



E-Food: Success Factors for Establishing Online Food Retailing: a Case Study from Jordan

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E-Food: Success Factors for Establishing Online Food Retailing: A Case Study from Jordan

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Abstract— *Food industry has a significant impact on human life. However, this industry has faced many challenges in Jordan in the last decade. These challenges might be globally or locally and effecting its supply chain. Nowadays, the term e-food retailing services have become viral. These services can organize the procedure of the food sector and its supply chain. Also, it will save time and effort for consumers and provides privacy, security, reliability, and service availability. In the study, we investigated the factors that might encourage or concern people to use e-food retailing services instead of traditional food retailing services to help the conventional food retailing service operator pay attention to these factors when transferring to online service. Therefore, we developed a survey to discover these factors. Based on 78 responses, we found that delivery time and cost, food quality, food freshness, service availability, and reliability are the top factors that concern people using e-food retailing services. However, adding some to the e-food applications such as quickly reordering their previous orders, easily reviewing their previous invoices, getting a competitive price, providing special offers, providing loyalty points, privacy, security, friendliness of the user interface, and quickly finding information about the food, can encourage people to use e-food retailing applications. In addition, most participants emphasized that COVID-19 encouraged them to use e-food retailing services.*

Keywords— *E-Food, online food retailing, supply chain, COVID-19*

I. INTRODUCTION

Food is considered one of the most impactful sectors of human life. Also, it is regarded as the most significant industry in Jordan. However, Jordan's food sector has faced various challenges in the last decade. Starting with the Syria war in 2011, followed by the coronavirus pandemic in China in January 2020, and ending with the Russia-Ukraine war in February 2022. These crises negatively affect Jordan's food industry and its supply chain.

Syria was one of the biggest suppliers of food raw materials for Jordan and was considered its only northern gateway for importing and exporting food to Europe. The Syria war in 2011, as part of the Arabic spring, forced Jordan to close this gate, leading to a considerable shortage of raw materials and a rapidly increasing price of food.

Also, the coronavirus pandemic that started in China in January 2020 has caused severe economic damage and disrupted the operations of retailers and consumers in various sectors. Due to its spread, multiple countries have implemented varying safety measures to prevent the disease from infecting others; Jordan was not immune to this. A lockdown has been implemented in Jordan for a long time, negatively impacting the merchants and buyers and disrupting its supply chain operation.

The Russia-Ukraine war in February 2022 significantly impacted the food supply chain worldwide. Russia and Ukraine are among the most prominent wheat and sunflower oil producers. These materials are regarded as the world's most wanted food raw material. So, Jordan was affected by this war, leading to a shortage of these materials and increased prices.

All these factors negatively impacted Jordan's food industry and its supply chain. However, the COVID-19 pandemic produced new habits and behaviors by customers, such as it is pushing people to use online food retailing applications during the lockdown. These applications enable customers to buy their needed products easily through their phones anywhere and anytime.

The purpose of this paper is to explore the success factors for establishing online food retailing in Jordan by addressing the following research questions through a survey, which was conducted to get the opinions and feedback from Jordanians who are using traditional food retailers and the online food retailing applications:

- **RQ1:** What is the impact of using online food retailing services over traditional methods on saving customer time and effort?
- **RQ2:** What is the impact of COVID-19 on using online food retailing services?
- **RQ3:** What factors encourage people to use online food retailing services over the traditional method?

In the following section, a literature review and the related work conducted in this area are presented. Section III illustrates the methodology followed in this study. Results are presented and discussed in detail in Section IV. Section V addresses the threats to the validity of this research. The paper is concluded in Section VI. Lastly, Section VII highlights some directions for future work.

II. LITERATURE REVIEW

In reviewing the literature, we focus our research on the papers that talk about quality in the service industry, quality in the e-service businesses, and quality in the e-food industry. Service quality is directly related to customer satisfaction, which leads to loyalty, which is the relationship stage that all businesses try to achieve.

