LEVERAGING TECHNOLOGYTO MITIGATEHUNGER

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Abstract

Co-existence of hunger and wastage of food is social crime. Efforts of non-profits, though serious, have not yielded sustainable results due to inherent limitation of charity and cost in their model. This paper presents a sustainable and scalable model to mitigate hunger. It is based on efficient electronic platform which allow people to donate food in a hassle free and cost neutral manner while maintaining the quality of donated food. Though platform can be used to tackle all kind of food wastage, however, focus of pilot for this paper has been kept on 'paid' variety of food wastage- the food for which an individual has actually paid himself. In April 2019, the facility was made available to users of 'VH Spicebox', a food start up in Bhopal. Results have been analysed. They are very encouraging and have validated the whole model. It is found that not only increasing number of people are donating food but also each one is donating more. Two satisfaction surveys have established that basic parameters of quality of donated food have been maintained. The model has not added any cost to participating company thereby not adversely affecting its price competitiveness. This paper details out the possible future course of actions to scale up the model.

Key words

Hunger; Wastage of paid food; Information technology; IT and hunger mitigation; Sustainable model of hunger mitigation.

Introduction

Food is one of the basic requirements of humans. Unfortunately, despite becoming a richer country, India is still home to the largest number of hungry people. The country is home to more than 200million hungry people, the highest in the world. India stands at 103rd out of 119 countries ranked in Global Hunger Index (2018).[1] Madhya Pradesh is among the worst affected among Indian states.[2]Though the exact number of hungry people in city of Bhopal is not available, it may well be more than a million.[3]

Ironically, shortage of food grain is no more a root of hunger problem. In fact, state of MP has seen over 9 % annual increases in food production over last decade of 2005-15.[4]Food grain production in MP has crossed 100 million MT.Admittedly, power to purchase food continues to be a major constraint, yet the issue of wastage of food should not be completely overlooked. According to the United Nations Development Programme, up to 40% of the food produced in India is wasted.[5] If we are able to make a small dent, it would definitely help.

This wastage of food has two components namely paid and unpaid. Unpaid food wastage involves payment by third parties such as food wastage at wedding, social gatherings etc. Here, person

wasting food has little incentive not to waste food as he does not pay for it. On the other hand, paid food wastage involves payment by person wasting food. So, paid food wastage lacks economic logic and, thus, it should be self-regulatory.

However, structure of online food ordering industry is such that it might, sometime, force the wastage of even paid food. Food companies allows cancellation of orders only till time food is not cooked or packed. After that point of time, all orders are delivered to recipients. If the recipients cannot consume such delivered order due to unforeseen engagement such food go to waste.This appears to be a social crime given the fact that there are so many hungry people on the streets. This represents a lose-lose situation to all stakeholders. Individual loses money while society loses food. Ironically, this waste must be easiest to control as there are no perverse incentives behind it.

I feel that such situation can be somewhat corrected. I do not see any reason why somebody, having paid for the food, would like to waste it. Given a chance, hewillbe more inclined to let some consume this food. However, he cannot be expected to devote time and energy toward finding the recipient and executing the delivery. If he can do it effortlessly, the chances are that he would donate it.

This project is precisely designed to enable a willing donor of food to donate it with minimum effort.

This paper analyses the conception, evolution, and result of this project in City of Bhopal, India. Robustness of project has been checked though customer feedback surveys.

