Project Dissertation on

Study of Employee perception on safety at work place with social distancing

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(2K18/MBA/525)

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CERTIFICATE

This is to certify that the project entitled "**Study of Employee perception on safety at work place with social distancing**" has been successfully completed by Omdeep Rai - 2K18/EMBA/525

This is further certified that this project work is a record of bonafide work done by him Under my guidance. The matter embodied in this report has not been submitted for award of any degree.

Signature of Guide   **Signature of Head (DSM)**

Mr. Chandan Sharma

                                                          Seal of Head

Place:

Date:

DECLARATION

I, **Omdeep Rai**, student of **MBA 2018-20** of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi – 42, hereby declare that the dissertation report **"Study of Employee perception on safety at work place with social distancing"** submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This report is not being submitted to any other University, for award of any other Degree, Diploma or Fellowship.

Place: **Omdeep Rai**
Date:

ACKNOWLEDGEMENT

I Omdeep Rai, wish to extend my gratitude to Mr. Chandan Sharma, Asst. Professor Delhi School of Management (DSM), Delhi Technological University; for giving me all the guidance and valuable insights to take up this Semester Project.

I also take this opportunity to convey sincere thanks to all the faculty members for directing and advising during the course.

Omdeep Rai

2K18/EMBA/525

ABSTRACT

COVID 19 pandemic has disruptive impact on Indian economy unemployment has significantly increased from 6.7% on 15-Mar-2020 to 26% on 19-Apr-20. During this huge lockdown 140 million people lost their jobs and more than 45% of employee have reported drop of income compared to 2019. Indian economy was losing INR 32000 crore every single day during lock down. This lockdown had significantly affected the businesses across India. With all businesses getting impacted, e-commerce is a vertical which has potential to grow, by keeping their employees and customers safe. E-commerce is expected to grow by 55% in India. This project focuses towards study of employee behavior following social distancing at work place and to provide recommendations organizations to have safe work place.

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1. INDUSTRY PROFILE

Amazon.com, Inc., doing business as Amazon, is associate American e-commerce and cloud computing company based in Seattle, Washington. Amazon was started by Jeff Bezos on July five, 1994.Amazon is the largest web retail merchant in the world as measured by revenue and market capitalisation, and second largest after Alibaba in terms of total sales. Amazon web site started as a web store and later it initiated sale of video, MP3, audiobook downloads/streaming, toys, software, electronics, apparel, furniture, video games, food, and jewelry.

Amazon is the world's largest provider of cloud infrastructure services and through it's AWS subsidiary. The company also deals in certain low-end products under the sub brand, amazon basics. Amazon unitedly owns a business group, Amazon publishing, Amazon studios, a film and TV studio, generates consumer electronics products including an e-reader Kindle Fire tablets, echo devices and fire TV. "Regret minimization Framework" - referred by Jeff bezos, resulted in a support of the company that accurately described his efforts to repel off any regrets for not participating sooner in the internet business boom during that time period.

Bezos left his employment as the Vice Chairman of D.E. Shaw & Co., which was a Wall Street company, and moved to Seattle Washington in 1994, where he initiated a business plan that would become amazon.com. In the beginning, Bezos incorporated the company on July 5, 1994 in Washington State with the name cadabra.Inc, but later named it as amazon.com Inc.

After a few months, the name was once misheard as 'Cadaver' by an attorney in the place of its original name. Amazon, which is the parent company has attained several companies across the world but in India, it holds a different approach for growth.

The acquisition of Advantage Payments Pvt Ltd, took place in India in the year 2016. Advantage is an Indian company that offered similar services as Paypal. The online transactions of merchants, using credit and debit cards is enabled on a platform of paypal. In recently, Amazon India is in a conversation with BigBasket, to attain the company as it is offering more than 18000 products, and is also the country's largest online food and groceries e-store.

Competition.

The Indian e-com companies, Flipkart and Snapdeal have been the biggest competitors of Amazon India in the current scenario. The primary competition for the e-com market is between Amazon and Flipkart. Both the companies are aggressively making efforts to capture a larger market share as the Indian E-commerce market is expected to grow dollar 50 Billion of sales by 2020.

- Amazon's share of the Indian e-commerce market is **44%**.

Amazons' Infrastructure growth		
Particulars	June, 2013	August, 2018
Fulfilment Centers	1 in Mumbai	50 in 30 States
Sellers	100	3.4 lakhs

Geographical Foot print
Amazon delivers to all 20,500 pin codes of India
What it sells?
170 million unique items or stock keeping units. 2 lakh items are added every day on an average.
Current storage capacity
20 million cubic feet, which is enough to fit 250 Olympic size swimming pools

2. OBJECTIVE

During this unprecedented time, ensuring the safety and health of employees is more important than ever. Social distancing continues to be advised by the ICMR as one of the key precautions everyone needs to be taking both inside and outside of the work environment. This is why it is so important that the social distancing requirements should be put into place. These must be communicated, adhered to, and enforced by everyone within our facilities at all times. Objective of this research is to understand and improve upon social distancing adherence at different point in an Amazon Warehouse.

3. LITERATURE REVIEW

3.1 Implementing the Social Distancing Procedure
Social distancing methods vary. In some working environments, simple steps can be taken to comply with the social distancing guidelines. In other instances (for example, where individuals are unable to perform a job task alone), additional controls such as personal protective equipment or physical barriers must be used to ensure the safety of Associates. Avoidance Strategies (> 6ft distances)

•Avoid physical contact with people, wherever, and whenever possible, on site.oFor example, do not shake hands or hug, etc.

