STANDARDIZATION AND BENCHMARKING

Project report submitted in partial fulfillment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRONICS AND COMMUNICATION

By

Sparsh Mahajan (161037)

UNDER THE GUIDANCE OF

Mr. Pardeep Garg (Assistant Professor, ECE Department)

JAYPEE UNIVERSITYOF INFORMATION TECHNOLOGY, WAKNAGHAT

May 2020

Project Report Undertaking

I, <u>Mr. Sparsh Mahajan</u>, Roll No. <u>161037</u> Branch <u>ECE</u>is doing my internship with <u>Amazon</u>from <u>February 03,2020</u> to <u>June 26, 2020</u>.

As per procedure I have to submit my project report to the university related to my work that I have done during this internship.

I have compiled my project report. But due to COVID-19 situation my project mentor in the company is not able to sign my project report.

So I hereby declare that the project report is fully designed/developed by me and no part of the work is borrowed or purchased from any agency. And I'll produce a certificate/document of my internship completion with the company to TnP Cell whenever COVID-19 situation gets normal.

Signature

Name: Sparsh Mahajan

Date: May 30, 2020

TABLE OF CONTENTS

DECLARATION

I hereby declare that the work presented in my report entitled **"STANDARDIZATION AND BENCHMARKING"** in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Electronics and Communication Engineering submitted in the department of Electronics and Communication Engineering, Jaypee University of Information Technology Waknaghat is an authentic record of our own work carried out over a period from February 2020 to May 2020 under the supervision of Mr. Pardeep Garg (Assistant Professor, ECE Department)

The matter embodied in the report has not been submitted for the award of any other degree or diploma.

Sparsh Mahajan (161037)

This is to certify that the above statement made by the candidate is true to the best of my knowledge.

Mr. Pardeep Garg

Assistant Professor, ECE Department

Date: May 30, 2020

Head of the Department/Project Coordinator

ACKNOWLEDGEMENT

I would like to thank my project guide Mr. Pardeep Garg who guided me throughout this project **STANDARDIZATION AND BENCHMARKING**, which also helped me in learning a lot of new things and I had such a great experience. I am highly thankful to him.

Secondly, I would also express my gratitude towards our Station Managers and Central Leadership Team who helped me a lot in finalizing this project within the limited time frame.

LIST OF ACRONYMS AND ABBREVIATIONS

1. AMZL – Amazon Logistics

2. MFN – Merchant Fulfillment Network

3. AFN – Amazon fulfillment Network

4. FC- Fulfillment Centre

5. SC – Sort Centre

6. FBA – Fulfilled By Amazon

7. SCMS – Sort Centre Management System

8. CPT – Critical Pull Time

9. COMP – Carrier Operation Management Platform

10. COD – Cash On Delivery

11. MPOS – Mobile Point Of Scale

12. DSP- Delivery Service Partner

13. IHS – I Have Space

14. DA – Delivery Associate

15. NDL – Normalized Delivery Location

16. ZBRi – Zone Based Routing India

17. EDD – Estimated Delivery Date

18. RTS – Return To Station

19. OOR – Out On Road

20. TMS – Time Motion Study

21. SSA – Station Support Associate

22. TL – Team Lead

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 About Amazon

Our goal is quite simple: we wish to make Amazon.Com to be the location wherein our clients can locate, find out and purchase something online! Anything that our clients inform us they need, we can find the way to deliver. In doing so, we will create the most consumer-centric company inside the universe, a company that customers from everywhere in the globe will apprehend, fee, and believe for both our products and our provider. With the help of leaders, Amazon.Com will constantly allow people to find out new worlds and create trade in a significant and lasting manner.

1.2 Mission and Principles

1.2.1 Our Mission

We look forward to be Earth's maximum client-centric organization for 4 types of customers: purchasers, dealers, companies, and content material creators.

1.2.2 Leadership Principles

Functioning at Amazon is highly dependent upon its leadership principles and almost all the decisions of the organization are taken by keeping them in mind. The principles are mentioned below:

a. Customer Obsession: Leaders begin with the client and they all work backwards. They do work vigorously to earn and preserve customer faith. Although leaders be aware of competition, they actually obsess over clients.

b. Ownership: Everyleader is a proprietor. A leader have a long term imagination and do not sacrifice the long-term cost for quick-term consequences. They act on behalf of the whole organization and not just their personal team. They by no means say "that job is not mine".

c. Invent and Simplify: Leaders assume and require innovation and new kind of inventions from their teammates and continuously locate different ways to simplify. They are all externally aware,

look for distinct ideas from anywhere, and are not limited by the phrase "no longer invented here". Since we explorea lot, we know that we are misunderstood for lengthy time periods.

d. Are Right, A Lot: Leaders are mostly right. They have robust judgment and reasonable instincts. They seek various views and work to disconfirm their own beliefs.

e. Learn and Be Curious: Leaders are in no way done with learning and usually are looking forward to improve. They have curiosity for new possibilities and try to explore those possibilities.

f. Hire and Develop the Best: Leaders boost the overall performance bar with every promotion and hire. They understand outstanding expertise, and move them through our organisation.Leaders create leaders and take seriously their role of coaching other people.We work on behalf of our organisation to develop mechanisms for development such as Career Choice.

g. Insist on the Highest Standards: Leaders have high requirements - many humans may think those requirements are high. Leaders elevating the bar and make their teams to deliver excessive exceptional merchandise, services and the processes. Leaders make certain that the defects are not despatched down the line and that issues are fixed and stay fixed always.

h. Think Big: Small thinking is a self-satisfying prophecy. Leaders work in a direction that conjures up consequences. They explore distinct waysand approaches to serve clients.

i. Bias for Action:In business, speed also matters alot. Many actions are not irreversible and don't need huge examine. Risk Taking has a lot of value.

j. Frugality: Achieve greater with much lesser. Constraints bring up resourcefulness, discoveries and self-independency. No extra marks are there for growing headcount, size of the budget or fixed expenditure.

k. Earn Trust: Leaders concentrate wreckfully, communicate frankly, and behavein a good manner with everyone. They are vocally self-complacent, even when the situation is awkward. Theydon't have a belief that their body or their crew's body smells of fragrance. They maintain a standard for themselves and their group versus the greatest.

l. Dive Deep: Leaders function at all tiers, always stay aware to the information, audit oftenly, and are doubtful when anecdotes and the metrics vary. No activity is conducted underneath the leaders.

m. Have Backbone; Disagree and Commit: Leaders are forced to venture the decisions respectfully when they don't agree, even when doing so not comfortable or arduous. Leaders always haveobstinacy and don't give up. Compromise for the sake of social connection is not done by leaders. They commit fully to their decisions.

n. Deliver Results: Leaders concentrate on the main inputs for their commercial enterprise and deliver with the appropriate quality in time. They never settle because of the setbacks.

