issue
32	5/2/2018	102963233	Baby	34	No	Stacking Region
33	5/3/2018	102959717	Baby	5	No	Stacking Region
34	5/4/2018	102958701	Health & Personal care	3	No	Customer Return
35	5/5/2018	102964802	Footwear	3	Yes	No Issue
36	4/25/2018	102954271	Footwear	3	Yes	No Issue
37	4/26/2018	102964671	Consumer Electronics	1	No	Customer Return
38	4/27/2018	102964571	Jewelry	1	No	Shipment
39	4/28/2018	102965136	Jewelry	1	No	Shipment
40	5/10/2018	102917157	Jewelry	4	Yes	No Issue
41	5/11/2018	102916099	Jewelry	7	Yes	No Issue
42	5/12/2018	102968902	Baby	4	Yes	No Issue
43	5/13/2018	102918376	Baby	8	Yes	No Issue
44	5/14/2018	102966622	Grocery	1	No	Stacking Region
45	5/15/2018	102967384	Health & Personal care	56	Yes	No Issue
46	5/16/2018	102969088	Health & Personal care	34	Yes	No Issue
47	5/17/2018	102980305	Health & Personal care	2	No	Customer Return
48	5/18/2018	102977291	Baby	43	Yes	No Issue
49	5/19/2018	102977696	Baby	3	Yes	No Issue
50	5/20/2018	102974675	Health & Personal care	11	No	Intermediate stage
51	5/21/2018	102979500	Footwear	45	Yes	No Issue
52	5/22/2018	102929514	Jewelry	4	Yes	No Issue
53	5/23/2018	102927036	Office Products	54	Yes	No Issue
54	5/12/2018	102978502	Grocery	5	No	Intermediate stage
55	5/6/2018	102925050	Toys and Games	2	Yes	No Issue
56	5/7/2018	102975782	Toys and Games	3	Yes	No Issue
57	5/8/2018	102977220	Toys and Games	6	Yes	No Issue
58	5/9/2018	102973943	Toys and Games	7	Yes	No Issue
59	5/12/2018	102972379	Grocery	8	Yes	No Issue
60	5/30/2018	102929740	Grocery	3	Yes	No Issue
61	5/30/2018	102930946	Grocery	1	No	Shipment
62	5/30/2018	102933213	Grocery	1	No	Shipment
63	5/30/2018	102932832	Grocery	1	No	Intermediate stage
64	5/24/2018	102929882	Grocery	1	No	Intermediate stage
65	5/25/2018	102932615	Grocery	2	Yes	No Issue

66	5/26/2018	102927061	Grocery	2	Yes	No Issue
67	5/27/2018	102930048	Grocery	56	Yes	No Issue
68	5/28/2018	102931319	Consumer Electronics	1	No	Intermediate stage
69	5/29/2018	102935294	Consumer Electronics	33	Yes	No Issue
70	4/17/2018	102939505	Jewelry	3	Yes	No Issue
71	4/18/2018	102943175	Jewelry	1	No	Shipment
72	4/19/2018	102941420	Jewelry	1	Yes	No Issue
73	4/20/2018	102942314	Jewelry	1	No	Shipment
74	4/21/2018	102938565	Jewelry	4	Yes	No Issue
75	4/22/2018	102943489	Consumer Electronics	34	Yes	No Issue
76	4/22/2018	100442708	Consumer Electronics	1	No	Intermediate stage
77	4/22/2018	100495450	Consumer Electronics	2	Yes	No Issue
78	4/22/2018	100497441	Consumer Electronics	78	Yes	No Issue
79	4/22/2018	100498012	Grocery	1	Yes	No Issue
80	5/31/2018	100497034	Grocery	1	Yes	No Issue
81	5/23/2018	100497114	Jewelry	2	Yes	No Issue
82	4/19/2018	100498391	Jewelry	3	Yes	No Issue
83	4/20/2018	100498382	Jewelry	1	No	Customer Return
84	4/3/2018	100497190	Grocery	1	No	Intermediate stage
85	4/4/2018	100497084	Toys and Games	32	Yes	No Issue
86	4/5/2018	100497945	Toys and Games	1	No	Customer Return
87	4/6/2018	100501727	Toys and Games	2	Yes	No Issue
88	4/7/2018	100501046	Toys and Games	1	No	Stacking Region
89	4/8/2018	100504207	Office Products	4	No	Stacking Region
90	4/9/2018	100502508	Office Products	2	No	Stacking Region
91	4/10/2018	100479496	Office Products	1	No	Stacking Region
92	4/11/2018	100480896	Office Products	1	No	Stacking Region
93	4/3/2018	100485579	Office Products	1	Yes	No Issue
94	4/4/2018	100484875	Office Products	2	Yes	No Issue
95	4/5/2018	100487998	Footwear	2	Yes	No Issue
96	4/6/2018	100495404	Footwear	2	Yes	No Issue
97	5/11/2018	100491192	Consumer Electronics	1	No	Stacking Region
98	5/12/2018	100492529	Footwear	1	Yes	No Issue
99	5/13/2018	100492712	Footwear	1	Yes	No Issue
100	5/14/2018	100487699	Consumer Electronics	1	Yes	No Issue