Results and analysis

Fig.1: Cumulative counts of APP Users
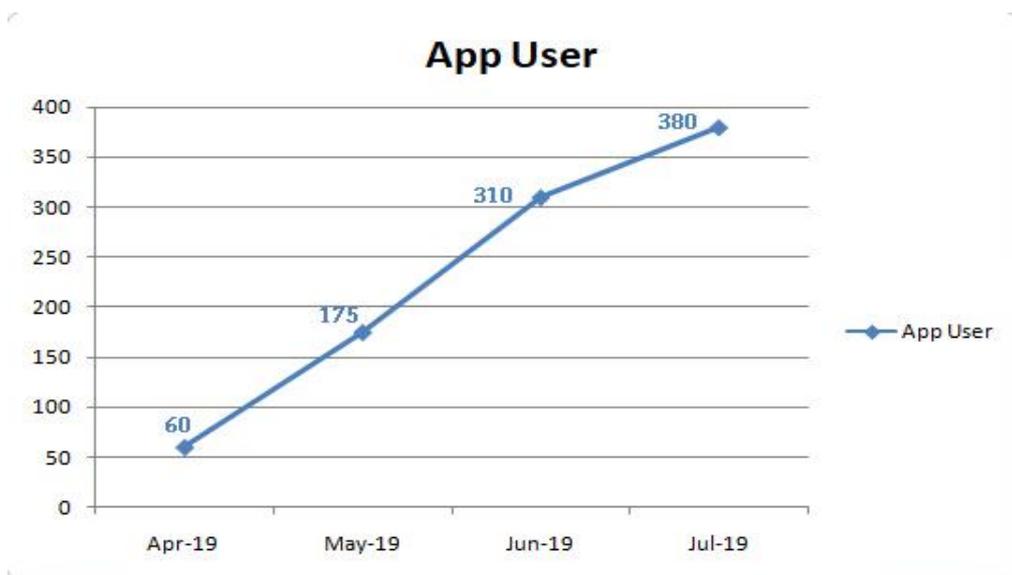
The 'donate food' platform has been well received by companies' customers. Noticeably, company's mobile app has witnessed increased traction with user once the 'donate' facility was

launched (Fig.1). In the month of April, only 12.5% user downloaded VH Spice Box App, but, at the end of July 2019, this percentage was around 48.16%.

More importantly, number of donors have shown healthy growth rate over the period (Fig.2). In the beginning, there were hardly20users in month of April 2019 who used the 'donate' facility. However, by end of June 2019, this number increased to186. Importantly, rate of adoption of 'donate facility' have surpassed the rate of addition of new users. So, this facility is turning out to be an added attraction for new customers. Further, in months of April 2019 only 4.16% of users donated the meals but, in month of July 2019, nearly 23.44% of user donated meal. This validates our basic premise that given a chance people would like to avoid food wastage.

Fig.4 shows that total number of meals donated have shown consistent increase. There were only 25 donations in months of April2019, but this number increased to 236 in month of July 2019. More importantly, average number of meals donated per user has increased from 1.05 to 1.29. It indicates that given a chance not only greater number of peoples are willing to donate food but also each person is willing to donate more.

