



## TECHNOLOGICAL CHALLENGES IN LAST MILE ON DEMAND FOOD DELIVERY : PERSPECTIVE FROM FOOD DELIVERY RIDERS WITH SPECIAL REFERENCE TO COIMBATORE CITY, TAMILNADU, INDIA

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**ABSTRACT** On-demand food delivery workers play an important role in the ODFD (On-Demand Food Delivery) supply chain. This study investigates the technological problems that riders encountered while delivering meals. A questionnaire distribution was done in order to gather information from users of the Swiggy and Zomato platforms, and 100 people participated in the study. The study's findings imply that the respondents are dealing with a variety of difficulties, including technological ones brought on by the device (a mobile phone) and platform algorithmic setup. The key problems are the overall setup of the algorithm, its boss-like forcefulness, lack of safety as a result algorithmic setup, and its boss-like setup.

**KEYWORDS :** Technology Challenges,ODFD Riders,Device issues ,Algorithmic set up, Platform Economy.

### 1.Introduction

On-demand food delivery is the practise of purchasing and delivering freshly prepared meals from kitchens or restaurants to customers at locations chosen by the customers (ODFD). These services have seen a rise in recent years due to the increased use of internet platforms (Aktas et al., 2021; Mikl et al., 2020). Just Eat, Zomato, Deliveroo, and GrubHub are a few businesses in this sector that have operations abroad. Restaurants, ODFD platforms, delivery persons (also known as riders), and customers are the four main parties in ODFD services. All of the stakeholders are necessary for the ODFD system to function well. Riders are employed by ODFD corporations either directly or as a part of outside logistics companies. They play a crucial role in the ODFD supply chain as they are the only ones among the ODFD stakeholders, who interact with the customers face-to-face. They are also known as delivery partners, delivery executives, or delivery workers. The main responsibility of riders is to deliver meals from cloud kitchens or restaurants to customers at predetermined locations. They must make sure that the food products on the order are delivered in the acceptable quantities and at the appropriate times to the correct customers. If a customer does not pay online, the riders are also liable for collecting the payment from them. To deliver orders on time, they must assure the security of the orders and be knowledgeable about numerous road routes and shortcuts. In order to ensure client satisfaction, riders are expected to communicate politely with customers and restaurant staff.

### 2. Review of literature:

Karodia Ankit.(2020)Regardless of income, workers in this industry face several challenges, which contribute to occupational stress. The study took into account the workplace stress and instability of employees working in food delivery services. Data was collected from 150 employees using the convenience sample approach. The findings show that working hours are a significant factor that contributes to stress

Ukandu, N. E., & Ukpere, W. I. (2014). Job satisfaction at fast food businesses in Cape Town was the subject of the research. Employees in fast food restaurants are individuals with specific requirements that must be met. The survey only took into account personnel with at least six months of experience. Employees at both the administrative and operational levels were polled for information. The surveys contain 200 closed-ended questions and were delivered to 123 fast-food employees, with a 62.5 percent response rate. The findings suggest that the employees are dissatisfied with their jobs and that their personal development is lacking.

Meenatchi Somasundari (2018) conducted a study on, "Mechanism of job satisfaction and job performance among the selected online food delivery services". The research adopts analytical research design and has the primary objectives as to know the effect of stress on job performance of online food delivery executives. 100 Samples have been considered by using convenient random sampling method for collecting the data. To find out the important dimensions of stress and its impact on demographic variables chi-square test, independent t

sample test has been used for the study. The study found that job satisfaction is the major factor which affects the performance of the employees. It was found that the job stress directly affects the functioning of the workers in the online food delivery industry.