The rapid expansion of internet systems and software has increased the demand for online services. People are becoming increasingly busy, so they have little spare time to go out and accomplish things. As a result, internet commerce and services are becoming increasingly popular and enjoying rapid growth. Online food delivery (OFD) services have been one of the fastest-growing sectors in recent years; it is

expanding at a rate of 12% per year and quickly becoming one of the most popular industries in online commerce [1].

Every organization must have a quality management system in place. It guarantees the business's ongoing improvement and assists in identifying and resolving problems at their source. Quality is defined and quantified in the OFD industry through food and service quality, as these are the essential parts where quality may be incorporated. The degree to which the delivered food meets and exceeds the customer's expectations measures the service and food quality. At the same time, E-service quality is measured by how websites and apps satisfy customer expectations through various indications such as system availability, user interface, privacy, and security.

Many models are used to measure service quality and e-service quality. [2] Consider that the most appropriate model to measure service quality is the SERVQUAL of Parasuraman, which has five dimensions: Assurance, Reliability, Empathy, Tangibles, and Responsiveness. While calculating the e-service quality, the dimensions used are the dimensions of the ES-QUAL scale: Efficiency, System availability, Privacy, and Fulfillment.

All studies tried to find the effect of the quality of the service provided by e-food applications on customer satisfaction and customer loyalty. All studies found a positive relationship between these three parameters: quality affects customer satisfaction. If the customer is satisfied with the service, their commitment will increase, leading to business success. Dimensions used to measure the quality of the service were different in studies.

In [2], they found that the essential aspect of service quality influencing loyalty is responsiveness. While in [3], the authors have used the following dimensions to measure e-service quality: Security, communication, reliability, responsiveness, and delivery. They suggest that business leaders focus on the user interface and make it friendly and responsive because good UI will encourage the customer to use the application repeatedly.

Another study was conducted in [4], which offered a new dimension that impacts satisfaction, the price-value ratio, where the price is the customer's sacrifice. The value is the reward he received. Therefore the matter had to be greater than the price for the consumer to be happy. Except for the service quality directly impacting behavioral intentions, all hypotheses were validated after creating the survey and evaluating the results. It was established that there was an indirect effect between service quality and behavioral purposes mediated by customer satisfaction. Another research conclusion was that reliability was the most critical factor influencing service quality, followed by responsiveness, empathy, assurance, and tangibles.

SERVQUAL was redeveloped by [5] since they suggest informative, reliable, helpful, and mobility dimensions for the Online Food Delivery sector. The study's findings revealed that information, reliability, mobility, and usefulness directly affected satisfaction but not loyalty, while loyalty is influenced indirectly by customer satisfaction.

Through all these studies, it is evident that there is a positive relationship between service quality and customer satisfaction and their effect on customer loyalty which is an essential factor in any business's success. On the other hand,

achieving service quality is becoming more challenging daily. Due to the intense competition, customer satisfaction is becoming more difficult to achieve, and the effect of consecutive crises on this industry is crucial.

III. METHODOLOGY

By reviewing the existing literature in the previous section, besides the factors provided by the current users of online food retailing about their experience, we believe that the following factors might play a significant role in establishing a successful online food retailing in Jordan. Those factors are as follows: Delivery cost ([3] [6]), Delivery time ([3] [7]), Order packaging ([1] [6]), Food freshness ([1] [6]), Food quality([1] [8] [6] [7]), Services availability ([5]), Friendly user interface ([3] [4] [5]), Competitive price ([6]), Reliability ([3] [9] [4] [5]), and Mobility ([5]).

Therefore, the following set of hypotheses have been formulated to help us answer the research above questions, where H1 will be used to respond to RQ1, H2 will be used to answer RQ2, and the rest of the hypotheses will be used to address RQ3:

- **H1:** E-Food retailing services save time and effort for the customers.
- **H2:** COVID-19 encourages people to use e-food retailing services.
- **H3:** E-Food retailing services provide a fast and flexible delivery time.
- **H4:** E-Food retailing services increase privacy and security.
- **H5:** E-Food retailing services increase reliability.
- **H6:** E-Food retailing services provide service mobility.
- **H7:** E-Food retailing services increase service availability.
- **H8:** E-Food retailing services offer a competitive price.
- **H9:** E-Food retailing services provide a richness of information about the food.
- **H10:** E-Food retailing services provide rare products.
- **H11:** E-Food retailing services increase customer loyalty by giving loyalty points.
- **H12:** E-Food retailing services enable customers to review their previous purchases quickly.