•Incidental contact, such as passing in aisles or hallways, is permitted. Do not linger.

•Cancel group gatherings/activities/meetings that enclose people in small spaces (for example, individual or shared offices, conferencerooms, Amcare treatment rooms).

•Separate tables in break areas, to comply with social distancing guidance.

•Wherever necessary, remove chairs to make space.

•Stagger break times for Associates to reduce congestion during shifts.

•Separate time clocks, if necessary, to comply with social distancing guidance

3.2 Avoidance Strategies (<6ft distance)
•Install physical barriers between coworkers/Associates, wherever necessary. The barrier should prevent the spread of COVID-19airborne droplets, not fully separate workers. Barriers should be

- Made of non-porous material (that is, plastic or vinyl NOT wood or cardboard) and suitable to be cleaned regularly.

- Made of transparent material to maintain line of sight. In areas where safety, process, or illumination needs may not require transparency, approval of Regional Safety is required.

-At least 7 feet (2.13m) tall from floor level and 6 feet (2m) wide from the center of the workstation or the width of the workstation, if it is <6 feet (2m).

- Non-hazardous, for example, does not introduce any additional hazards such as trip or strike hazards. Place a visual warning or stickers on the barrier if the risk of walking into it exists.

- Non-obstructive, for example, does not obstruct egress routes.

- Cleaned at least twice per day following routine cleaning procedures.

3.3 Training and Communication:
Training Associates on the purpose of social distancing, how it can protect workers, and how it can be implemented in the workplace will enhance the safety of workers/Associates. Effective communication tools include posters, acid feed slides, and other methods appropriate for the location should be used. Illustrative sample posters/sign-age are available on Inside Amazon.

3.4 Evaluation and Improvement
To drive continuous improvement and implement best practices, social distancing activities should be evaluated periodically. Assessments should identify violations and recommend corrective actions to enhance the success of this initiative. Metrics for monitoring the effectiveness of social distancing measures are outlined below:

•Scores from the Connections platform are used to identify locations scoring in the bottom 10%, which triggers an improvement requirement through site action plans. Connections questions solicit feedback from employees on hand washing, social distancing, crowding, and in-person meeting etiquette and are changed based on business needs in order to strengthen social distancing compliance.

•Performing Social Distancing Audits to evaluate facility/site ability to comply with recommended social distancing measures(for example, maintaining 6 feet/2 m distances at Points of Entry (POE)/exits, break areas, process paths, training and conference rooms, as well as Associate tools and support hubs, and floor gathering areas). Audits will be performed by site leadership or designated personnel.

•Conducting Area Readiness/On-floor Audits to evaluate physical conditions and determine if there is adequate sign-age and markings to instruct site personnel on appropriate social distancing measures.

•Designating Social Distancing Ambassadors to reinforce social distancing in crowded areas (for example, hot spots). Ambassadors will be Associate level volunteers.

•CCTV controlled proximity check. Images captured by CCTV will be run through and AI which will access % of closed distance instances.

The goal of the Proxemics initiative is to automatically detect instances where recommended social distancing can be improved and empower local leadership to take general corrective action. As of today, Proxemics leverages images from existing surveillance cameras in high traffic areas, runs an object detection model on those images to determine if there are multiple people in the image, and sends likely candidate images for manual, remote-review. Once the images have been audited for recommended social distance adherence, the results are aggregated by camera location, time, and site. The results for social distancing compliance are shared on either a real-time or daily basis with leadership, depending on image priority, to help inform which locations in the site need attention. In this wiki you'll find details about the project, the current state, and links to resources.
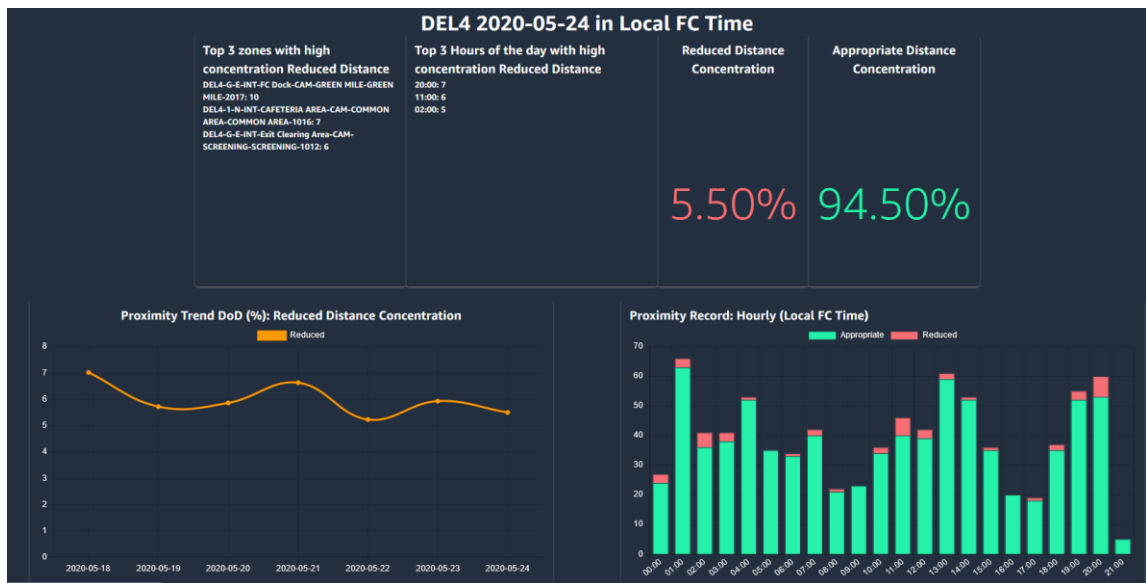