1.3 Amazon Logistics (AMZL)

Our intention is to provide customers with splendid package delivery joy through the LM team. To achieve this goal, we accomplice with a community of impartial shipping businesses (Delivery Service Providers) and the unbiased contractor network (Amazon Flex) to deliver purchaser orders. Utilizing continuous development tasks and innovative wondering, our Delivery Station teams make sure that millions of applications attain their final vacation spot as efficaciously as feasible. AMZL has oversight over all last mile service carrier and operations worldwide.

CHAPTER 2

WORKING OF AMAZON NETWORK

2.1 Introduction

Our internet site is a place where millions of people are able to sell and purchase goods of their own choice while they are sitting at their home. Although there are many sellers who store their stock in the warehouse of Amazon, other dealers wish to keep the stock of the warehouse owned by them. They then use Amazon's resources for meeting the consumer orders. As soon as a purchaser orders a product from our network, relying on either heselected object which is FBA or via MFN, then accordingly the details of his/her ordergo to both FC and the seller.

In India, sellers have below mentioned options for selling their goods to the consumers:

a. Fulfilment by Amazon - FBA givesspeedy and cost-free delivery alternatives, and trust-worthy customer services to dealers. Sellers send their product to fulfilment centre and our system will pick the product, will pack itand thendelivers inthe whole country and offerconsumer support.

b. Easy Ship - Its for dealers who like to keep their products in own warehouses but nevertheless they require assistance for thetransport. Under Easy Ship, dealers save their personal products, pack them after they receive an order and then hand it over to the Pick-up accomplice, who then ships the product and guarantees well timed shipping.

c. Seller Flex–This option shows dealers Amazon's high-quality practices in its inventory and warehouse. By this act, dealers who are selectedare given the permission to convert their storein FBA store. Despite the fact that the products could be in dealer's warehouse they'll nevertheless have a FBA product tag. Sellers can pick and packand ship the goods from their own place thereby decreasing the rate of transportation.

d. Pure Merchant Fulfilled Network- MFN is for dealers who transport their personal merchandise without delay from warehouse owned by them after they receive and order through Amazon. This

means that the dealer has the whole responsibility. These particular consignments do no longer enter the AMZL System.

2.2 Journey of a product in Amazon
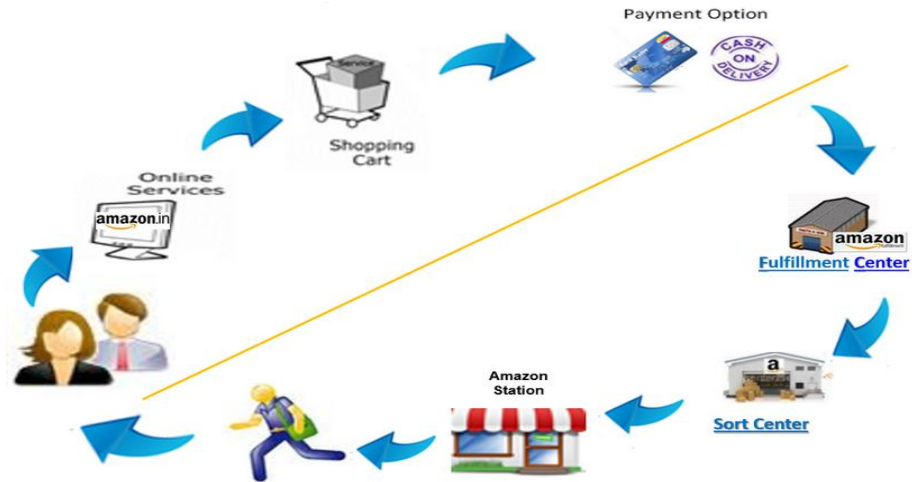
Figure 2.1: Basic overview of how a package reaches a customer

2.2.1 Fulfillment Centre

In case the ordereditem is achieved by the amazon, then item flows to warehouse owned by Amazon. At FC the product is firstlyhand-picked, then it is packed, then organized right into a consignment. The product now has a shipping/packing label.

The label on the consignment has the codeand the transport type. After the Outbound process, the FC sorts the shipmentsby the usage of the code & the type of transport. The consignments are then given to the shippersfor delivery.

2.2.2 Fulfillment Centre Dock

Amazon's personal logistics wing AMZL is again a kind of exporter. It acceptsparcels from the warehouses present in India assisted by AMZL. These packages are already arranged and sorted according to the pincodes or location. The warehouse categorises every packet into there basic categories namely small, medium and large.AMZL categorises into -sortable & non-sortable.

Sortables- Anything sortable is sorted & bagged into ATS baggage such as all small shipments or packages having a size beneath a normal shoes box.

Non-Sortables – Any other packet which is non sortable might be at once put directly into the vehicle &is departed.

Sort Centres use tool known as Sort Centre Management System-SCMS . The packages are receive scanned. Then by code of the city on the transport label, sorting of packages is done cording to lane. In case if there is no auto-sorter, nodes are categorised into South, North, East and West.

The origin SC then creates either the positive or the mixed bag depending upon the type of packages received.

Positive bag – This type of bag is created by for destination node. This particularcarrier bag will comprise packages of destination/end node. None of the SCs have the permission to check this bag by opening itwhen in transit. The bag is opened when it reaches the very last destination node.

Mixed bag – This type of bag is created for intermediate node. This particular carrier bag will comprise of multiple areas that could be linked from that node. Hence, the bags keep on getting opened at the various areas/SCs.

Hence, the shipments from the FC are then transferred to the Dock area, then the Dock area sorts those consignments according to SCs where they are to be transported and with the help of linehaul, linksshipment to the SCs.

2.2.3 Linehaul

Amazon's linehaul presently drives SUR (surface) and AIR (air transfer) mode of passage for the transfer of consignments from one place to another. It books the airway tickets using the consolidator. It rentals the gap to AMZLaccording to theessentialvolume. AMZL makes use of surface mode of transportationFor network routes where there is extent. A community of devoted linehaul truck join many places within India. Every car hasa planned leaving time as well ascoming time. The NOC squad keeps in record the movement of vehicles, reviews any past due arrivals or

departures. The linehaul schedules are noted inside the SCMS device. Each path has Critical Pull Time the consignment has to follow for its journey to buyer at EDD.