Accordingly, to test the validity of the above hypotheses, an online survey was developed and conducted from March 2022 until June 2022 (Appendix A) and distributed on Jordanian private and public Facebook groups to get feedback from Jordanian users of traditional food retailing services and from online food retailing services users about their experience with these services to figure out to what extent they do believe these factors may encourage them to use online food retailing services over the traditional services.

IV. SURVEY ANALYSIS

The total number of responses to the survey was 78. We analyzed the answers as follows:

A. Demographics

Regarding gender, the females of surveyed people represent 53.8%, while the males represent 46.2%. Regarding age, the majority of the participants have born after 1985. This means that they used the traditional ways to buy food and have them ready to use e-food applications to buy their purchases.

Referring to the location, the majority of the participants live in Amman (60.3%), Zarqa (12.8%), Irbid (9%), and Balqa (6.4%), which are considered the most populated governorates in Jordan. However, most of the participant's marital status was represented as a single (47.4%) and married (38.5%). Usually, married people are more consumers than others in the food industry. Table I shows the demographic characteristics of the participants.

B. Survey Results and Discussion

To know the impact of using e-food applications on saving people time and effort, we asked the participants how often they go to traditional food retailers and how much time they spend in the food retailers to make their purchases. Also, we asked the participants if they had ever used e-food retailing services before. If so, we asked them how often they used them monthly and how much time they spent using e-food retailing services to make purchases.

The survey statistics showed that around 18% of the participants go to traditional food retailers twice a week on average, and they spend each visit an average of two hours to get their purchases. However, 31% of the participants go to traditional food retailers on average twice monthly; on each visit, they spend around four hours making their purchases. Figure 1 shows how many times consumers go to traditional food retailers.

According to the use of e-food retailing services, the survey statistics showed that around 71.8% of the participants had used e-food retailing services before. However, 9% of the participants didn't use e-food retailing services before, while 19.2% said 'maybe.' Regarding the time they spend making their purchases when using e-food retailing services, most participants use e-food retailing services only when needed or once a month and spend around 30 minutes to get their assets.

As we can see, using e-food retailing services save time and effort for people by 25%. This indicates that e-food retailing services will dramatically reduce people's demand for food and store them excessively, affecting the global supply chain. Also, e-food retailing services eliminate the time spent in the queue and traffic jams. Figure 2 shows how many times consumers use e-food retailing services.

Table I. DEMOGRAPHICS

Variable	Category	Number of Respondents
Gender	Male	42
	Female	36
Age	18-20	9
	21-25	19
	26-30	20
	31-35	17
	36-40	9
	41-45	3
	45+	1
Marital Status	Single	37
	Married	30
	Separated	3
	Engaged	5
	Divorced	3
Governorate	Irbid	7
	Ajloun	2
	Jerash	4
	Mafraq	0
	Amman	47
	Zarqa	10
	Balqa	5
	Madaba	1
	Karak	1
	Tafilah	0
	Ma'an	1
	Aqaba	0