Fig-1

Reduce distance % = (Number of Images with 2 or more people identified to be within 6 ft/ 2m of one another)/(Total number of images reviewed with 2 or more people). On the dashboard one image counts as one "instance".
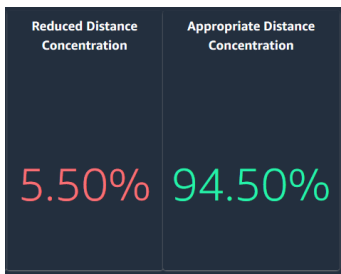

Fig-2 Top Three Zones and Hours

These are the top three camera locations and the number of images identified to be a "reduced distance" within the past 23 hours. The top three hours displays the sum of all reduced distance instances across all camera locations for that hour.

Fig-3

4. RESEARCH METHODOLOGY

4.1 Hypothesis

H0: Employees are satisfied with safety at work place.

4.2 Type of research
This study is exploratory in nature. The study is done to understand the factors that impact the employee satisfaction on initiatives taken by amazon to provide safe work place.

4.3 Source of Data
Data collection here is both by primary and secondary data.
Primary Data
- Primary data collection is done through Survey method using a questionnaire to find worker aptitude towards work place safety.
- Sample size 600 here, responses were taken from different site near Delhi NCR
- Idea is to check if response is in line with compliance of social distancing.

Secondary Data:
-Secondary data is collected from database which captures and publishes the social distancing compliance.
- Literature review is done to understand what measures are proposed to maintain safe work place.

5. ANALYSIS

5.1 Primary data analysis.
Primary data was collected via survey. Survey was done to find satisfaction among worker that adequate measures are taken in Amazon warehouses to ensure their safety.

Initial Analysis bases on survey done on 5-May-2020. Total response collected: 429. Questions and there interpretations:
1. What is your tenure with organization?
   Question aims to understand and summarize the sample population that responding
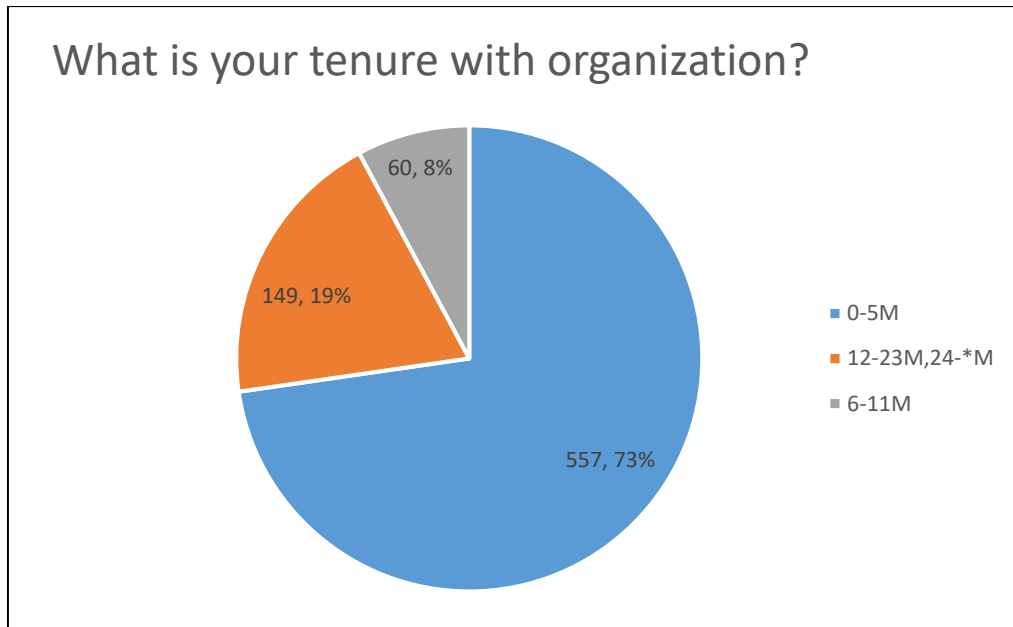
Fig-4
Interpretation: 73% of workers have tenure 0-5 Month, 19% workers are working with amazon for > 1 year and 8% employees have 6-11 Month of tenure. That means majority of work force in new to the organization.

Upcoming question aims to understand employee perception towards safe work place environment.
1. Are you able to keep at least 6 ft/2m from others at workstations/breakrooms?
   Interpretation : 88% of employee are convinced with the steps taken by Amazon to ensure social distance are adequate and they are able to maintain 6ft/2m distance with each other.