Fig. 2: Number of donors and donated meals
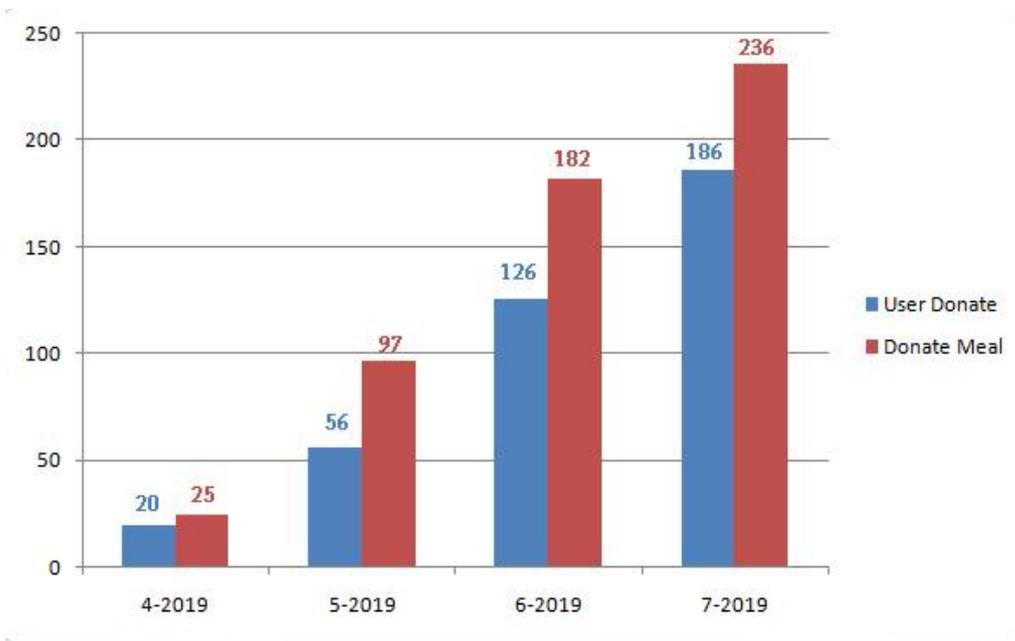
To test the performance and robustness of the process, two recipient surveys were conducted. Results of surveys are shown in fig3&.4.
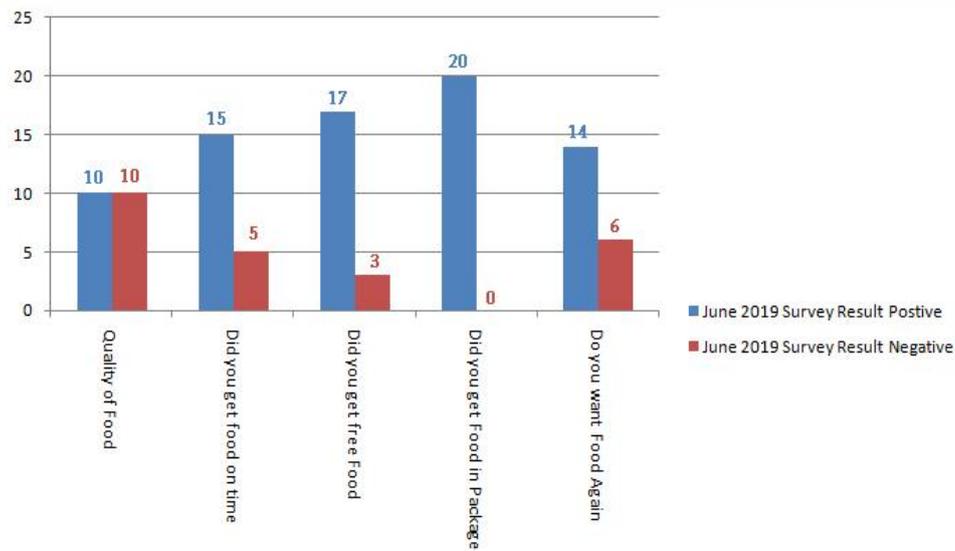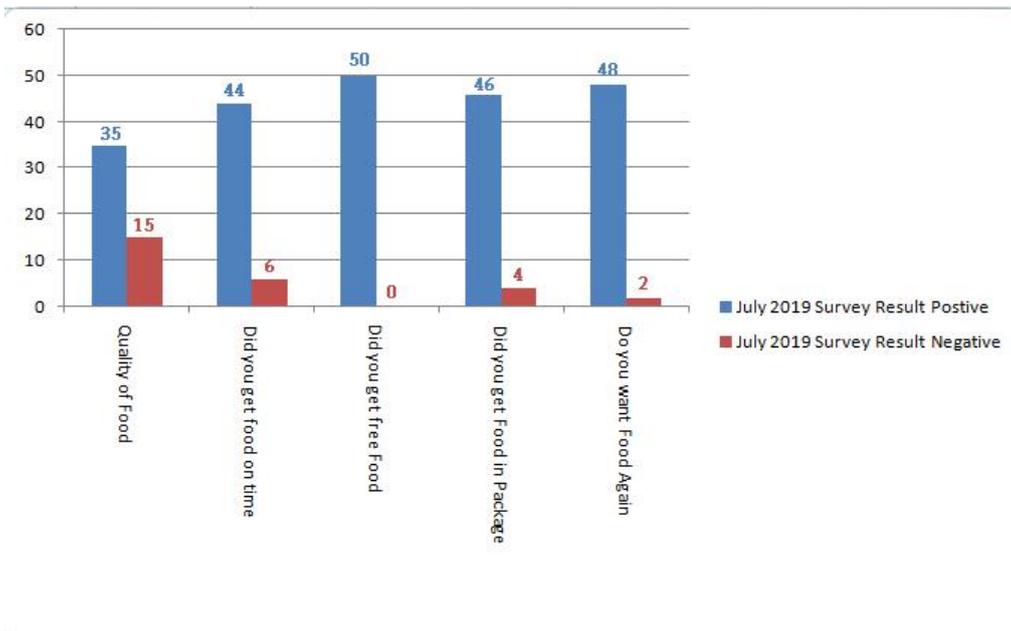
Fig.3: June Survey Result