2.2.4 Sort Centre

The SCoperation is identical to the Dock of the warehousebut processes more than double the volume of packets than the Dock. The distinction among SC's and Dock of Fulfillment Centre is inside the supply of consignments. Dock of the warehouse receives load from warehouse whereas a local SC gets its loads from numerousplaces. Local SC's do not had to share the running space by FC & different providers, the RSC makes use of device like huge crates,HPTs to transport couriers in the sites.

Processes which are involved at a Sort Centre are:

a. Receive: Consignmentswhich reaches the centre is saved in SCMS. Every volumetricconsignments are received via scanning the tracing identification code. Every stack which might be obtained in centre is get hold of scanned in Sort Centre Management Systemwith the help of Bag ID.

b. Sort: On the basis of the information mentioned on the boxes received, they are now sorted. All those packed boxes which are illegal to be opened at this centre are moved to a separate region. All those bags are moved to the concerned area which are supposed to be allied after their proper verification. In order to detect whether a bag must be unwrapped / related in addition,go through the basket destination inbasketidentification. In a similar manner, all the consignmentswhich weren't arranged initially are nowarrangedaccording to their respective address on the label. The consignments are then moved to the respective area.

c. Bagging: The consignmentsreceived in the Sort Centres are looked after to correspondingends. Initially, the label of the container is opened.Then, the consignments are shifted into a categorization desk. The cargos are looked after into the extraordinary paths. Sort Centre possess conveyor belt for eachpath. For a particulartrack, there are "n" quantity of luggage on any aspect of the conveyor belt. Consignments which can be organized to a pathcould be selected via partner who sends it into the intendedbasket. Concerned person tests the courier deal to the carrier within the software to direct the cargo to its container. As soon as the container is jam packed,container is

brought out of the containerstandpoint,containersticker is detached, and containerstickeris attached on the container tag, the containerlabel wound across the neck of the container& the containeris taped up.

d. Stage: Sort Centre has separate areas to keep track of baggage/massive shipments briefly till it is to assignin the planned linehaul. These separate regions are committed for the following location/organization of areasassisted with the aid of a linehaul linking or the third party service workers. Baggage that are to be related in addition are kept at the exact region lateraccepting. The stacks which might be formed in the making of container method is also keptinside the particular section.

e. Depart: As soon as it is the time for the Critical Pull Time, the concerned vehicle is brought in the outbound area where the consignments are loaded into it. The volumetric consignments are placed directly into it from the place where they were initially kept. While we are loading the consignments into the vehicle, the labels of the containers are scanned and then it is put into the vehicle . Once the vehicle is completely full and it cannot accept more couriers, then the vehicle is completely sealed and hence, it is moved forward to its respective places on before the Critical Pull Time.

2.2.5 Delivery Station

The last node of the whole network is the Deliver Station which directly delivers the consignments to the consumers by making it reach at their doorsteps. Only those cargos are transferred to these stations which can directly be delivered by it and is not far away from it. Once the vehicle arrives at a station, it updates the status of the vehicle on the software so that it can be brought in the notice of the Sort Centre that the vehicle has successfully reached. The station then scans every consignment which is there in the vehicle and hence, all the packets are then received at the station from the Sort Centre.

The packages are then assigned to the Delivery Associates who deliver on the behalf of Amazon. DAwho is going to deliver couriers on the bike or any other two- wheeler is usually provided with40-50 shipments in his bag. Consignments which are large in size and cannot be fitted inside a bag are then assigned to a DA who delivers it using his Van (usually 40 packets)

There are multiple modes through which the station team delivers the consignments which are as mentioned below:

a. DSP–DSPs or Delivery Station Partners are the special people who work with the AMZL and help them in making the consignments delivered to the buyers on the time keeping in view the ethics of Amazon.
There are basically two type of DSP's:

 i. Fixed Cost Model –In this type of model, the third party vendors provide us the required number of people who deliver the shipments on our behalf following the morals and ethics of our company. Depending upon the number of people they provide us for the assistance, they receive the commission from the company.

ii. Variable Cost Model –In this type of model, the local vendors provide assistance by doing pick up and shipping of applications on our behalf. The amount they receive in return entirely depends upon the quantity of consignments they pick and deliver.

b. IHS – Basically, these are the shops which are situated near client (~2km from client). They have the tendency of delivering consignments to the clients keeping in mind the morals and ethics of the company.

c. AmFlex –This type of service was launched which enabled anyone outside the Amazon network to deliver the shipments on our behalf in the time slots which are displayed in the application by simply choosing the desired time and are paid on the hour basis.

As soon asthere's a return request from client, that request is reflected in the software of the station and an associate goes to the doorsteps of the purchaser and takes the parcel.

As soon asarticle is taken back from the consumer, it is brought back inside the premises, and the team starts the returnmethodfor sending it back to (FC / MFN vendor) in the same nighttime.

2.3 AMZL Product Offering

2.3.1 AFN (Amazon Fulfillment Network)

If a seller decides to sells his products using the Amazon network, then his products are kept in the inventory which is owned by Amazon and it is the delivered by Amazon. This type of process is known as Amazon Fulfillment Network.

Object is firstly hand picked, followed by its packing, and then organized right into a cargo which is thenforwarded to the provider at dock. Service Provider then utilizes his own resources to transport the cargo to the next place.

Amazon offers the following options for the delivery:

a. Standard −The standard products are usually delivered in 2-4 days or even 5-10 days in some cases. This totally depends upon the location of customer where he/she is located.

b. Express −The Express shipments are usually delivered within 2 days of placing order. However, Express facility is only available in the limited set of cities as of now.

c. Next −These shipments are delivered to the buyer on the very next day following the day of ordering that product. However, it is also limited to certain cities only.

d. Same −These are the shipments which reach the customers in less than 24 hours of time and this option is available in selected cities only.

e. Morning Delivery −These are the shipments which promise to be delivered at 11:00 am of the next day when the order is placed and are only available in selected cities.

f. Scheduled Delivery − In this type of delivery, a product is delivered to the buyer on a promised date and time which is decided by the buyer himself when he is placing the order.

2.3.2 Easy Ship or MFN (Merchant Fulfillment Network):

There are some sellers who are registered with the Amazon but they don't opt for the "Fulfilled By Amazon" policy and they like to keep their shipments to themselves. Now, as soon as a consumer places an order for these particular articles/shipments, the details of the particular order is automatically forwarded to these particular sellers who then pack the packets, print their labels as well as print their invoice.Once this is done, they place a pickup request to the nearby Amazon Delivery Station. Then the station sends a DA to that particular seller and he picks up the package from the seller and brings it back to station. Once this is done, the package is processed further and can be delivered to the customer. This process of picking packets from the third party sellers and delivering those packets to the customers with the help of DA's is called MFN process.