Fig-5

2. Do you have supplies to sanitize your work area/tools at start/end of your shift?
    Interpretation: 92 % employee answered that they have enough supplies for sanitization.
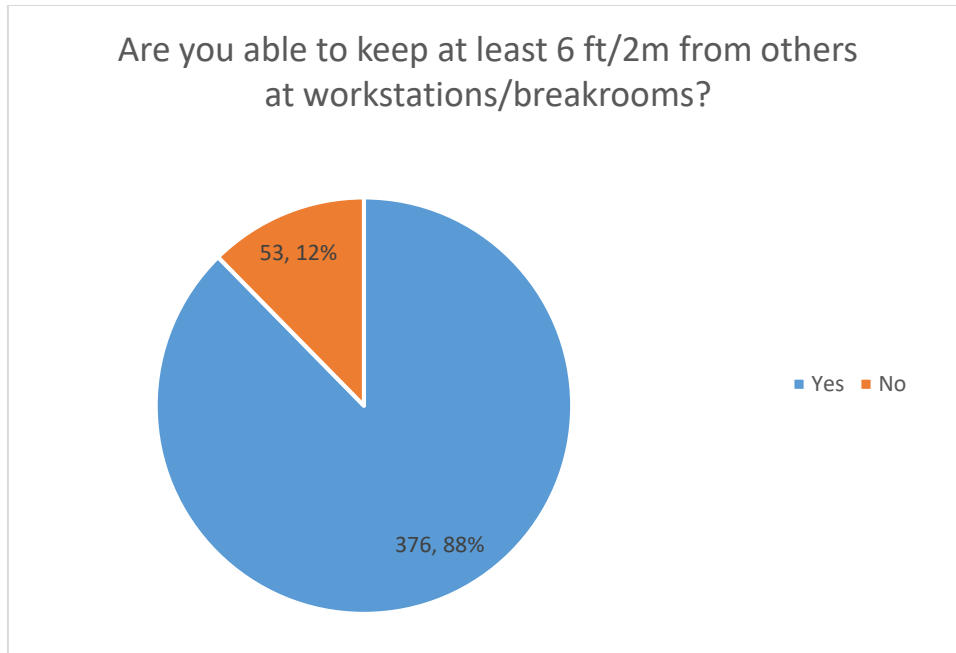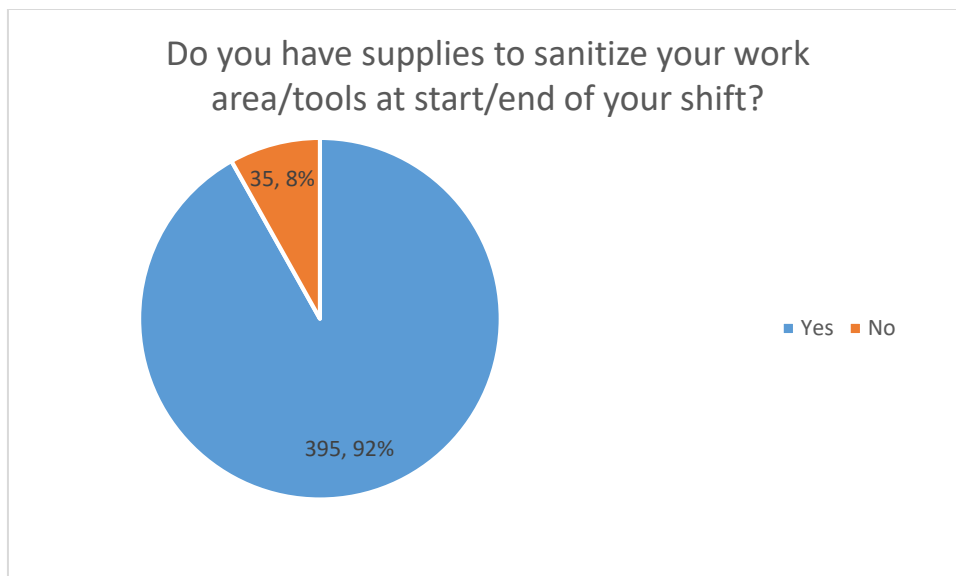

Fig-6

3. Do you see crowding at breaks, meals, and shift changes?
    Interpretation: 31% of workers have perception that there are areas which have crowding and amazon should work towards improving those areas.
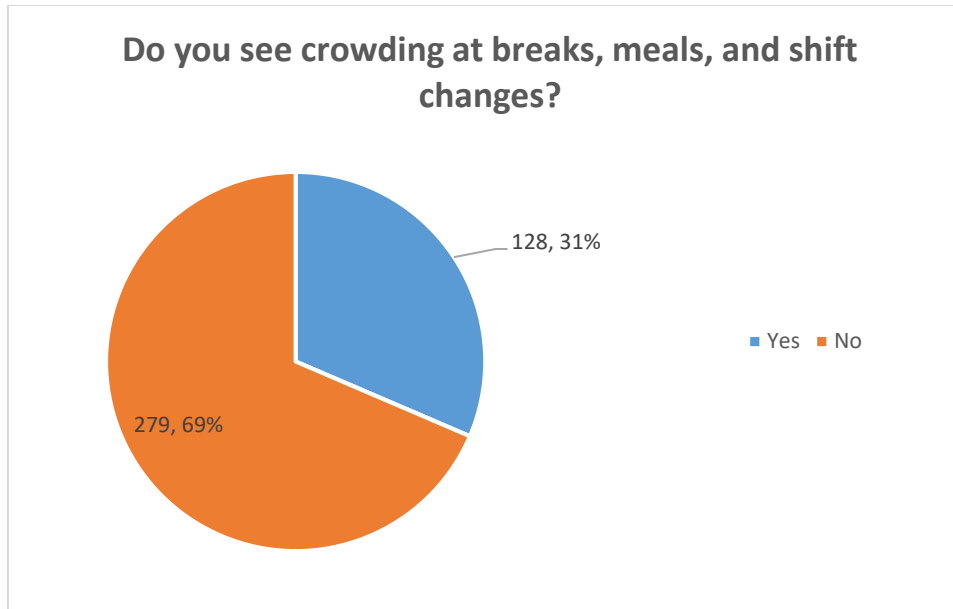
Fig-7

5.2 Secondary Analysis

CCTV camera were integrated with AI to collect data. Image are captured round the clock and are processed by an AI algorithm which determines if employees have come in proximity of less than 2m/6ft. This data is captured for different location which are accessed by employees. This helped in understanding areas which have to be decongested or require supervision.