Fig.4: July Survey Result

Bare observations of two figures indicate that:

1. Quality of 'donate food' delivered continues to be a challenge. Though, percentage of recipients answering favourably regarding quality has increased to 70% from 50 %, it is a matter of concern as 'donated meals' are exactly same as 'non-donated 'meals and I have been told that not many complaints have been received from regular customers.
2. Issues regarding time of delivery have shown definite improvement.

3. It is established that nothing is being charged for delivery to recipients. In July survey everyone said that they are getting food free.
4. By and large, food is getting delivered in packed conditions. In July survey, we found that the problems of unpacking related to only one delivery boy that we changed immediately.
5. Demand of donated food continued to be high in both surveys. It shows utility of platform from user perspective.

Conclusion and way forward

Though our achievements are very modest, but design and direction of platform has shown great potential. We have been able to show that there can be sustainable non-charity-based model to mitigate wastage of food. There are challenges of quality, but they are basically challenges of food delivery industry per se. Some of the issues raised by surveys like quality of food and its packet-ness relate more to training of delivery boys than to design problems of the platform. This matter I have communicated to management of VHspicebox.

As there is effectively no extra cost to food companies for enabling this facility, we are talking to other food platforms like swiggy, UberEATS, Zomato, and food panda to provide this facility to their users also. This model can very easily be extended to collection of waste food from homes, hotels, and parties. Only extra expenditure would be cost of collection. For that, I am using offices of state governments so to persuade companies to take up this activity under their corporate social responsibility. Recently, Municipal Corporation of Bhopal has shown interest in using the platform to collect the discarded food from households.

Methodology

It is not that efforts are not being made to save wasted food. Lot of non-governmental organisation are working in this field. However, their core model is based on charity. They mainly collect leftover food from places and distribute them. Even state government started 'Nekikideewal' (Wall of kindness). It is a place where people place the items which they no longer use. However, scalability and sustainability of these efforts remain key concerns.

We set out to design a project which must fulfil some minimum criteria to make it useful to all stakeholders. It must be sustainable. It may not be earning money in beginning but it should definitely have potential to earn profit. It should not cause any price increase for food item otherwise the food company would never deploy it. It should be very convenient for donors. It should be transparent. Donor should be able to see whether his food has been donated or not. There should be easy way for needy recipient to register for reception of the food.