This is an initiative which was taken to promote sellers who don't opt for the Fulfillment By Amazon policy. Amazon provides these sellers the subsequent offerings:

- Pick their orders and then deliver them to the customers
- Cash On Delivery Collection
- Provides digital payment options to the buyers at their doorstep
- Open Box Delivery for the consumers
- Rejected Packets Return
- Undelivered Packets Return
- Tracking of the shipments in real time

2.4 I Have Space (IHS)

I Have Space is a special program which was launched by Amazon in which it partnered with the local shops or the stores who were willing to deliver products on the behalf of Amazon. In this program, all those shop owners who used to be free in the day time or any other time, registered with the AMZL and agree to deliver products in their free time to add another source of income for themselves.

There were basically two options available with the store owners to deliver the product. One was they will themselves go and deliver the product at the customer's doorstep and the other was the pick up process in which the customer will opt an option of going to the nearby shop and picking up the order by himself.

For the above mentioned pick up services, Amazon has contacted many local stores which are usually located in a society or any other place in the city. They keep the parcel with them usually for period of five days, which allows the client to go the shop and collect his parcel depending upon the time of his choice and the working hours of the store.

This process allowed Amazon to distribute the huge volumes of packets amongst the DSP agents and the stores. Now, a large part of the total volume is delivered by the stores. This helps Amazon to scale the deliveries when there is a lot of variation in the number of orders they receive.

CHAPTER 3

STATION PROCESSES

3.1 Overview of Processes

A high level process of delivery at station will look like this.

Figure 3.1: Station Processes

3.2 Load Receive

On arrival of the line haul vehicle at the Station, the Station Team Lead/Supervisor must tally the number of bags and bag id against transfer challan / ILHS and acknowledge receipt of bags that arrived at the Station.

Transfer challan will be used for all movement of shipments between any two nodes (buildings). The transfer challan will have a list of all materials that is moving in a truck from origin node to destination node in the network. A copy of the transfer challan prepared by the origin will travel along with the load to the destination (carried by the truck driver). The destination will cross check the details on the transfer challan against the actual receipt of truck/load before accepting the material.

3.3 Package Receive

After receiving the mother bags, move the bags to the Receive work station in the station to receive the packages in COMP. Once the mother bags are moved to the receive work station, cut open the bag tags to open the bag.

Every package that is physically received in the station must be receive scanned in COMP without which no operation process can be performed on the package.

As there are many packets which usually don't have the same process of operation as other packets, hence these parcels are supposed to be put aside at the time of receiving process or sorting process in their respective bins to avoid mixing of packets. While the packets which are inducted programs will waft thru standard operation method glide (of assign & leave), the sidelined programs will need a special step also known as handling exception step to take care of these packets differently and they are then assigned as well as departed with the help of the Delivery Associate.

3.3.1 Dolphin Induct:

```
┌─────────────┐                                    YES    ┌──────────────┐
│  LOGIN &    │        ◇ Volumetric ◇  ──────────────────→│  Click on    │
│ select Induct│───→    ◇  package  ◇                      │  volumetric  │
└─────────────┘          ◇         ◇                       │  check box   │
       │                      │                            └──────────────┘
       ↓                      │ NO                                 │
┌─────────────┐               ↓                                    │
│ Select Induct│        ◇ Scan the Bar ◇ ←───────────────────────┘
│    Point     │         ◇   code    ◇
└─────────────┘               │
                              │
┌─────────────┐               │
│ Successful  │ ←─────────────┘
└─────────────┘               │
                         Un-Successful

                         1) At wrong station
```

14
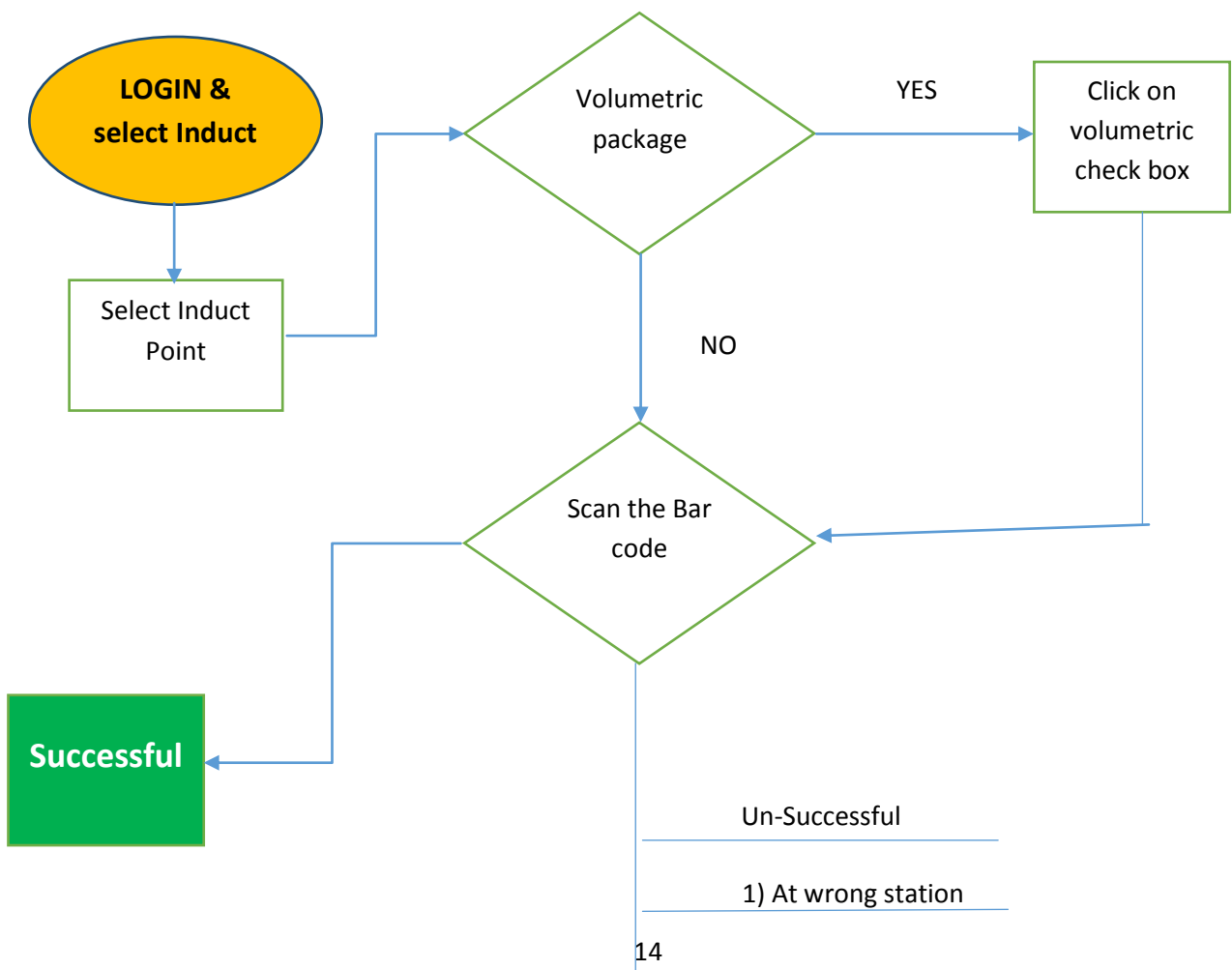
3.4 Sorting

Sort must happen immediately after a package is Receive scanned. At any given point in time, package should either be inside mother bags (received from SC / sorted into sort codes or in exception totes. There should not be package lying anywhere else.

