Queue Management Practices of Quick ServiceRestaurants (QSR) in Lipa City, Philippines

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Abstract –Problems regarding waiting line in quick service restaurants (QSR) has been one of the main concerns of industries and scholars nowadays. It is because people today demand not only for qualityfood but also for speed. Quick service restaurant players explore on the approaches to optimize the efficiency of restaurant management. One important area that defines how well and efficient a fast food restaurant delivers its product and services to customers is its waiting line (queue) management practices.

The study was conducted at Lipa City, involving five popular quick service restaurants named by the researcher as QSR A, B, C, D, and E. It made used of 363customer respondents proportionally obtained from five restaurants.It intended to assess the extent of implementation of the queue management practices of the restaurants and the level of satisfaction of the customers in such practices in terms of customer arrival, waiting line and service facility.

The findings revealed the queuing system used and the waiting line structured utilized by the restaurants. The extent of implementation of the queue management practices in the three areas mentioned of the five QSR's was presented comparatively. Likewise, the level of customer's satisfaction on the queue management practices was also determined. Significant difference in the extent of implementation and in the level of customer satisfaction were determined if the respondents were grouped according to restaurant's profile. Recommendations in the improvement of queue were given based on the findings.

Keywords – Queue, QSR, Waiting Line,

INTRODUCTION

More and more people today are making the choice to eat outside the home rather than being involved in the food preparation process. People eating outside hold many reasons why they do so which includes trying new and different foods, to establish and maintain social connections and to enjoy a food that they would otherwise consider unhealthy. Other reasons include the positive experience they obtain upon eating out as well as the escape from routine that going out to eat provides[1]. For some individuals their threshold of capability in home cooking skills often led to eating out because they did not feel confident in their ability to prepare certain foods with the same taste and flavour as a restaurant. With the continuous growth in the number of people who patronize the food offered by fast food restaurants, serving customers efficiently is a major challenge. Manpower planning, facility expansion and review of service time and operations may seem not enough to handle the growing demand of public

for fast foods. As any other business entity, customer satisfaction is the ultimate goal of any fast food restaurant. Satisfied customers are profitable customers.

There are several factors that contribute to satisfaction of a fast food restaurant's customer. Taste, cleanliness, the restaurant layout and settings are some of the most important factors. These factors, when managed carefully and effectively, can help a restaurant to attract plenty of customers and eventually provide delight and satisfaction to them. However, there is also main factor that needs to be considered especially when the restaurant has already succeeded in attracting customers. This factor is the customers queuing time [2].

Nowadays, consumers do not simply demand for quality but they also demand for speed. This thing happened in America due to the increase of average work week from 40.6 hours in 1973 to 47 hours a week in 1988 and during the same period, U.S. leisure time has decreased from 26.2 hours to 16.6

hours a week [3]. It was proposed that "as the standard of living in the developed countries increases, the value of customers' time also increases, and consequently they seek out those goods and services which will minimize the expenditure of their time" [4]. Therefore, customers do not tolerate waiting in line for long periods of time just to receive whatever kind of products or services unless those things are really important or more valuable than the time spent for waiting. This paper studies the queue management practices of quick service restaurants in Lipa City. The names of the restaurants were not mentioned in the entire study to protect them from any misrepresentation and any negative results, if there will be, this study might disclose. The subject restaurants are all strategically located in the city proper and in shopping centers in the City. This paper illustrates the extent of implementation of restaurant's waiting line practices in terms of customer arrival, waiting line and service facility. This also assesses the level of satisfaction of the customers in the restaurant's queue management practices in areas mentioned.

The results will help the entire quick service restaurant industry in assessing the performance of the waiting line practices and determining its effect on customer satisfaction which are important for a business. It will serve as a basis for a restaurant to assess whether workflow and procedures should be revisited, planning and operation need to review and service time should be reduced.These are all vital elements in attracting and keeping customers, maximizing the profit and growing the business.

The study would also be beneficial for the QSR customers. As the ones who join the queues, customers always want to get food at the fastest rate possible. Waiting line and waiting time are very important factors that throw in satisfaction to customers. Convenience and time saving are the common reasons why customers resort to fast food aside from quality of food they offer and social experience a customer may get during eating outside. Improvement on waitinglines will mean maximizing time saving and convenience for customers.