Proximity score = Reduced_distance/(Reduced_distance+ Appropriate_distance)*100

| Reduced_Distance | Reduced Distance | | | | Appropriate_Distance | | | | | |
Hour slot e.g. 00am to 01am	5/4/2020	5/5/2020	5/6/2020	Total	5/4/2020	5/5/2020	5/6/2020	Total		Proxemity Score
0	19	18	23	60	147	90	107	344		14.9%
1	20	23	23	66	125	82	110	317		17.2%
2	40	21	35	96	131	86	128	345		21.8%
3	59	66	19	144	95	76	120	291		33.1%
4	19	21	23	63	163	111	120	394		13.8%
5	39	23	11	73	75	83	84	242		23.2%
6	0	4	0	4	34	37	42	113		3.4%
7	0	0	11	11	77	45	84	206		5.1%
8	11	11	6	28	125	100	99	324		8.0%
9	10	6	11	27	124	110	129	363		6.9%
10	6	7	16	29	144	118	128	390		6.9%
11	12	11	8	31	146	166	139	451		6.4%
12	37	19	17	73	187	171	165	523		12.2%
13	17	17	12	46	213	159	179	551		7.7%
14	17	12	20	49	204	191	145	540		8.3%
15	32	27	6	65	193	184	155	532		10.9%
16	8	10	10	28	226	164	123	513		5.2%
17	10	11	12	33	177	154	136	467		6.6%
18	21	32	12	65	168	163	115	446		12.7%
19	19	19	11	49	153	162	156	471		9.4%
20	11	13	12	36	190	165	154	509		6.6%
21	32	18	22	72	157	155	147	459		13.6%
22	61	53	28	142	124	145	134	403		26.1%
23	22	31	11	64	135	136	98	369		14.8%
Grand Total	522	473	359	1354	3513	3053	2997	9563		12.4%

Table-1 Proximity score was calculate to be 12.4% between 04-May to 06-May

Hour wise proximity trend.
It was observed that proximity between 2am-3am, 3am-4am, 5am-6am and 22pm-23pm was as high as 33%.
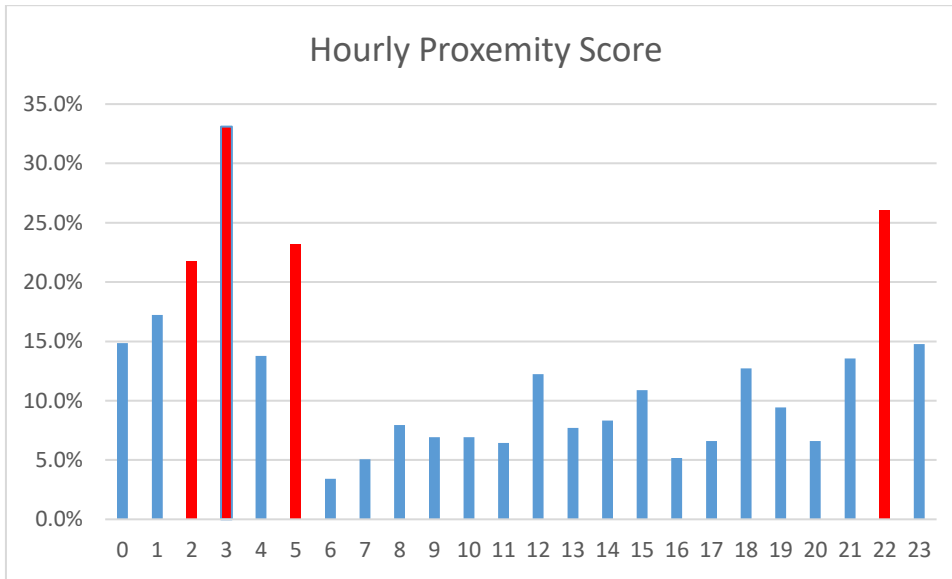
Fig-8

Further division in time buckets.

Reduced distance Event	4-May	5-May	6-May	Total
0000-0800	196	176	145	517
0800-1900	181	163	130	474
1900-0000	145	134	84	363

Appropriate distance	4-May	5-May	6-May	Total
0000-0800	847	610	795	2252
0800-1900	1907	1680	1513	5100
1900-0000	759	763	689	2211

Proxemics % Reduced distance				
	4-May	5-May	6-May	
0000-0800	18.8%	22.4%	15.4%	18.7%
0800-1900	8.7%	8.8%	7.9%	8.5%
1900-0000	16.0%	14.9%	10.9%	14.1%
Total	12.9%	13.4%	10.7%	12.4%