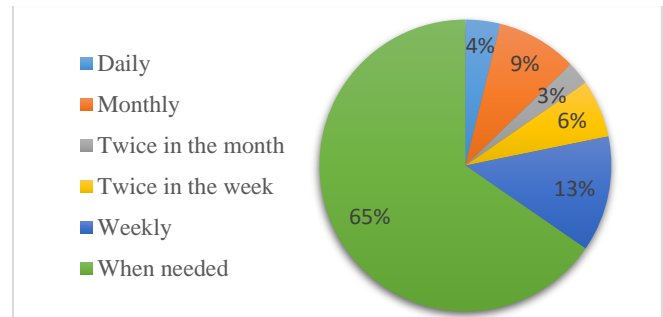


Figure 2. How many times do consumers use e-food retailing services

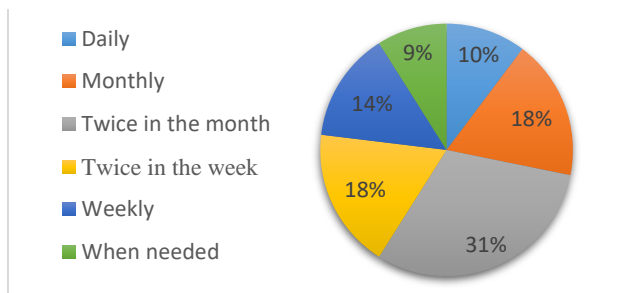


Figure 1. How many times do consumers go to traditional food retailers

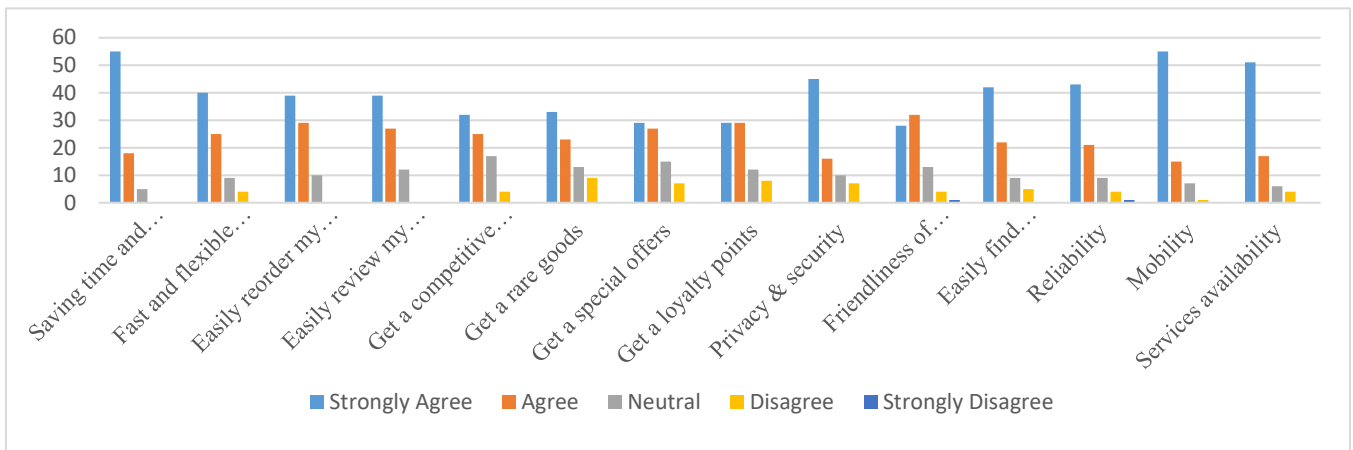


Figure 3. Factors that encourage using e-food retailing services

To know the consumer stratification of using e-food retailing services, we asked the participants if they preferred to use e-food retailing services over traditional food retailers; 62.8% of the respondents were 'yes,' 16.7% of the respondents were 'no,' while 20.5% of the respondents were 'maybe.'

Referring to the impact of COVID-19 on forcing consumers to use e-food retailing services, we asked the participants if they believed that COVID-19 encouraged them to use e-food retailing services over traditional food retailers. As expected, 69.2% of the respondents emphasized that COVID-19 encouraged them to use e-food retailing services, while there were 29.5% of the respondents said 'maybe.' However, only 1.3% don't believe that COVID-19 encouraged them to use e-food retailing services. This validates our H2 hypothesis.

To investigate factors that concern using e-food retailing services instead of traditional food retailers, we set some factors that we believe will affect people using e-food retailing services over conventional food retailers. These factors are delivery time, delivery cost, order packaging, food freshness, food quality, service availability, and reliability. As shown in Figure 4, delivery time, delivery cost, food freshness, food quality, service availability, and reliability are the top factors that concern consumers to use e-food retailing services instead of traditional food retailers. In contrast, order packaging is the lowest factor for consumers in e-food retailing services.