OBJECTIVES OF THE STUDY

The study aimed to assess the queue management practices of quick service restaurants in Lipa City, Philippines. Specifically, the study was carried out to determine the profile of the quick service restaurants in terms of Queuing System Used; and Waiting Line Structure; to assess how the respondents rate the extent of implementation of the queue management practices of the restaurants in terms of Customer Arrival, Waiting Line; and Service Facility; to ascertain if there is a significant difference in the extent of implementation of the queue management practices of the restaurants in terms of the three elements when the respondents are grouped according to profile; to assess the level of satisfaction of the customers on the queue management practices in terms of Customer Arrival, Waiting Line; and Service Facility; and to find out if there a significant difference in the level of satisfaction of the respondents when grouped according to profile.

METHOD

The researcher used the descriptive type of research in this study. Respondents were customers of the five subject restaurants in the city who join the queue and order meals. Three hundred and sixty three (363) respondents were asked to accomplish a questionnaire. This was proportionally divided into five restaurants based on the average number of customers dining in daily.

Self-constructed survey questionnaire was primarily used to gather the data. The instrument was presented during the proposal and it was validated by industry, language and statistics experts. Before the distribution of questionnaires was done,internal consistency or the reliability of the instrument was tested. The test revealed that the instrument was reliable with Cronbach's alpha value of 0.83.

Data collection was done during peak days and hours to represent the real scenario of the problem. Customers dining in were the only subject of the study. Interview with the restaurant managers and staffs were also done as a secondary source of data, as well as actual observation on the site. Information and theories published on magazines, newspapers and books were also part of the secondary source of data.

Information provided by the customers through survey questionnaire is tallied and appropriate statistical measures were applied including the following:
1. Frequency and Percentage distribution method: Tool used in analyzing the QSR's profile.
2. Mean: the tool used in analyzing and presenting the average of the responses.

3. Weighted Mean: the tool used to compute the arithmetic mean that gives different observations an equal weight in accordance with their unequal relative importance.
4. T-test. It was used to determine the significant difference on the level of satisfaction of the respondents when they were grouped according to the queuing system used.
5. F-test (ANOVA) It is used to determine the significant difference on the level of satisfaction of the respondents when grouped according to waiting line structure.

Likert Scale of continuum of 5 with the following assigned value was used to quantify the extent of implementation of waiting line practices of the restaurants and thelevel of satisfaction of the respondents in the queue management practices of each restaurants .

5 -   Fully Implemented *(FI)/* Fully Satisfied *(FS)*
4 -   Implemented *(I) /* Satisfied *(S)*
3 -   Somewhat Implemented *(SI)/* Somewhat Satisfied *(SS)*
2 -   Less Implemented *(LI)* / Less Satisfied *(LS)*
1 -   Not Implemented *(NI)* / Not Satisfied *(NS)*

RESULTS AND DISCUSSION
The researcher found out that 4 out of the 5 restaurants uses manual queuing system and only one of them uses electronic queuing number system.

Table 1. Queuing System Used of Restaurants

Restaurant	Queuing System
Restaurant A	Manual Queuing System
Restaurant B	Manual Queuing System
Restaurant C	Manual Queuing System
Restaurant D	Manual Queuing System
Restaurant E	Electronic Queuing Number System

The difference between electronic and manual queuing system in quick service restaurants lies on the process of order-taking and order-picking. In the manual queuing, the customer has to fall in line and wait until he get served by the server. However, electronic queuing number system utilizes queuing number system that determines the number or order of the customers to be served. This results to a faster transaction at the counter. After order taking, electronic queuing number issues a queuing number to a customer for order pick up. Thus, the customer

doesn't have to stay long on the line because after taking his order, he can move on to the pick-up area. This strategy allows the waiting line to move faster, thus avoiding congestion on the cashier

Table 2. Waiting Line Structure of the Restaurants

Restaurant	Structure
Restaurant A	Four Channels-Single Phase
Restaurant B	Three Channels- Single Phase
Restaurant C	Two Channels-Single Phase
Restaurant D	Two Channels-Single Phase
Restaurant E	Two Channels-Two Phases

Two of the restaurants uses multichannel, single phase waiting line structure however only one restaurant uses Three Channels, Single Phase. There is also one restaurant that use Four Channels, Single Phase and another restaurant use Two Channels, Two Phases.