Table-2

Fig-9 Employees are not following social distancing during night working hours.
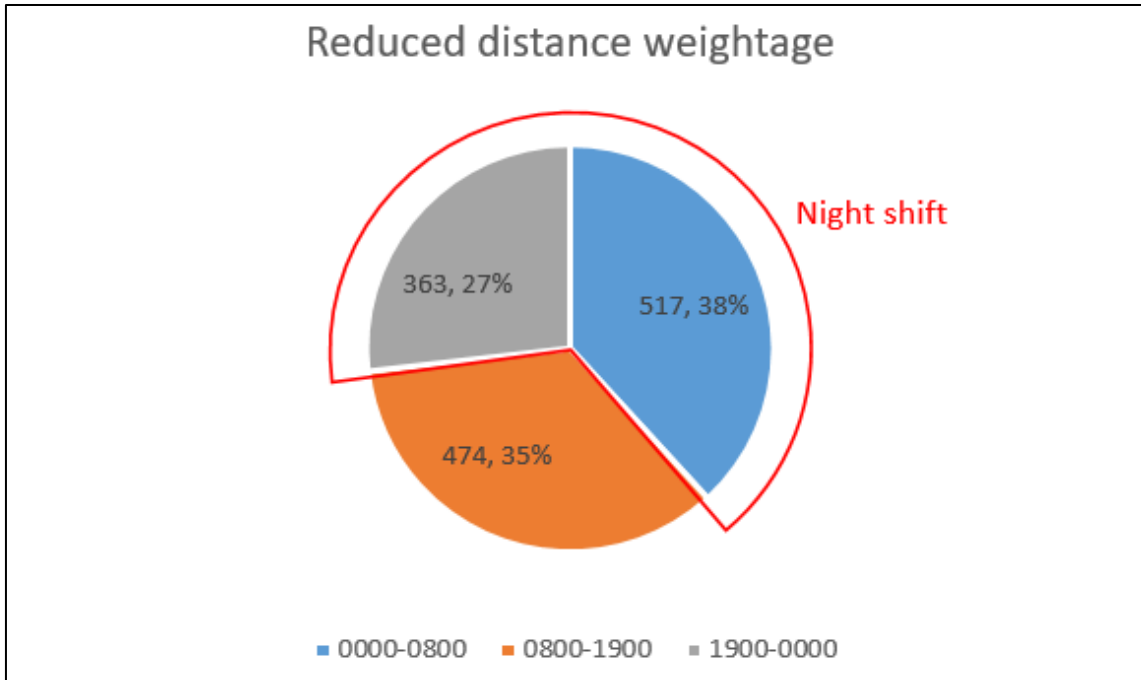
Zone Wise Proximity Trend	4-May	5-May	6-May	Total	% Cont
Cafetaria	201	160	102	463	4.2%
Outbound Dock	164	110	85	359	3.3%
Kronos	59	56	28	143	1.3%
Inbound Docks	8	50	44	102	0.9%
Outbound Pack line	18	33	30	81	0.7%
SCREENING AREA	27	17	12	56	0.5%
CRET Stand-up Area	2	16	37	55	0.5%
3P staging Area	11	9	8	28	0.3%
Aisle	12	6	6	24	0.2%
Reception Area	7	6	5	18	0.2%
Out side Locker room	7	4	0	11	0.1%
Locker room	3	3	2	8	0.1%
Turnstile	3	3	0	6	0.1%
Grand Total	522	473	359	1354	12.4%

Table-3

6. FINDING AND RESULTS

On analysis it was observed that workers were coming close to each other majorly in three areas Cafeteria, outbound dock and Kronos (Attendance machine). 65% of the issues were observed in night.

Physical Audit was done for these areas.

6.1 Findings:
Zone: Cafeteria
1. There was 1 door for entry and exit from cafeteria
2. Worker bring their own food and workers who buy food from cafeteria were queuing up together causing delay in movement.
3. Cafeteria staff were not following social distancing
4. Workers using handwashing area were breaking the queue and getting back in which brought them in contact.
5. Lockers/water dispensers were kept in cafeteria causing break in flow.

Zone 2: Outbound dock
1. Workers were loading vehicles without following social distancing.
2. During sorting of packages for different locations workers were coming close to each other.
3. Security guards were coming close to each other.
4. During lean period when workers had less work to do were coming close to each other.

Zone 3: Kronos (Attendance Area)
1. At end of shift worker were not paying attention to social distancing in rush to go home.
2. Similar issue was observed during breaks.

6.2 Action:
1. More sanitizers were installed at all location and hand washing zone were created to avoid crowding at cafeteria hand wash area.
2. Single flow was created if i.e. someone enters the cafeteria he/she cannot turn back.
3. Physical barrier at attendance machine to regulate single user access.
4. Covid warrior program was launched. Team of 12 workers is created who are called as covid warrior. These workers were trained to follow and educate others about social distancing.
5. Two different passages were created for worker who wish to buy food and who bring their own food which improved the flow by 60%
6. Lockers were removed and placed in open area at mezzanine discouraging workers from using lockers.
7. Workers were allowed to carry their phones and expensive products to avoid usage of locker.

8. Covid warriors were deployed with bull horn speakers where they educated and pointed out workers who knowingly or unknowingly came close to each other.
9. Water dispensers were removed and pre-filled glass of water was placed in cafeteria to avoid multiple touch and crowding at one place.
10. Empty Plates were placed at multiple locations in cafeteria to avoid crowding at one location.
11. Communication drive was started a trolley was created with posters and Pictures to educate worker about social distance. This trolley was called "COVID Rath".
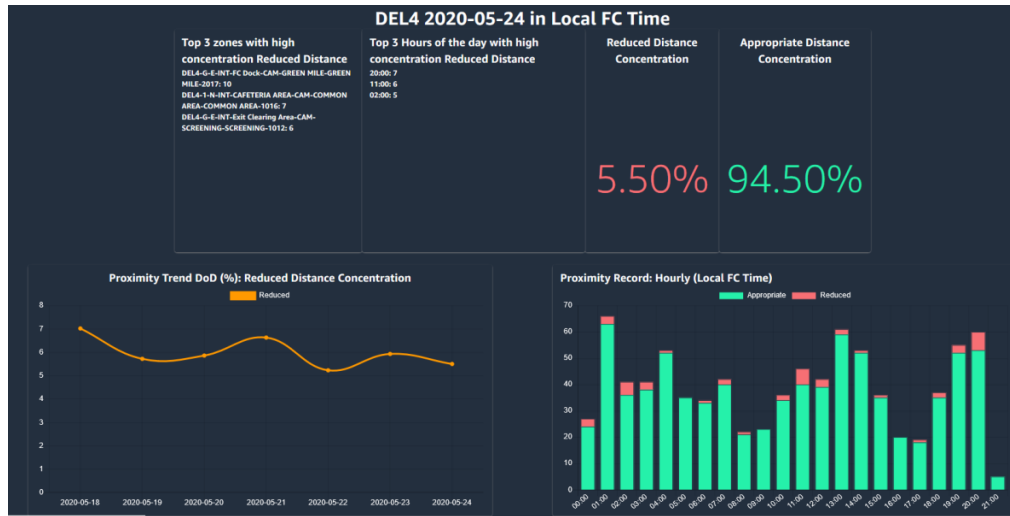12. Dashboard was created to monitor proximity score and audit area at real time.