Similarly, in case of large shipments, the package should be sorted into the delivery route – cage trolleys or pallets or a designated area on floor denoting route. After receive scan, packages has to be manually sort into Sort Zones as printed on the shipping label. Sort Zone is a cluster of one or more NDL (Normalized Delivery Location).

NDL is a delivery location or address identified from prominent landmark/building name used in the address, geo code of past deliveries to the address. The number of NDLs that are grouped into a sort zone depends upon number of packages arriving at that NDL & the distance between the grouped NDLs.

3.5 Assign and Depart

Assigning of packets is done using another tool called ZBRi 2.0. It supports allocation to all types of delivery channels (IHS, SP & DA) and for different types of packages - Small, Volumetric; Different ship types & terminal status - Commercial, Delayed at Station, 111 shipments, Exchange & Hold for Redelivery (HRD)

```
                              ┌─────────────┐
  ╔════════════╗              ╱   Package    ╲
  ║   Start    ║─────────────▶   small       ────────── NO ──────┐
  ║ Allocation ║              ╲              ╱                    │
  ╚════════════╝               └─────────────┘                   ▼
                      YES                               ┌──────────────┐
        ┌──────────────┐                                │    Select    │
        │ Select Small │◀───────────────────────────────│  Volumetric  │
        └──────┬───────┘                                └──────┬───────┘
               │            ┌──────────────┐                   │
               ▼            │ Select the   │◀──────────────────┘
        ┌──────────────┐───▶│   sectors    │
        │  Mega Zones  │    └──────┬───────┘
        └──────────────┘           │
                                   ▼
                          ┌─────────────┐
                          ╱   Delivery   ╲        ┌──────────────┐
                          ╲   Channel    ────────▶│   Store/IHS  │
                          └──────┬───────┘        └──────┬───────┘
                                 │                       │
                                 ▼                       ▼
                          ┌──────────────┐        ┌──────────────┐
                          │      DA      │        │   Coverage   │
                          └──────┬───────┘        │   Radius     │
                                 │                └──────┬───────┘
                                 ▼                       │
                          ┌──────────────┐               ▼
                          │ Begin route  │        ┌──────────────┐
                          │  Planning    │        │   Min & Max  │
                          └──────────────┘        │   Capacity   │
                                                  └──────┬───────┘
  ╔════════════╗                                         │
  ║  Run ZBRi  ║                                         ▼
  ║ Allocation ║                                  ┌──────────────┐
  ╚════════════╝                                  │Select the    │
        ▲                                         │sectors code  │
        │                                         │preference    │
  ┌──────────────┐                                └──────┬───────┘
  │ Route Label  │         ┌─────────────┐               │
  │(Route no., DA│         ╱  Allocation  ╲              ▼
  │ name, Sector │◀────────╲ & Assignment ◀──────────────┘
  │    etc)      │         └─────────────┘
  └──────┬───────┘              │
         ▲                      ▼
  ┌──────────────┐      ┌──────────────┐
  │Label Printing│◀─────│             │
  └──────────────┘
```

- Start Allocation
- Package small
  - YES → Select Small → Mega Zones → Select the sectors
  - NO → Select Volumetric → Select the sectors
- Delivery Channel
  - DA → Begin route Planning
  - Store/IHS → Coverage Radius → Min & Max Capacity → Select the sectors code preference → Allocation & Assignment → Label Printing → Route Label (Route no., DA name, Sector etc) → Run ZBRi Allocation

3.6 RTO Process

```
┌─────────────────┐                    ┌──────────────┐
│ Update          │                    │ Departed     │
│ rejected        │ ─────────────────→ │ to FC/SC     │
│ items status    │                    │ status       │
└─────────────────┘                    └──────────────┘
                                              │
                                              ↓
                                       ┌──────────────┐
                                       │ RTS Tool LM  │
                                       │ for          │
                                       │ segregation  │
                                       └──────────────┘
                                              │
                                              ↓
                                       ┌──────────────┐
                                       │ Scan the item│
                                       └──────────────┘
                                              │
                                              ↓
                                          ◇ High ◇          ┌──────────────┐
                                          ◇ Value ◇ ──────→ │ Six side     │
                                          ◇      ◇          │ check        │
                                              │              └──────────────┘
                                              ↓
                                       ┌──────────────┐
                                       │ SCMS         │
                                       │ processing   │
                                       └──────────────┘
                                              │
                                              ↓
                                       ┌──────────────┐    ┌──────────────┐
                                       │ Close the Bag│ ─→ │ Loading      │
                                       └──────────────┘    │ process      │
                                                           └──────────────┘
```

3.7 Return to Station

Once the DA delivers and attempts all the packets, he brings back those packets to the station which couldn't be delivered because of some reasons like customer was not available, customer requested the packet to be delivered next day or customer rejected the packet. As soon as he returns back, the Station Support Associate who is sitting in the RTS counter will check the summary of the respective associate in the COMP. If the Station Support Associate finds that there are still some packets which are assigned to that associate and are having the status of OOR, he will sync the delivery app of the DA manually. If again after following the above process there is no change in the packet's status in the COMP, then SSA will himself/herself update the packet status in the RTS tool.

The packetswhich the DA was not able to deliver because of many reasons and are brought back to the Delivery Station, then the status of those particular packets changes to one of the following after the RTS process:

• If it was the first attempt, the status gets modified to "HOLD FOR REDELIVERY"
• If it was the second attempt, the status gets modified to "HOLD FOR CUSTOMER REQUEST"
• If the packet was delayed, it gets modified to "DELAYED AT STATION"
• If the packet was rejected, it gets modified to "READY FOR FC/SC RETURN"
• If it was undeliverable it gets modifiedto "READY FOR FC/SC RETURN"

3.8 COD Cash reconciliation

3.8.1 COD Reconciliation by Associate

Once the DA returns to the station, the SSA in Cash Counter will tally all COD packages that have been delivered. Reconcile the cash received by the Associate against the total "Cash with Associate" as shown against that associate name in COMP.