Table 3. Extent of Implementation of Restaurant's Queue Management Practices in terms of Customer Arrival

PRACTICES	Weighted Mean				
	QSR A	QSR B	QSR C	QSR D	QSR E
(1) The management avoids congestion or bottleneck in the counter by managing the arrival rate of the customers.	2.40	2.62	2.83	2.93	3.10
(2) Arriving customers are required to join in a line that promotes justice and fairness in waiting.	2.88	2.78	2.74	2.89	2.96
(3) Capacity is adjusted for single customer arrival and for batch customer arrival.	2.94	3.0	3.03	2.91	3.04
(4) Offers time-based promotions/ discounts to alter or shift the arrival of the customer.	2.83	2.22	2.54	2.43	2.79
(5) Arriving customers are made aware on how long they will have to wait before they get served.	2.55	2.83	2.78	2.80	2.83
Grand Mean	**2.72**	**2.69**	**2.78**	**2.79**	**2.94**
Verbal Interpretation	SI	SI	SI	SI	SI

With regards to the extent of implementation of the queue management practices in terms of customer arrival, all five restaurants has equal extent of implementation with an interpretation of Somewhat Implemented. Restaurant B got the lowest mean of 2.69 and restaurant E got the highest with 2.94.

With regards to the extent of implementation in terms of waiting line, Restaurants A and B has the greatest extent with a grand mean of 3.33 and 3.76 both interpreted as implemented. However, QSR C, D and E has the same extent of implementation with equivalent verbal interpretation of "Somewhat Implemented".

Table 4. Extent of Implementation of Restaurant's Queue Management Practices in terms of Waiting Line

Practices	Weighted Mean				
	QSR A	QSR B	QSR C	QSR D	QSR E
(1) Utilize definite priority rule to determine the sequence of customers to be served.	3.71	3.81	3.12	3.20	3.42
(2) Prioritize elderly, pregnant women and differently-abled customers in serving	3.61	3.65	3.04	3.30	3.23
(3) There is no separate waiting line for VIP customers	2.52	3.78	3.30	3.38	3.42
(4) Send representatives into the queue to begin taking customer order and start the transaction or service	3.47	3.79	2.74	2.86	2.60
Grand Mean	**3.33**	**3.76**	**3.05**	**2.55**	**3.17**
Verbal Interpretation	I	I	SI	SI	SI

In terms of service facility, QSR A has the least extent of implementation as it only got 2.42 grand mean with an equivalent interpretation of Less Implemented.

On the other hand, the remaining four restaurants has the same extent of implementation with a grand mean of 2.6 for QSR B, 3.09 for QSR C, 3.0 for QSR D, and 3.21 for QSR E.

Table 5. Extent of Implementation of Restaurant's Queue Management Practices in terms of Service Facility

Practices	Weighted Mean				
	QSR A	QSR B	QSR C	QSR D	QSR E
(1) Employs sufficient number of cashiers and servers to efficiently cater all customers	2.59	2.81	3.03	2.93	3.07
(2) Uses right number of service stops and streamlined process in order taking and order picking	2.71	2.89	3.06	3.0	3.32
(3) Serves the customers within the customer's expected service time	2.50	2.51	3.35	3.16	3.38
(4) Provides digital signage/ television with, Wi-Fi access to customers in the queue to occupy the time while waiting so as to avoid boredom and dissatisfaction	1.89	2.19	2.93	2.89	3.05
Grand Mean	**2.42**	**2.6**	**3.09**	**3.0**	**3.21**
Verbal Interpretation	LI	SI	SI	SI	SI

The extent of implementation of the queue management practices of the restaurants in terms of service facility obtained the absolute computed t-value of 3.299 with p-value of 0.001 less than 5 percent level of significance. This indicated that there is a significant difference on the assessment of the respondents on such factor when grouped according to queuing system used. On the other hand, the level of satisfaction on customer arrival and waiting line obtained p-values greater than 0.05level of significance. This could mean that the respondents assessed such factors as not significantly different.