Fig-10

6.3 Results:

A dashboard was prepared to monitor and validate the result of actions taken.

Daily Trend

	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May
Failed Instances	522	473	359	236	202	257	245	224	211	247	239	177	215	220	216	171	176	202	135
Passed instances	3513	3053	2997	2921	2801	2781	2825	2992	3011	2982	3429	3374	2725	2862	2949	2862	2882	2906	2446
Total instances	4035	3526	3356	3157	3003	3038	3070	3216	3222	3229	3668	3551	2940	3082	3165	3033	3058	3108	2581
Proxemics Record%	12.9%	13.4%	10.7%	7.5%	6.7%	8.5%	7.98%	6.97%	6.55%	7.65%	6.52%	4.98%	7.31%	7.14%	6.82%	5.64%	5.76%	6.50%	5.23%

Zone Wise Defect Trend

	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May
Cafetaria	201	160	102	84	42	64	69	34	44	60	57	52	80	54	65	41	62	41	48
FCD Dock	164	110	85	62	53	65	65	103	76	61	52	51	54	74	67	51	42	96	28
Reception Area	7	6	5	2	1	3	0	5	5	9	6	2	6	4	10	5	9	9	3
IB Docks	8	50	44	32	41	42	28	25	19	43	41	10	11	16	9	25	13	8	3
Kronos	59	56	28	18	14	13	6	11	9	12	19	9	10	15	13	12	13	3	3
SCREENING AREA	27	17	12	7	9	7	10	5	13	14	10	6	12	7	16	7	8	9	21
Out side Locker room	7	4	0	0	0	4	3	4	4	2	12	5	3	1	3	3	4	10	8
CRET Stand-up Area	2	16	37	4	3	4	3	2	2	2	5	5	8	2	1	1	0	0	
3P staging Area	11	9	8	4	6	3	10	8	4	6	8	11	7	5	5	7	2	9	5
Turnstile	3	3	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	2	3
Aisle	12	6	6	2	5	6	2	1	2	4	4	11	15	15	7	8	3	2	1
Locker room	3	3	2	2	2	5	6	4	2	9	12	9	7	15	6	3	8	3	2
OB Pack line	18	33	30	19	26	41	41	20	30	23	11	3	5	6	13	8	9	10	10
Grand Total	522	473	359	236	202	257	244	224	211	246	237	174	215	220	216	171	174	202	135

Table-4

- With all actions taken proxemics score improved from 12.9% on 4-May to 4.98% on 15-May.

- It was observed with new workers score increased and with same actions in place on 22-May score was back normal and back to 5.23%

We did a survey again to understand current perception of workers related to work place safety and this time the feedback was positive.

1. Are you able to keep at least 6 ft/2m from others at workstations/breakrooms?
   Interpretation : 94% of employee are convinced with the steps taken by Amazon to ensure social distance are adequate and they are able to maintain 6ft/2m distance with each other.
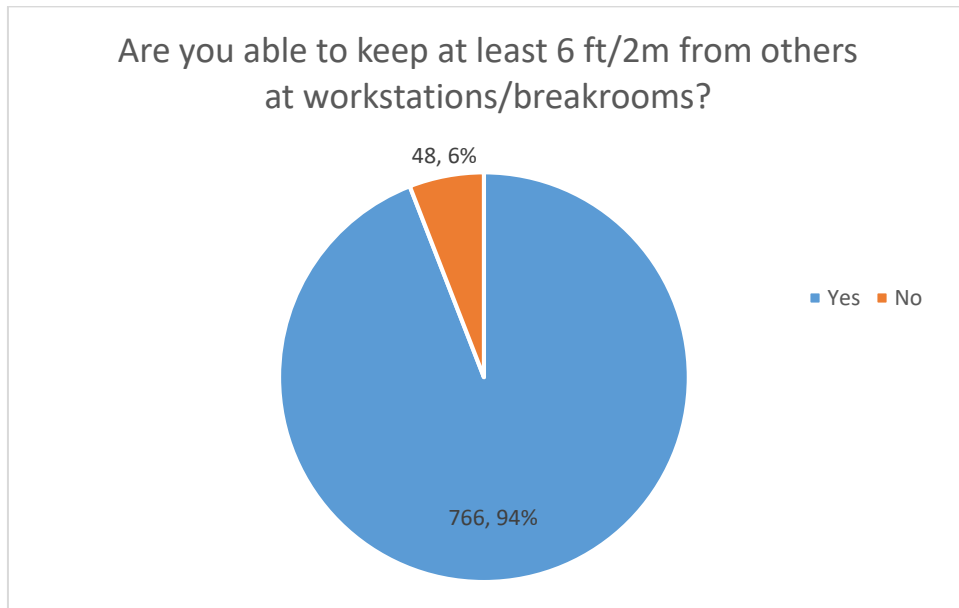
Are you able to keep at least 6 ft/2m from others at workstations/breakrooms?