Table : 4.1 Sampling of Secondary Data of customer orders

5.Data Analysis And Interpretation

Ishikawa Analysis:

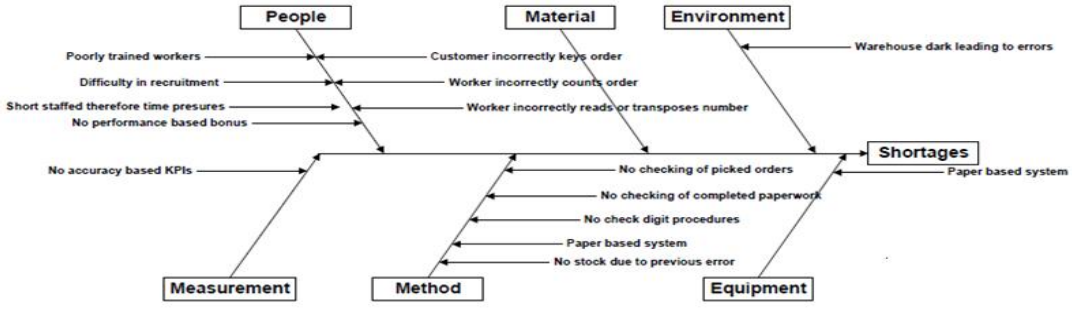


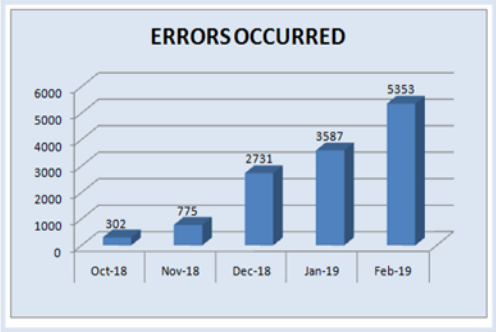
Fig 5.1 Ishikawa Diagram for Analyzing various reasons of Thefts and Mishaps

Trend Analysis:

The error numbers that had occurred in the company are depicted using a line graph as shown below. These error rates include the product damages, duplication and theft that has occurred during the inbound process.

S.NO	DURATION	ERRORS OCCURRED	PERCENTAGE
1	Oct-18	302	2%
2	Nov-18	775	6%
3	Dec-18	2731	21%
4	Jan-18	3587	28%
5	Feb-19	5353	42%
	TOTAL ERRORS	12748	

Trend analysis showing the total errors on the sample data



Trend analysis on total error chart

Fig 5.2 Trend analysis on total error chart

From the data collected, it is inferred that the trend is increasing on a rapid basis. And a solution to reduce this needs to be definitely arrived.