Result of Table means that the extent of implementation of the queue management practices of the restaurant in terms of service facility could be affected by the queue management system used. The respondents assessed that QSR E that uses electronic queuing number system implements its queue management practices in terms of service facility in a greater extent compared to other four restaurants.

Table 6. Significant Difference in the Extent of Implementation of theQueue Management Practices of the QSR WhenGrouped According Queuing System

	Computed t-values	p-values	Decision on Ho	Verbal Interpretation
Customer Arrival	-1.543	0.124	Failed to Reject	Not Significant
Waiting Line	1.731	0.084	Failed to Reject	Not Significant
Service Facility	-3.299	0.001	Reject	Significant
Overall	-1.306	0.192	Failed to Reject	Not Significant

Table 7. Significant Difference in the Extent of Implementation of theQueue Management Practices of the QSR WhenGrouped According Waiting Line Structure

	Computed F-values	p-values	Decision on Ho	Verbal Interpretation
Customer Arrival	0.789	0.501	Failed to Reject	Not Significant
Waiting Line	8.890	0.000	Reject	Significant
Service Facility	9.915	0.000	Reject	Significant
Overall	0.633	0.633	Failed to Reject	Not Significant

The extent of implementation of the queue management practices of the restaurants in terms of waiting line and service facility obtained F-values of 8.890 and 9.915, respectively with p-values less than 5 percent level of significance that led to the rejection of null hypothesis. This implies that there is significant difference on such factors when grouped according to waiting line structure. The extent of implementation of the queue management practices in terms of customer arrival obtained the computed F-value of 0.789 with a p-value of 0.501 which is greater than 5 percent level of significance. Thus, there is no significant difference on the assessment of the respondents on such factor. This means that the queue management practices of the restaurants in terms of customer arrival is independent on the waiting line structure it has. However, the number of channels and phases available for customers affect the extent of implementation of restaurants queue management practices in terms of waiting line and service facility.

Table 8 shows the level of satisfaction of the customers on the queue management practices in terms of customer arrival. It could be depicted in the table that customers of the five restaurants has the same level of satisfaction. However, it could also be noted that customers of QSR A has the lowest level of satisfaction as compared to other customers of the other restaurants.

Customers of QSR A is less satisfied as it only obtained 2.41 weighted mean in terms of the occurrence of bottleneck in the cashier. This is also true in terms having best or fastest waiting line with a weighted mean of 2.37 and interpreted as less satisfied. However, QSR E leads in areas like bottleneck management with a mean score of 3.06. This brings the customers of QSR E the highest satisfaction with a grand mean of 3.02 in the queue management practices specifically in terms of customer arrival.

Table 8. Customers Level of Satisfaction on Restaurant's QueueManagement Practices in terms of Customer Arrival

	Weighted Mean				
Practices	QSR A	QSR B	QSR C	QSR D	QSR E
(1) No bottleneck or congestion happens on the cashier because the arrival of customers is constant	2.41	2.71	2.97	3.02	3.06
(2) The arriving customers don't have to choose for the best or fastest waiting line to join in.	2.37	3.04	3.22	3.13	3.21
(3) Customers arriving in batch are handled efficiently.	3.03	2.94	2.84	2.98	2.99
(4)Time-based promotions/ discounts effectively alter or shift the arrival of the customer from peak hours to non-peak hours/days.	3.31	2.97	2.78	2.77	2.85
(5) The overall waiting line management practices of the restaurant with regards to customer arrival were effective.	3.16	3.06	3.01	3.0	3.01
Grand Mean	**2.86**	**2.95**	**2.97**	**2.98**	**3.02**
Verbal Interpretation	SS	SS	SS	SS	SS

As stated by Perry Kuklin [5] in his article entitled "5 Strategies to Improve Customer Flow", one way to manage the customers joining the queue is to reduce the anxiety they might experience while waiting. Single-line queuing promotes fairness and reduces the need for people to jockey for the "best" line or the "right" line. This move can also limit the arriving customers to exhibit behaviour such as balking and reneging