48, 6%

766, 94%

- Yes
- No

Fig-11

2. Do you have supplies to sanitize your work area/tools at start/end of your shift?

Do you have supplies to sanitize your work area/tools at start/end of your shift?
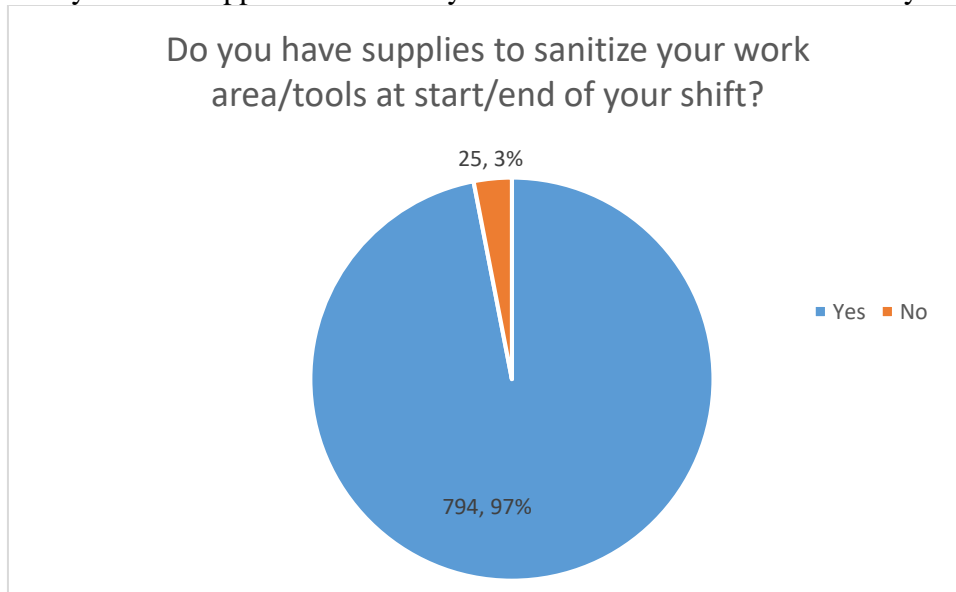
25, 3%

794, 97%

- Yes
- No

Fig-12

Interpretation: 97% of worker have confirmed availability of sanitizing supplies at their work station for keeping work area contamination free.

3. Do you see crowding at breaks, meals, and shift changes?
   Interpretation: 17% of workers have perception that there are areas which have crowding.
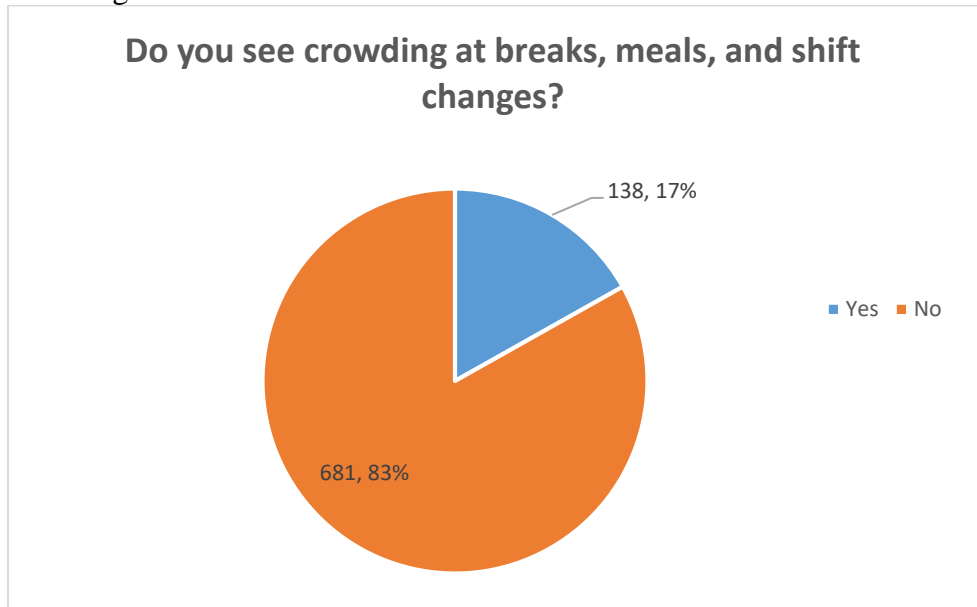

Fig-13

7. RECOMMENDATION:

This project was done to find the way ahead to make a work place safe for employees. Many activities were initiated after study done between 04-May and 24-May.

There is further scope of improvement in perception of worker by regularly monitoring proxemity score and creating action plans to make work place safer from covid.

Below are my recommendations to Amazon and other organizations.

1. Structural changes must be done in cafeterias to have two doors dedicated for entry and Exit.
2. Vehicle must be loaded with automatic conveyor to avoid close contact between Workers.
3. More communication should be done using speakers and Public annoucement systems.
4. More Workers must be trained from each department, who will be COVID amabassador for their department.

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9. APPENDIX

Appendix A: Plagiarism Report