Fig.5: Basic flow diagram of the process
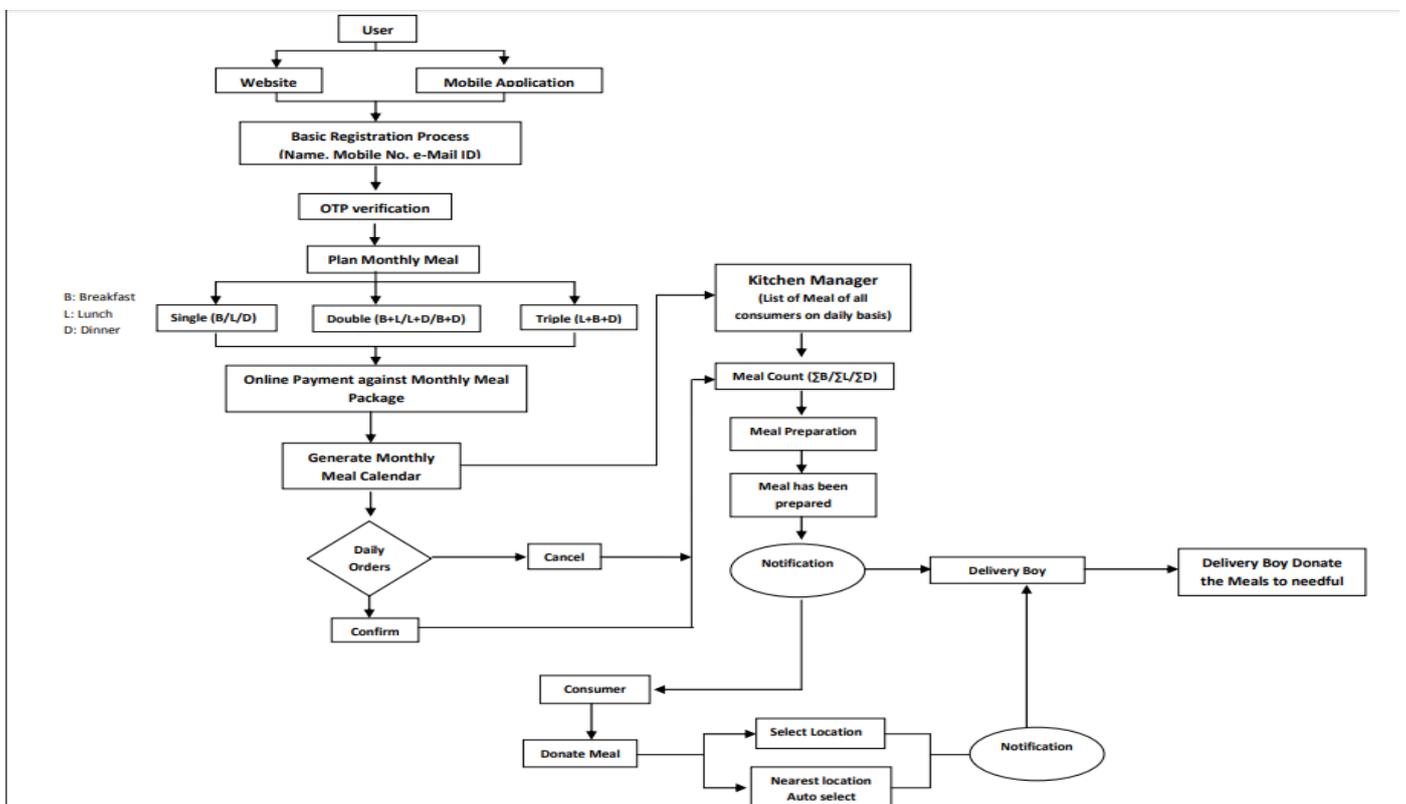
We created an electronic platform for match making between donor and receiver of food. Basic flow diagram of process is given in Fig.5.In nutshell, this platform enables a person who has ordered food from a food delivery company to choose the location where his paid food should be delivered if he is not able to consume it or cancel it.

This platform is essentially an additional patch for food delivery companies. Such food companies have registered users. Registered user can order and cancel the food. However, a user cannot cancel the order once the food has been cooked. From here this platform takes over. It provides visual notification to user the instant he cannot cancel order anymore. During registration, he gives the choice about place where his order should be donated[6]. If he chooses not to decide, the platform would allocate such food items to the areas form where they were originally ordered. The City of Bhopal has some traditional spots like temples, bus terminals, markets where hungry people normally congregate. Moreover, the platform has facility to add more such places.

Food packets of customers who have exercised 'donate' option are kept as they are. Delivery-boy of assigned area distributes them. As no special delivery mechanism is created for 'donated' food, no extra cost incurs to Food Company. This approach also maintains the high quality of donated food. Once food is donated a message is sent to donor.