N. Balachandran, 2022 .Food delivery services have become more and more popular as technology and peoples' lifestyles have changed. The effective growth of online food delivery enterprises depends on delivery executives. This data collection focuses on Coimbatore, Tamil Nadu, India, and talks about how Zomato employees see their jobs and how stressed they are out about it. 50 Zomato delivery executives who worked for the company were given the survey. For the investigation, a practical sampling approach was employed. Part-time employment is a possibility for Zomato staff members. This served as the main foundation for how this employment was seen. The main source of stress for delivery executives is the need to complete their task promptly and the time restrictions they are given. They find it hard to keep up with this sector

### 3.Statement of the problem

Since riders are the only ODFD stakeholders who directly engage with clients, the riders play a significant role in the ODFD supply chain. This study examines technological difficulties or hurdles that riders encounter on the last mile (from a restaurant to the client location). These difficulties or challenges may be related to device (mobile phone) or algorithm problems. This study provides readers with a general understanding of the challenges that riders have encountered as a result of technology.

### 4.Research Gap

Several studies have examined the issue of workplace stress in various workforce divisions. There haven't been many studies done on the food delivery system, and none have looked at the technological challenges that riders encountered when delivering meals the last mile in Coimbatore City and Tamil Nadu, India. In order to fill up the gaps in the literature, this study's goal is to provide more information.

### 5.Objectives of the study :

To identify the factors which influence the technological faced by the on demand food delivery workers

### 6.Research Methods :

The elements influencing the technological difficulties experienced by the riders during the last mile delivery are examined through empirical research.

### 6.1Sampling method and sample size:

This research implemented the sampling method of snow ball sampling (researchers selected the samples one by one using the references provided before). For the study, 100 food delivery drivers from Coimbatore, TamilNadu, who work for zomato and swiggy delivery, were selected.

### 6.2Tools for data collection:

A well-prepared questionnaire was distributed to the respondent for the purpose of analysing the factors that affect the technological issues faced by the respondent. The first section of the questionnaire asks about the respondent's age, educational background, kind of work, and income. The second section of the questionnaire asks about factors that influence technology issues. A Likert five-point scale was utilized to assess how the statement was perceived.

## 7.Data analysis and discussion

Data were systematically analysed through the SPSS version of 20.0 and the method of factor analysis was carried out to analyse the factors which affect the technological challenges faced by the riders.

### 7.1 Participant profile

Table 1 provides a summary of the participant characteristics. 100 riders in all, with ages ranging from 18 to 42, participated in the research. 38% of the 100 participants were mostly in the 18–22 age range. (26%) The majority of the riders possess undergraduate degrees. The most of participants (60%) were unmarried. The majority of riders (43%) make between 5001 and 10,000 as a monthly income from the platform, with the highest percentage of riders (68%) utilising bikes as their method of transportation.

**Table 1 Participants profile**

| Age of the participants                     | n   | %   |
|---------------------------------------------|-----|-----|
| 18- 22                                      | 38  | 38  |
| 23-27                                       | 26  | 26  |
| 28-32                                       | 10  | 10  |
| 33-37                                       | 15  | 15  |
| 38-42                                       | 5   | 5   |
| TOTAL                                       | 100 | 100 |
| Educational qualification of the respondent |     |     |
| School level (up to 10 <sup>th</sup> )      | 24  | 24  |
| Higher secondary (11&12 <sup>th</sup> )     | 14  | 14  |
| Diploma                                     | 24  | 24  |
| Under Graduate                              | 26  | 26  |
| Post Graduate                               | 12  | 12  |
| TOTAL                                       | 100 | 100 |
| Marital status                              | n   | %   |
| Married                                     | 40  | 40  |
| Unmarried                                   | 60  | 100 |
| TOTAL                                       | 100 | 100 |
| Modes of delivery                           | n   | %   |
| Scooter                                     | 32  | 32  |
| Bike                                        | 68  | 68  |
| TOTAL                                       | 100 | 100 |
| Shift preference                            | n   | %   |
| Part time                                   | 74  | 74  |
| Full time                                   | 26  | 26  |
| TOTAL                                       | 100 | 100 |
| Monthly income                              | n   | %   |
| Up to 5000                                  | 28  | 25  |
| 5001-10000                                  | 43  | 32  |
| 10001-15000                                 | 15  | 15  |
| Above 15000                                 | 14  | 14  |
| TOTAL                                       | 100 | 100 |