Table 13. Customers Level of Satisfaction on Restaurant's Queue Management Practices in terms of Waiting Line

Practices	Weighted Mean				
	QSR A	QSR B	QSR C	QSR D	QSR E
(1) The first come first serve priority rule is fair and strictly implemented.	3.87	3.83	3.38	3.43	3.16
(2) Elderly, pregnant women and differently-abled customers are efficiently served.	3.89	4.08	3.28	3.34	3.53
(3) No VIP customers get priority service	3.37	3.71	3.13	3.48	3.23
(4) The overall waiting line management practices of the restaurant with regards to waiting line itself were effective.	3.24	3.76	3.26	3.29	3.23
Grand Mean	**3.60**	**3.85**	**3.26**	**3.38**	**3.29**
Verbal Interpretation	S	S	SS	SS	SS

Table 9 shows the customers' level of satisfaction on queue management practices in terms of waiting line. It could be seen that the customers of QSR B as the highest level of satisfaction with a grand mean of 3.85. Customers of QSR B rated all essential elements of waiting line high to denote satisfaction. It was followed by QSR A with a grand mean of 3.60 interpreted as satisfied. It could be noticed that these two restaurants have the highest extent of queue management practices implementation in terms of waiting line. However, customers of QSR C, D and E have the same level of satisfaction with a grand mean of 3.26, 3.38 and 3.29,

respectively and verbally interpreted as somewhat satisfied.

It could be depicted in table 14 that customers of QSR A and B have the lowest level of satisfaction compared to other QSR. Though all customers of the five restaurants has the level of satisfaction interpreted as somewhat satisfied, customers of QSR E obtained the grand mean of 3.26 which is the highest among the other four QSRs.

Specifically in the employment of sufficient number of cashiers, QSR A only got a weighted mean of 2.64 while QSR E obtained 3.0. This implies that customers of QSR E is more satisfied compared to customers of QSR A in terms of the number of employees or staffs available. This results to a lower satisfaction of the customers of QSR A.

In relation to this, in an article by Kuklin [5], the time of the customers should be occupied while waiting. Occupied time feeds the mind, keeps the hands busy, and distracts the customers from the wait at hand. A fast food restaurant can provide digital signage in the queue that plays interesting or entertaining videos or informational advertisements.

Table 14. Customers Level of Satisfaction on Restaurant's QueueManagement Practices in terms of Service Facility

Practices	Weighted Mean				
	QSR A	QSR B	QSR C	QSR D	QSR E
(1) The cashiers and servers were quick and highly-available to cater needs of the customers.	2.64	2.54	2.93	2.88	3.0
(2) The process of order taking and order picking is fast and convenient	2.51	2.67	3.1	3.02	3.45
(3) Customers waiting on the line don't feel bored because something occupies their time while waiting.	2.47	2.65	2.97	2.73	3.27
(4) The overall waiting line management practices of the restaurant with regards to service facility were effective.	2.59	2.71	3.07	2.96	3.28
Grand Mean	**2.55**	**2.64**	**3.02**	**2.90**	**3.26**
Verbal Interpretation	SS	SS	SS	SS	SS

The level of satisfaction of the respondents in terms of waiting line obtained the absolute computed t-value of 3.528 with p-value less than 5 percent level of significance. This indicated that there is a significant difference on the assessment of the respondents on such factor when grouped according to queuing system used. On the other hand, the level of satisfaction on customer arrival and waiting line obtained p-values greater than 0.05 level of significance. This could mean that the respondents assessed such factors as not significantly different.

This could mean that the satisfaction of the customer in the queue management practice specifically in terms of service facility is affected by the queuing system used by the restaurant. In this study, QSR E, used electronic queuing number system and its customers had the higher level of satisfaction as compared to QSR A, B, C and E that used the manual queuing system. However, satisfaction of customers in the queue management practices in in terms customer arrival and waiting line is not affected by the queuing system used by restaurants.