3.8.2 Associate Cash Handover Sheet

The "Associate Cash Handover Sheet" is a manual register available at the Cash Counter in the station that is used to record details of Float Cash handed over to the associate prior to departing for delivery. After the Associate is back from the field this same sheet will be used to reconcile COD Cash Collected by the Associate and the Float amount returned.

The Associate and Team lead/Supervisor will sign on the Cash handover sheet which completes the cash handover process for that Associate.

3.8.3 COD Reconciliation by Station

Once all associates are back to station & all associate routes have been reconciled in COMP, the station will perform cash reconciliation for the station.

3.8.4 Settlement of Cash in COMP

The HCIN Slip must be filled every time the cash is handed over to the banking agency. Note: The HCIN Slip's serial number is alpha numeric & below is the correct way of entering the same in COMP.

Cash Exceptions use case

1. Associate returns with Short Cash / Cash Lost by Associate

a. The TL / Supervisor/Manager must ensure that full COD amount is collected from the Associate.

b. Associates are expected to ensure that total COD is handed over to the TL/Supervisor after each run of deliveries.

c. Associate are expected to take care of all the COD cash collected and use the Pouch to keep the Cash.

d. Once back to station tally the same with the COD debrief / Departure sheet and hand over the exact Cash to the cash counter.

e. The TL/ Supervisor/Manager of the stations must report an Incident Report in any of the following cases.

      i. Associate has Lost Cash / MPOS

      ii. Cash & Packages has been stolen from Associate on Road

      iii. Associate reporting with Short Collection

2. Store returns short cash

a. The cash counter records the cash returned by store and captures right reason for short cash.

b. The Channel Team (ADE/CTL/CRM) must followup with the store to collect the pending short cash from the store.

c. Pending short cash of INR 2000/- and above will lead to no package allocation to the store

3.9 Types of Pickups

3.9.1 MFN Shipments

There are some sellers who are registered with the Amazon but they don't opt for the "Fulfilled By Amazon" policy and they like to keep their shipments to themselves. Now, as soon as a consumer places an order for these particular articles/shipments, the details of the particular order is automatically forwarded to these particular sellers who then pack the packets, print their labels as well as print their invoice.Once this is done, they place a pickup request to the nearby Amazon Delivery Station. Then the station sends a DA to that particular seller and he picks up the package from the seller and brings it back to station. Once this is done, the package is processed further and can be delivered to the customer. This process of picking packets from the third party sellers and delivering those packets to the customers with the help of DA's is called MFN process.

This is an initiative which was taken to promote sellers who don't opt for the Fulfillment By Amazon policy. Amazon provides these sellers the subsequent offerings:

- Pick their orders and then deliver them to the customers
- Cash On Delivery Collection

- Provides digital payment options to the buyers at their doorstep
- Open Box Delivery for the consumers
- Rejected Packets Return
- Undelivered Packets Return
- Tracking of the shipments in real time

Figure 3.2: MFN Process Flow

3.9.2 C Return

Just like delivery process, Amazon delivery stations also additionally perform the pick up of packages. That pickup may be from a MFN service provider or could be from a consumer who wants to return an item that he/she has purchased from Amazon or the AFN network and now is looking forward to return it. This process is known as Customer Returns or simply C-Return.

Amazon has its own return policy which is applicable on the products which are purchased from the Amazon. Buyers who are not happy or satisfied with the products due to any reason can apply for the return of product using "Returns Support Centre" on Amazon shopping website.

As soon as the purchaser applies for a go back request at the "Returns Support Centre", thenthe return pickup request is transferred to the Amazon Delivery Stations which reflects in the Station's COMP. The station then carry out the pick up process for the return shipment from those clients who've asked for the same. Amazonthen provides multiple windowsto the buyers for their return requests. Depending upon their choices and their feasibility, the clients then can place a return request in the desired window depending upon their availability.

These are the pickup slots for the customers from which they can select one:

• 07:00 am - 01:00 pm

• 01:00 pm - 07:00 pm

These slots are applicable on all 7 days of the week. For the customers who live in areas which are located as a fair distance from the station, the time for them is 7 am to 7 pm.

3.9.3 Exchange

When a patron orders an object that does not definitely meet the client's expectation because of wrong in shape, coloration, and so on customer can exchange this item towards new object. Today this option is available for garb, sports, shoes, child products, jewellery, bags and watch objects which have a length or coloration version. But consumer will have to return the object & location a new order. The old object is picked up & go back item brought independently.

An exchange service entails delivery of the delivery shipment and pick up of a return/pickup shipment at the same time from the customer location. Both pickup and delivery either happen at once or not happen at all. The returned shipment may then be sent to the FC or to a Buyback partner address (as per the address on the label).

Exchange shipments which the station would be handling are of two types. However, the process of handling these shipments would be the same:

a. Buyback shipments:

Customer can exchange any of their old item (may not be purchased from Amazon) against a new item that they purchase from Amazon for a price discount.

b. Hand-to-hand replacement shipments:

Customer can get the new item delivered by exchanging the old item to Amazon. Associate will pick up old item & deliver the new item simultaneously.

3.10. Station Scorecard

1. Delivered within PDD (Web RN) - Fraction of packages delivered on or before PDD (Promised Delivery Date)

22

2. First Day Delivery Success (FDDS) Web RN - Fraction of packages delivered on the first attempt

3. Early Morning Deliveries (EMD) - Fraction of packages that are available at station by 8 AM and delivered before 12 PM

4. C-Return Picked In Slot Web RN & In App Neutralized - Fraction of packages picked from the customer location within the first scheduled slot

5. In Facility Loss + DNR Concessions - To calculate the loss value for a station, the following packages are considered:

- Shipments that have been picked up (C-Returns / Exchange / MFN / SF) and not departed from station within 6 days of pickup
- Shipments aging at the station beyond 6 days from "At_Station", "At_Wrong_Station" or "Ready_For_FC" scan (both forward leg and seller return packages)
- Shipments marked as "Departed_For_FC" but reject label has not been printed
- Packages marked as "Lost" or "Missing" after "At_Station", "At_Wrong_Station" or "Ready_For_FC" scan (all packages)
- Packages marked as "Damaged - Disposed off " with a delay of 24 hours after "At_Station", "At_Wrong_Station" or "Ready_For_FC" scan
- DNR i.e. Did Not Receive concessions

6. Missed Reconciliation - Fraction of shipments that were expected to be reconciled on the reporting date, but were not reconciled

7. Routing Bypass - Fraction of shipments that were bypassed from routing engine, despite being eligible for routing

8. SSA (Station Support Associate) Productivity - Average number of packages handled by an SSA

9. Cost Per Shipment (CPS) - Average on-road cost incurred to deliver a shipment

10. KYC Conversion - Percent of KYCs complete against the number of KYC flags raised

11. DA Score - Average score of the DAs for a given station

12. LM Tutorz - Metric is applicable for DAs who are active for at least 5 days in a week and measures the percentage of notifications acknowledged by the DA

13. Engagement Index - Average score on engagement in the Connections score

14. Safety Score - Safety score for the station

CHAPTER 4

STANDARDIZATION AND BENCHMARKING

4.1 Problem Statement

Since Last Mile operations have a large set of at station and out on road related processes, specific Benchmark standards i.e. the right and optimized way of performing an activity with data to support its effectiveness was needed.