**Table 2: 7.2 Technological issues in last mile food delivery operations**

| Rotated Component Matrix                                                                    |           |   |   |   |   |
|---------------------------------------------------------------------------------------------|-----------|---|---|---|---|
| Items(statements)                                                                           | Component |   |   |   |   |
|                                                                                             | 1         | 2 | 3 | 4 | 5 |
| unable to log -in due to battery drainage ,as a result cancelled the order and paid penalty | .914      |   |   |   |   |
| Long-term phone use shortens the device's lifespan                                          | .903      |   |   |   |   |
| It's challenging to use the water-sensitive gadgets on rainy days.                          | .899      |   |   |   |   |
| Replaced phone at least twice since beginning this work                                     | .785      |   |   |   |   |

|                                                                                                                 |      |      |  |      |      |
|-----------------------------------------------------------------------------------------------------------------|------|------|--|------|------|
| Network issues in remote areas                                                                                  | .729 |      |  |      |      |
| There is no place for emotional labor. As per the algorithmic set up                                            | .725 |      |  |      |      |
| The rating given by the customer plays an essential role in getting orders                                      | .853 |      |  |      |      |
| The algorithmic set up is not fully understandable                                                              | .819 |      |  |      |      |
| Sometimes feel that the rating given by a customer is not fair. All I can do is request a rating.(1 to 5 star ) | .803 |      |  |      |      |
| No idea of platform's allocation of work                                                                        | .738 |      |  |      |      |
| Algorithmic set up by the platform controls me like a boss                                                      |      | .879 |  |      |      |
| The algorithmic management creates a climate of fear                                                            |      | .664 |  |      |      |
| Algorithm that is more customer-friendly.                                                                       |      |      |  |      |      |
| Typically, I believe that the platform's time for delivering food is a little shorter.                          |      |      |  | .779 |      |
| Sometimes feel that working like a machine.                                                                     |      |      |  | .599 |      |
| The set up by the platform encourages the speed without considering safety at first                             |      |      |  |      | .608 |
| Quickly deliver one order get another, feel that it is a risk                                                   |      |      |  |      | .579 |
| Extraction Method: Principal Component Analysis.<br>Rotation Method: Varimax with Kaiser Normalization.         |      |      |  |      |      |
| a. Rotation converged in 16 iterations.                                                                         |      |      |  |      |      |

SOURCE: Computed primary data

Table 2 shows the reduction in factor dimensions from 18 to 5 variables. The first factor consists of five variables: being unable to log in due to battery drain; as a result, cancelling the order and paying a penalty; Replaced phone at least twice since beginning this work; challenging to use the water-sensitive gadgets on rainy days; and having network issues in remote areas, with values of (.914,.903,.899,.785, and .729, respectively) respectively. As a result, the first factor is "technology-related issues caused by devices."

The second factor is made up of five items with values of .725, .853; .819; .803; and .738. This factor represents variables such as "there is no place for emotional labor, as per the algorithmic setup." Furthermore, while the "rating given by the customer plays an important role in getting orders and the algorithmic setup is not fully understandable," some believe that the rating given by a customer is not fair. All I can do is request a rating".(1 to 5 stars) and "no idea of platform work allocation" All of these items are related to the platform's algorithm this factor represents "technology-related issues due to the algorithm in general.

The third factor consists of two items with values of .879 and .664: "Algorithmic set up by the platform controls me like a boss" and "the algorithmic management creates a climate of fear." This factor represents the name "algorithmic set up as a boss."

The fourth factor represents the two items of "the platform's time for delivering food is a little shorter." and sometimes feel that it is working like a machine with the values of .779 and .599, hence it represents the feature of "forcefulness of algorithmic setup."