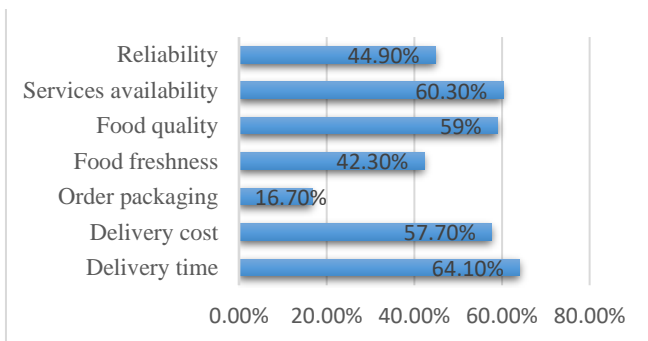


Figure 4. Concern factors to using e-food retailing services

As demonstrated in Figure 5, We found that the most e-food applications used in Jordan are Talabat mart and Carrefour online shopping. We attribute that to many factors such as huge product variety, special offers, fast delivery time, affordable delivery cost, sometimes being free, and high service availability and reliability.

To verify our hypothesis, we asked participants to assess the factors that might have been positively impacting to encourage them to use e-food retailing services on a 5-point Likert scale from (1) to (5), with each denoting the following: (1) Strongly Agree, (2) Agree, (3) Neither agree nor disagree, (4) Disagree, and (5) Strongly Disagree.

As shown in Figure 3, most respondents strongly agreed that using e-food retailing services would save time and effort.

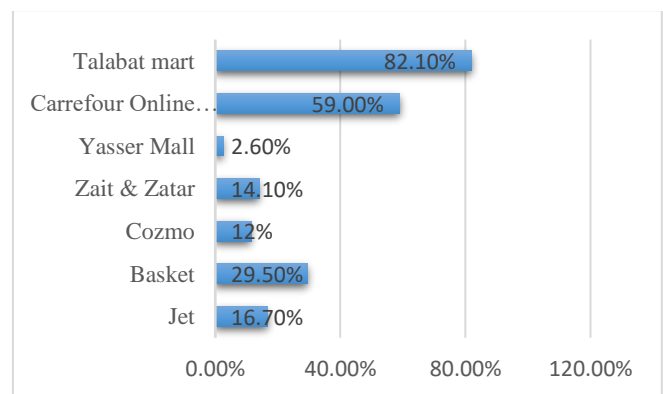


Figure 5. The most e-food applications used in Jordan

Also, they strongly agreed that fast and flexible delivery times could encourage them to use e-food retailing services. In addition, most of the participants think that factors such as: quickly reordering their previous orders, easily reviewing their invoices, getting a competitive price, getting a rare good, getting special offers, getting loyalty points, privacy, security, friendliness of the user interface, quickly find information about the food, reliability, mobility, and services availability are significant factors to encourage them to use e-food retailing services. Therefore, as per our analysis of the survey responses, the results validate all of the developed hypotheses.

V. THREATS TO VALIDITY

Because of the limited time to conduct this work, we got relatively small numbers of responses to the survey; this might have brought an external threat to the results of this study. Also, most of the answers were from particular governorates in Jordan and didn't cover all the governorates. Moreover, only 71.8% of participants used e-food retailing services before. Therefore, the study results cannot be generalized.

Furthermore, related to internal validity, most of the variables and factors in this study were taken from the reviewed literature or with minor modifications. Also, we

expect that the participants answered the survey questions honestly because they did that as volunteer work. However, the time of the study may affect people's responses.

VI. CONCLUSION

The food industry is considered the most significant industry in Jordan. However, for the last decade, this industry has faced various challenges that negatively impact the food industry in Jordan and its supply chain. In this study, we have launched a survey to investigate the factors that might help establish online food retailing in Jordan.

The Survey statistics showed that e-food retailing services reduce the time consumers spend making purchases by 25%. Also, most people who use traditional food retailers go there twice monthly, while most of those who use e-food retailing services use them when needed. This indicates that e-food retailing services will dramatically reduce people's demand for food and store them excessively, affecting the global supply chain. Moreover, most respondents emphasized that COVID-19 encouraged them to use e-food retailing services.