I first launched my platform on company named 'VH Spice Box'. It is a food-company operating in Bhopal & other cities of Madhya Pradesh.VH Spice Box[7]is a small size food ordering firm having its own kitchen. It is a start-up, which has started operation in January 2019 only. Right now, its customer base is small but rising (Fig.6).
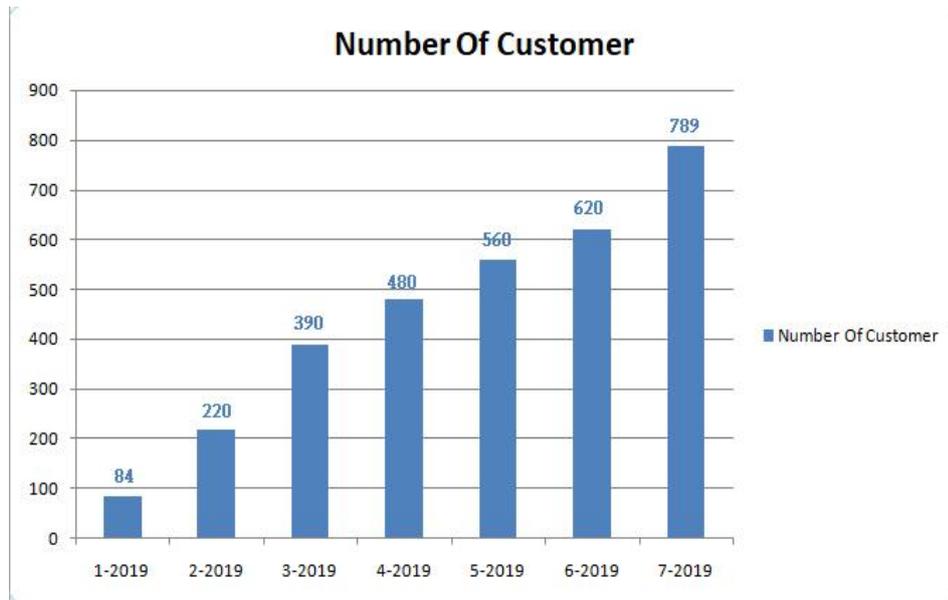
"Donate food "platform was made operational for its customer in April 2019 on both web as well mobile version.

As noted above, we have conducted two satisfaction surveys with recipient's[8].In Survey, we have collected feedback on following questions (original surveys were conducted in Hindi):

1.   Was quality of food received satisfactory?

2.   Did you get food on time?[9]

3.   Did you get food free?

4.   Did you get food in Package?

5.   Do you want food again?

A team of two enumerators went to each location to record the feedback of recipients. These enumerators were specifically trained to explain the actual meaning of each question carefully as most of recipients could not be expected to be literate. Further, as most of recipients takes long verbal route to answer, each enumerator was trained to be patient. Each numerator separately recorded the answers from same recipient. If there was no difference in recording, they were trained to report to central team, then a second team would be sent. In such cases, answer recorded my majority of enumerator for same recipient was taken as final answer. Answers to all these questions were recorded in 'yes' or 'no' to avoid any subjectivity in interpretation.

Acknowledgement

References

[1] https://en.wikipedia.org/wiki/India_State_Hunger_Index

[2] http://www.ifpri.org/publication/comparisons-hunger-across-states

[3] https://reliefweb.int/sites/reliefweb.int/files/resources/HungePovertyClimate.pdf states that nearly 65% of population of MP is hungry. Being urban area Bhopal might have smaller percentage, yet, with population of around 3 million, one million is a safe approximation.

[4] https://icrier.org/pdf/Working_Paper_339.pdf

[5] https://thecsrjournal.in/food-wastage-in-india-a-serious-concern/

[6] Most of the needy people have no permanent address but they do tend to congregate around well- known places in city. While registering all recipients are required to record the preferred location.

[7] www.vhspicebox.com

[8] Details of satisfaction survey are available onwww.vhspicebox.com/vhspicebox/donate_meal

[9] Food can be ordered in three categories namely breakfast, lunch, and dinner. We designed that there should not be any difference in delivery time between donated and non-donated meal, Thus, this enquiry is about whether donated food was received during designated time duration or not; For example, breakfast till 12 am, lunch till 2pm, and diner till 10pm.

Author

Aradhana Porwal is student of grade 12 at GVN school, Bhopal. She is majoring in science stream. Her area of interests includes IT and its social application.