The fifth factor includes two items of "The set up by the platform encourages speed without considering it as safety at first" and "Quickly deliver one order and get another, feeling that it is a risk," with values of .608 and .579, respectively. This factor represents the name of "lack of safety due to algorithmic set up"

## CONCLUSION:

A smartphone has to be procured and maintained by riders for receiving orders and navigating to the corresponding customer and restaurant locations. Riders must have to work at least 6 hours every shift, which necessitates continual use of a smartphone running battery- services like mobile Internet and GPS. Hence, it is necessary for riders to constantly charge their phones because it is a crucial

activity in this industry. More hours of phone use shorten the lifespan of these gadgets. In a few cases, smartphone batteries ran out in the middle of deliveries, logging riders out of the mobile application, leading to cancelled orders and paying penalty. Furthermore, it might be challenging to use these water-sensitive gadgets on days when it is raining.

Customer locations on ODFD mobile applications occasionally cannot be accurately picked on the navigation map since the programme only recognises a few specific establishments in the vicinity. Riders become confused during such deliveries since they must first arrive at the designated area and are required to call consumers. Riders have mobile phone network troubles when making deliveries to remote locations, which makes getting in touch with clients or utilising GPS extra harder. This issue results in delayed deliveries and unresponsive clients, which harms both the reputation of the ODFD organisation and the ratings of the riders.

Also, because to the algorithmic structure, odfd riders experience issues such as a risky situation, a lack of safety, excessive speed when riding to client locations, and unfair customer ratings.

#### **SUGGESTION:**

- The platform needs to be little more riders -friendly.
- The platform's estimated arrival time to the consumer location must be slightly longer, especially in areas with heavy traffic.
- When confronting any late arriving situation, the platform must provide the rider with an option for communicating to the customer.
- platform must make clear on the login screen all of the challenges the delivery partner encountered throughout the delivery
- The setting of the algorithm must be more riders -friendly.

#### **LIMITATION AND FURTHER SCOPE OF THE STUDY**

The study only included food delivery riders from the gig economy; more participants from various sectors can be chosen from the on-demand economy for future research with the consideration of various operational stress faced by them .

#### **REFERENCE**

1. Adithya R., Abhishek Singh, Salma Pathan & Vaishnav Kanade (2017), "Online FoodOrdering System", International Journal of Computer Applications (0975 –8887), Volume 180 –No.6, December 2017
2. Afsheen Khalid, (2012)Role of Supportive Leadership as a Moderator between Job Stress and Job Performance", Information Management and Business Review Vol. 4, No. 9, Sep2012, pp.487-495.
3. Amir Shani and Abraham Pizam,(2009) "Work-Related Depression among Hotel Employees", Cornell Hospitality Quarterly, Vol. 50, No. 4, pp.446-459 (2009)
4. Goh See-Kwong, Soo-Ryue, Wong Shiun-Yi (2017)," Outsourcing to online food delivery services", Journal of Internet Banking and Commerce, Volume-22, No-2, Year- August 2017, pp: 222-250.
5. Karodia Ankit.(2020) Job Stress and Insecurity Among the Employees in Food DeliveryServices. WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENTDOI: 10.37394/232015.2020.16.73.
6. Meenatchi Somasundari.M (2018) , "The association between job stress coping mechanism of job satisfaction and job performance among the selected online food delivery services" International Journal of Science, Engineering and Management (IJSEM) Volume-4, Issue-7, pp:76-106.
7. S., Alagarsamy, S., & Solaikutty, V. M. (2021). Customers response to online food delivery services during COVID- 19 outbreak using binary logistic regression. International journal of consumer studies, 45(3), 396-408.
8. Mitali Gupta Dr. (2019) "A Study on Impact of Online Food delivery app on RestaurantBusiness special reference to zomato and swiggy" Vol 6 ISSUE 1 JAN. – MARCH 2019.
9. Rashmi (2018)," scope of online food industry, to identify the challenge encountered in opting for online food" International Research Journal of Management and Commerce ,Volume- 5, Issue-1, January 2018, pp:2348-9766 .
10. Ukandu, N. E., & Ukpere, W. (2014).Factors impacting job satisfaction of employees in the fast food