Furthermore, survey statistics showed that delivery time and cost, food quality, food freshness, service availability, and reliability are the top factors that concern people to use e-food retailing services. So, the operators should pay attention to these factors when they decide to transfer from traditional food retailers to e-food retailing services. In contrast, order packaging is considered a low-priority factor that concerns people to use e-food retailing services.

On the other hand, we recommend adding some set of features to the e-food retailing applications such as quickly reordering their previous orders, easily reviewing their previous invoices, getting a competitive price, getting a rare good, providing special offers, getting loyalty points, privacy, security, friendliness of the user interface, quickly find information about the food. These features can encourage people to use e-food retailing applications over traditional food retailers.

In summary, the benefits of e-food services can be represented by saving consumers time, dramatically reducing people's demand for food and storing them excessively, easily reordering their previous orders, and reviewing their previous invoices. These benefits can be used effectively in IoT and smart homes by linking e-food services with home systems and automatically ordering shortage items when needed.

VII. FUTURE WORK

In future work, we recommend expanding the number and geographical distribution of the participants in Jordan to cover all of the Jordanian demographics. In addition, it is recommended to investigate new factors that might concern or encourage people to use e-food retailing applications.

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APPENDIX A- SURVEY

1. Gender:
 - Female
 - Male
2. Age:
 - 18 – 20
 - 21 – 25
 - 26 – 30
 - 31 – 35
 - 36 – 40
 - 41 – 45
 - More than 45
3. What is your marital status?
 - Single
 - Married
 - Separated
 - Engaged
 - Divorced
4. Which governorate do you live in?

- Irbid
 - Ajloun
 - Jerash
 - Mafrag
 - Amman
 - Zarqa
 - Balqa
 - Madaba
 - Karak
 - Tafilah
 - Ma'an
 - Aqaba
5. How often do you go to traditional food retailers?
 - Daily
 - Weekly
 - Twice the week
 - Monthly
 - Twice the month
 - When needed
 6. How much time do you spend in the food retailers to make purchases?
 - 0-30 Minutes
 - 30-60 Minutes
 - 1-2 Hours
 - 3-4 Hours
 - More than 4 hours
 7. Have you ever used e-food retailing services before to order food?
 - Yes
 - No
 - Maybe
 8. If your answer to the previous question was 'Yes,' How often do you use e-food retailing services?
 - Daily
 - Weekly
 - Twice the week
 - Monthly
 - Twice the month
 - When needed
 9. How much time do you spend using e-food retailing services to make purchases?
 - 0-30 Minutes
 - 30-60 Minutes
 - 1-2 Hours
 - 3-4 Hours
 - More than 4 hours
 10. According to your experience, do you prefer to use e-food retailing services over traditional food retailers?
 - Yes
 - No
 - Maybe
 11. Do you believe that COVID-19 encouraged you to use e-food retailing services?
 - Yes
 - No
 - Maybe
 12. Which of the following factors considers a concern to use e-food retailing services instead of the traditional food retailers (Choose all applicable answers):
 - Delivery time
 - Delivery cost
 - Order packaging
 - Food freshness
 - Food quality
 - Services availability
 - Reliability
 13. Which of the following e-food retailing services provider have you ever used (Choose all applicable answers):
 - Carrefour Online Shopping
 - Talabat mart
 - Jet
 - Basket
 - Cozmo
 - Zait & Zatar
 - Other
 14. Do you believe that the following factors will POSITIVELY impact to encourage you to use e-food retailing services? [Please answer this question with (1) Strongly Agree, (2) Agree, (3) Neutral, (4) Disagree, or (5) Strongly Disagree.]
 - a) Saving time and effort
 - b) Fast and flexible delivery time
 - c) Easily reorder my previous orders
 - d) Easily review my invoices
 - e) Get a competitive price
 - f) Get a rare goods
 - g) Get a special offers
 - h) Get a loyalty points
 - i) Privacy & security
 - j) Friendliness of the user interface
 - k) Easily find information about the food
 - l) Reliability
 - m) Mobility
 - n) Services availability