Due to tribal knowledge, every delivery station had its own set of executing processes which led to non-standard way of work across entire AMZL network. This increased inefficiency in processes and knowledge gap among operators. Hence a set of rules in performing Last Mile processes were needed which again required large sets of TMS activity to be performed at ground level to record pre and post implementation changes.

Understanding the standards authored by SMEs and using TMS as mechanism to analyze the advantages after standards implementation. Station level knowledge transfer of the standards and implementation within a specified period of time. Being the POC for all LM stations in North Zone for Standard implementation queries. Also working on Continuous Improvement after observing the implemented standards and providing the SMEs with essential ground level data that can help improve the standards' output further.

4.2 Project Objective

The intent of project is to define Standard way of operating at Last mile Delivery Station and measuring productivity improvements in station and OOR. Measuring adoption of Standards using Audit tool. The project is to define Benchmark process standards during BAU and contingency for Last mile Delivery Stations and improve productivity for in-station and OOR (Out on Road) by eliminating variance in process and always ensuring employee safety.

4.3 Approach Note

- Started off with the 7 standards launched in Feb Sprint
- Implemented at my station (IXCE) followed by implementation in Punjab and Rajasthan territory
- Follow-up with all the stations and maintained a Sharepoint folder for sharing the files on the daily basis
- For Benchmarking, worked on "Assign and Depart" process and designed a template depicting Right Hand and Left Hand activities and time taken in each process

4.4 Data Analysis/ Research

7 standards were launched in Feb sprint:

- Leadership Routine
- Startup Routine
- Gemba
- Load Receive
- Induct and Sort
- Return to Station
- Cash Debrief

TMS (Time Motion Study) activity was carried out for the above mentioned processes with 10 Iterations each before the implementation of these standards and results were shared with the concerned team. This ensured tracking the time taken in each activity before the implementation of the above mentioned standards which would then be compared with the post implementation of standards to track the changes brought into the system and eliminate the waste from the process to improve productivity.

Now, as soon as the new guidelines were released, implemented all the necessary changes in the stations in Punjab and Rajasthan Territory and tracked the implementation.

Once, the implementation was completed, performed TMS for the post implementation of these standards to study the effect of launch of these standards in the Last Mile stations.

However, the post implementation TMS was not completed due to the lockdown being imposed in the entire country.

For the Benchmarking part, I designed a template depicting Right Hand and Left Hand activities for all the steps involved in the process and calculated the time taken in each particular step.

This was done by recording the videos of the process and then noting down the total steps involved, Right hand and Left hand activities taking place and time taken for each activity. For a particular number of packets total time was noted which was taken to carry out the whole process and then correspondingly, average packet time was calculated.

4.5 Insights Gained from Research

For the Standardization part, after conducting the TMS activities of pre implementing standards, average UPH (Units per Hour) were calculated. However, because of the limited time, TMS for Post implementing standards was not performed.

For the Benchmarking part, after designing the template for Assign and Depart process, tried to identify the waste in the whole process which included

- Reducing the setup time for Running the Allocation Engine like ensuring a fixed system and Zebra Printer to avoid wastage of time
- Reducing the setup time for Picking process like ensuring bags and bag stand should be available on time
- Asking for the daily rosters from the DSP Supervisors in advance to avoid last time trouble
- Cross training of associates in every process which will improve SSA Productivity

4.6 Activity Charter and Outcomes

Activity	Status	Remarks
Implementation of 7 standards for Feb Sprint	Completed	Implemented Successfully
Sharing of roasters, Standard work checklist,etc.	In Progress	Stations were sharing the reports daily, but after the lockdown, this activity is on hold as of now.
Benchmarking – Assign and Depart	In Progress	Template has been designed and shared with the Central team
TMS for Post implementation of Standards	Yet to start	Couldn't perform the TMS because of the lockdown

Table 4.1: Activity Charter

CHAPTER 5

CONNECTIONS SCORE

5.1 What is Connections?

Connections is an actual-time, organisation-extensive mechanism which is designed to know the problems being faced by the employees and to identify and remove the barriers which affects the employee experience as well as affect the customer obsession.

Every day, a question or a set of few questions are flashed on the screens of laptops or the scanner which are being used by employees working in the Amazon. Receiving the Connections query on the daily basis isn't non-obligatory, but employees might also pick now not to answer a particular query. The responses of the employees are then shared with the managers keeping in mind the confidentiality of employees. The Connections mechanism uses the ML (Machine Learning) algorithms to analyse the responses of the employees and gives the details to the Managers regarding the problems being faced by the employees.

The Connections flywheel starts with sending relevant and well understood content to employees; it accelerates when managers and leaders receive and view the right hierarchy and volume of relevant and actionable information; the loop is closed when actions are taken and shared with employees, impact is measured, and learnings are fed back into our product.

5.2 Objective of Amazon Connections

Connections response data informs continuousimprovement throughout Amazon in numerous ways. For example, managers are able to access the information and data for their respective teams to get an idea of areas of strengths, possibilities, and traits. They have an opportunity of using this data to havesignificant conversations with their teams to ensure changes in the behaviour and hence, improving the productivity. Leaders, however, can use these Connections Score to track the regions which are good for more investment, and identify every small problem and solving them before they become acute troubles for the organization. Finally, there are these research teams who are

constantly analysing the Connection statistics to recognize what factors help in maintaining Amazon tradition and improve employee experience.

5.3 Connections Program Tenets

- We relentlessly awareness on figuring out and putting off limitations that come among the patron obsession for all Amazonians.

- Connections exists as a continuous and a daily system that's used to minimize the time among problem identity and determination.

- We strike a balance between questions that verify or refute mounted hypotheses with questions that light up the unknown blind spots gift within the system and gives early warnings for the employer.