Why-Why Analysis:

S.No	Cause	Why 1	Why 2	Why 3	Why 4
1.	Improper employee recruitment	Incorrect HR/selection team	Not fully trained	New trainer	
2.	Personal life challenges	Poverty	Less salary		
3.	Customer Returns	Unable to reach customer	Incorrect address/ incorrect product	Customer's carelessness/ vendor's mistake	Vendor's mistake- Due to bulk transshipment
4.	Insufficient Monetary Process	No securities or cameras present	Organization denies to spend	Lesser profit to afford security system	Need more business opportunities.

Table5.3 Why –why analysis table

6. Various GL's Ordered Within the Sample Duration:

Row Labels	Count of Order No
Baby	10
Consumer Electronics	15
Footwear	11
Grocery	17
Health & Personal care	12
Jewelry	15
Office Products	12
Toys and Games	8
Grand Total	**100**

Table. 6.1 Various GL's Ordered Within the Sample Duration

Products Delivered Status Based On GL:

Row Labels	Count of Delivered status
Baby	**10**
No	3
Yes	7
Consumer Electronics	**15**
No	5
Yes	10
Footwear	**11**
Yes	11
Grocery	**17**
No	9
Yes	8
Health & Personal care	**12**
No	4
Yes	8
Jewelry	**15**
No	7
Yes	8
Office Products	**12**
No	7
Yes	5
Toys and Games	**8**
No	2
Yes	6
Grand Total	**100**

Issues at various stages

Table.6.2products delivered

Row Labels	Count of S.No
No Issue	63
Stacking Region	10
Customer Return	7
Intermediate stage	7
Shipment	6
Vendor Delivery	4
Packaging Department	3
Grand Total	**100**

7.Findings & Conclusion

Common Vulnerabilities

The obtaining framework needs sufficient controls or governing rules, in this manner enabling misrepresentation to be executed. The most well-known obtaining shortcoming is deficient power over the expansion of sellers to the master vendor list. Verification of shipments is feeble, in this manner permitting shippers or potentially recipients to stamp shipping documentation as being short. The on-line acquiring framework allows the recipient to perceive what was requested. This enables the beneficiary to enter the "normal" amount as opposed to the real physical check. The accepting individual approaches the computer program that controls the stock records and can make the program to match fraudulent records. Cycle checks are lacking, either in recurrence or items selected (or both); changes in cycle results are not explored properly .Variances in total check results are not researched properly. Departmental or specialty unit supervisors have the ability to change stock adjusts without appropriate administration or audit review for justification. Controls are not set up to prevent deals orders from being produced by unapproved staff and prepared.

Receiving

Receiving approaches and systems have been consolidated into a composed record; the report is present and contains all fundamental control components distinguished in this. The receiving region is physically isolated from regions assigned for transportation and stock. Access by non-departmental representatives to the accepting region is satisfactorily confined and controlled. The receiving region is furnished with interruption/coercion alerts and entryways are locked when not being used. Delivery documentation is prepared in a region that is physically isolated from the conveyance, dispatching, and stock areas. Delivery work force is confined from entering some other organization zones other than those required for conveyance of products and handling of their documentation. Seal numbers on all tractor/trailer shipments are checked before the transporter is allowed to open the trailer. All products got are investigated; the things got and the bills of replenishing are coordinated against the buy request for right amount, thing, and determinations. The individual getting the products signs for the shipment. Purchasing databases and additionally bills of filling are promptly reported with the subtleties of all goods received. Goods got are appropriately defended pending exchange to the end client, to stock, or come back to the shipper. High value goods are put away in a safe territory or room pending exchange. Rejected things are returned expeditiously; all profits are completely documented. Management conducts arbitrary confirmations, or examining is performed on all things professed to be come back to shipper [12]. The obtaining or stock framework issues special case reports for all things archived as returned. Received property is added to stock records as quickly as time permits. Bills of filling and marked receipts for products are sent to Accounts Payables inside one business day. Trash from the territory is investigated every day before exchange to a dumpster or access to the refuse by cleaning work force.