- Connections is adaptive and focused; which help the leaders in Amazon to deep dive at the topics which subjects the maximum for his or her employer.

- Insights are only valuable if they're acted upon - Amazon permits its leaders to take moves at the earliest. We err on the aspect of pace over perfection, but provide transparency into information accuracy and confidence ranges

- We earn agree with via our actions by way of showing and now not telling how Connections drives effective impact.

5.4 Connections Usage Tenets

- Obsess over customers, not Connections scores. When Connections identifies something that may hinder delivering for the Customer, Leaders inspect as deeply as needed. They don't overreact to a single score, but focus on trends or stubborn problems.

- Connections is a signal, not a single-source of truth. Leaders are as diligent about establishing root cause and seeking diverse perspectives as in any other aspect of their business. They also use strong judgement to understand context to take appropriate action.
- Connections is not a popularity contest. Leaders have a responsibility to raise the bar on talent. There are times when the right action may be unpopular or difficult; they are comfortable with that truth.

- Invite participation, but respect confidentiality. Leaders build trust by talking openly about strengths and opportunities. They do not focus on how individuals responded to a question, nor penalize anyone for sharing their honest opinion.

- Demonstrate that you are listening, and taking appropriate action. Leaders improve the things that matter, even if progress is sometimes slow. Not all problems deserve the same level of attention, but all solutions are consistent with Amazon's culture.

5.5 Connections Report

Site	TM	Operational	29/4	28/4	27/4	26/4	25/4	24/4	23/4
DELF	Tapan Mehta	Y	10%	5%	13%	12%	4%	21%	9%
DLIH	Anand Akshay	Y	20%	7%	14%	14%	0%	0%	0%
DELH	Anand Akshay	Y	15%	25%	19%	8%	22%	0%	13%
DELI	WadhwaDevansh	Y	8%	10%	0%	14%	10%	0%	0%
DELE	Hemant Vig	Y	6%	5%	8%	13%	5%	0%	0%
DELP	Harvinder Chahal	Y	6%	13%	9%	0%	7%	7%	20%

Table 5.1: Trends of stations having Un favorability in responses over the past 7 days

Site	Zone	Operational	Unfav %	TM	Responses
DELH	North	Y	18%	Anand, Akshay	17
NCT2	North	Y	17%	Anand, Akshay	59
DLIH	North	Y	17%	Anand, Akshay	18
DELA	North	Y	14%	Wadhwa, Devansh	22
AIID	North	Y	13%	Kamal Tuteja	8
DELM	North	Y	12%	Wadhwa, Devansh	17
DELP	North	Y	11%	Harvinder Chahal	19
DELF	North	Y	10%	Tapan Mehta	21
DELI	North	Y	7%	Wadhwa, Devansh	30
NCRG	North	Y	6%	Hemant Vig	16
DELR	North	Y	6%	Tapan Mehta	17
JULD	North	Y	6%	Ashwani Thakur	18
NCRF	North	Y	5%	Harvinder Chahal	19
DELT	North	Y	5%	Wadhwa, Devansh	20
DELK	North	Y	5%	Harvinder Chahal	21
NCRJ	North	Y	5%	Hemant Vig	21
JAIE	North	Y	5%	Kamal Tuteja	21
DELE	North	Y	4%	Hemant Vig	23
KNUD	North	Y	4%	Raj Kumar Sharma	24
IXCD	North	Y	4%	Ashwani Thakur	26
DELL	North	Y	4%	Tapan Mehta	28
JAIF	North	Y	3%	Kamal Tuteja	31

31

5.6 Project Outcomes

The aim of this project is to reduce the unfavorability in the Connections Report by addressing the problems being faced by the associates working in the station and ensuring the safety of employees amid this COVID-19 Pandemic.

CONCLUSION

I would like to conclude by saying that I understood the basic operations happening in our station daily. I followed a 15 day Learn. By Doing plan to get the basic idea of how an Amazon Delivery Station works. Apart from that, I implemented the seven standards at my station followed by implementation in Punjab as well as Rajasthan territory. I also designed the template for Assign and Depart process and tried to identify the waste in that process.

Also, I am currently working on Amazon Connections which is my revised project because of the Lockdown. I am working on the stations having unfavorability in responses and trying to reduce them to minimum to ensure safety of employees.

FUTURE SCOPE

My future plans are to implement the project Standardization and Benchmarking on the ground as soon as the lockdown gets over and I resume the floor operations. I will be working on Assign and Depart process to eliminate the waste processes and decrease the average packet time which will in turn increase the productivity of associates and will improve customer experience.

Also, I will perform the TMS activity of post implementation of standards to track the changes brought in the system by introducing the standards in the station processes. This will also ensure that all Delivery Stations in the PAN India level work on the same principles and there are no differences.

REFERENCES

[1] Standard Operating Procedures (SOP)

https://share.amazon.com/sites/inaces/SitePages/Home.aspx

[2] Amazon Connections wiki

https://w.amazon.com/bin/view/Amazon_Connections_Program_Information

[3] Routing

https://w.amazon.com/bin/view/RoutingInputs/

[4] Insider Amazon

https://inside.amazon.com/en/Pages/default.aspx

[5] Amazon wiki

https://w.amazon.com/bin/view/Main

PLAGIARISM REPORT

Report

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

PLAGIARISM VERIFICATION REPORT

Date: **15/07/2020**

Type of Document (Tick): B.Tech Project Report

Name: **Sparsh** Mahajan   **Department:** **ECE**   **Enrolment No**   **161037**

Contact No.   **7006608275**   **E-mail. _sparshmahajan77@gmail.com**

Name of the Supervisor: Mr. Pardeep Garg

Title of the Thesis/Dissertation/Project Report/Paper (In Capital letters):   **STANDARDIZATION AND BENCHMARKING**

FOR DEPARTMENT USE

We have checked the thesis/report as per norms and found **Similarity Index** at   **6%**.   Therefore,   we   are forwarding the complete thesis/report for final plagiarism check. The plagiarism verification report may be handed over to the candidate.

(Signature of Guide/Supervisor)   **Signature of HOD**

FOR LRC USE

The above document was scanned for plagiarism check. The outcome of the same is reported below:

Copy Received on	Excluded	Similarity Index (%)	Abstract & Chapters Details	
	• All Preliminary Pages • Bibliography/ Images/Quotes • 14 Words String		Word Counts	
Report Generated on			Character Counts	
		Submission ID	Page counts	
			File Size	

Checked by
Name & Signature   **Librarian**

    ……

Please send your complete Thesis/Report in (PDF) & DOC (Word File) through your Supervisor/Guide at
plagcheck.juit@gmail.com