Inventory Protection

Inventory arrangements and systems have been fused into a composed record; the report is present and contains all fundamental control components [13]. The depiction of fixed resources got (item, model, sequential number, color and so on.) is gone into the stock framework [14]. All fixed things are bar coded, appended with a property label number, or generally named so the thing can be promptly followed all through the organization [15,16]. Fixed resource inventories are directed at any rate every year. Monthly inventories and "cycle counts" are directed; the physical check is accommodated with the stock records, demands, work requests, or transporting orders. Adjustments to stock must be completely recorded and endorsed by the management. Inventory storage areas are confined to staff who works in the zone. All guests are escorted by departmental staff. Access controls to stock stockpiling territories satisfactorily limit day of week and time of day access, just as recording people allowed get to. High value things held in stock are put away in regions having expanded security [17]. The security gave is satisfactory to the assets being ensured. If organization offices or capacity zones are abandoned amid non-business hours, premise alerts are introduced to secure capacity regions and fixed resources through the facility.

Shipping

Shipping approaches and strategies have been fused into a composed record; the report is present and contains all basic control components in this. Access to the delivery territory is confined to those representatives who work in the office. All other faculty are escorted. Shipping, bundling, and organizing territories are physically isolated from different tasks. Access is controlled through appropriate access control gadgets [18]. The shipping region is outfitted with satisfactory convenient and fixed pressure alerts. Control measures are set up to guarantee that representatives don't approach the stock/shipping/organizing zones amid non-obligation hours. Pick records are created dependent on substantial client orders or potentially item demands as it were. Items assigned for picking are consequently expelled from the dynamic stock records. Trailers are not pre-stacked. Inactive delivery entryways are locked when not being used. Products expelled from stock dependent on pick records are confirmed by an individual other than the picker. Products to be delivered are contrasted with the client request before shipment. Completed orders pending shipment are organized in a protected territory. High value products are put away in a safe zone or room pending shipment. CCTV inclusion of the organizing territory is satisfactorily given and Camera yield is recorded. Shippers are confined from getting to shipments not committed to them. Access to stacking docks is satisfactorily confined. CCTV inclusion of the stacking docks and stacking zone is enough given. The trailers on all truck shipments are fixed and the seal numbers are explained on the delivery archives. Truck shipments (excluding commercial postal carriers) are required to be bolted with a "considerable" latch before leaving the delivery dock. Trucks withdrawing stacking docks with shipments are occasionally and haphazardly halted to think about the substance of the truck versus the delivery records. Trash from the delivery zone is investigated preceding being put in dumpsters or access by cleaning staff.

Compensatory Measures

There are countless that must work in show so as to prevent stock misfortunes. It is hard to adjust for any shortcomings due to this circumstance. In any case, a few measures can give a specific level of compensation, yet surely the potential for misfortunes will remain. Strong supervision of emptying and stacking systems amid accepting and transporting activities. Frequent cycle checks with low resistance levels and with all differences investigated. Good physical security of the stock stockpiling zones amid non-working hours. Capacity regions ought to be safely locked and alarmed.

Conclusion

The overall experience in the Fulfillment center was pleasant and gratifying. The L & D Trainers and other department employees helped in understanding the process flow and support of the employees was appreciable. The environment, atmosphere and flow of work in the FC were enchanting and cheerful which thus made the work effortless. Initial weeks were about understanding the core elements of the fulfillment centers and also understanding the operational aspects of the company and importantly the flow of the operational process of how goods are brought in to fulfillment centers from the seller and then moved in to inventory storage to various preps, labeling, quality checks, customer orders, pickings, packing and the final out gate the delivery couriers, to meet the customer orders. It is delightful in finding the various operational team efforts in meeting customer orders and bring out the smile from the customers.

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