Table 15. Significant Difference in the Level of Satisfaction When GroupedAccording to Queuing System Used

	Computed t-values	p-values	Decision on Ho	Verbal Interpretation
Customer Arrival	-0.720	0.472	Failed to Reject	Not Significant
Waiting Line	1.686	0.093	Failed to Reject	Not Significant
Service Facility	-3.528	0.000	Reject	Significant
Overall	-1.083	0.279	Failed to Reject	Not Significant

The level of satisfaction on waiting line and service facility obtained p-values less than 5 percent level of significance that led to the rejection of the null hypothesis. This implies that there was a significant difference on such factors when grouped according to waiting line structure. The level of satisfaction of the respondents in terms of customer arrival obtained the computed F-value of 0.365 with a p-value of 0.778 which was greater than 5 percent level of significance. Thus, there was no significant difference in the assessment of the respondents on such factor.

Table 16. Significant Difference in the Level of Satisfaction When Grouped According to Waiting Line Structure

	Computed F-values	p-values	Decision on Ho	Verbal Interpretation
Customer Arrival	0.365	0.778	Failed to Reject	Not Significant
Waiting Line	4.348	0.005	Reject	Significant
Service Facility	7.108	0.000	Reject	Significant
Overall	0.806	0.491	Failed to Reject	Not Significant

This suggests that the level of customers' satisfaction on the queue management practices of the restaurant in terms of waiting line and service facility were affected by the waiting line structure or configuration of the restaurant. This study involved restaurants that use single channel-single phase and multi-channel multiphase configuration. The responses of the customers revealed that two-channel, single-phase and three-channel, single-phase configurations which were utilized by QSR A and B respectively posed the highest level of customer satisfaction. However, satisfaction of customers in the queue management practices in terms of customer arrival is relatively on the same level for all waiting line structures or configurations.

CONCLUSIONS

The researcher found that the majority of the restaurants used manual queuing system. However, in terms of queuing structure, the majority used two channels, single phase configuration.

In the implementation aspect, QSR A had the least extent of implementation specifically in the area of management avoidance of congestion or bottleneck in the counter by managing the arrival rate of the customers. Meanwhile, QSR E had the greatest extent of implementation. Most of the restaurants implemented the queue management practices in moderate extent. This means that the restaurants don't have full implementation of practices that will manage the waiting line well. Service facilities that are related to waiting line is the major weakness of the restaurants especially QSR A.

The queuing system used by QSR's affects the extent of implementation of queue management practices specifically in terms of service facility.

However, customers don't see the queuing system used by QSR as a factor that affects the extent of implementation of such practices in terms of customer arrival and waiting time. Customers perceive that QSRs that uses an electronic queuing number system implement queue management practices with regards service facility in a higher extent compared to QSRs that use manual queuing system. They assessed that QSRs with different waiting line structures tend to have a different extent of implementation of queue management practices in terms of waiting line and service facility. The number of channels open and phases available for customers as elements of waiting line structure affects the extent of implementation of practices in such areas.

Most of the customers are not satisfied in the queue management practices of the restaurants. However, the QSR practices in terms of managing the waiting line itself poses higher satisfaction rating of the customers. It seems that customers are happy with the implementation of the first come, first serve priority rule of the restaurants and the way they handle elderly, pregnant and differently abled customers. Customers are generally not so satisfied with the existing service facility of the restaurants. This includes the number of channels open, the service time and other facilities provided to ease the discomfort or boredom of the customers while waiting in line. There is an inadequate facility to be used by the customers while waiting in line or to occupy the time of the customers while waiting.

The queuing system used by the restaurant affects the level of satisfaction of the customers. Generally, electronic queuing number system is preferred by the customers' over the manual queuing system. Specifically, in terms of the satisfaction of the customers in the QSR waiting line practices with respect to service facility. The customers regard the use of the queuing number system, electronic display board and streamlined process as important components of service facility that provide satisfaction to customers. The waiting line structure also affects the level of satisfaction of the customer specifically in terms of waiting line and service facility. Customers want a structure that will facilitate fast and a convenient order taking and picking. Specifically, based on findings it could be concluded that the customers prefer two–channel, single phase and three channel single phase system.
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RECOMMENDATIONS

Quick Service Restaurant owners and managers should continuously strive hard to improve its service to customers in terms of managing waiting lines. Continuous review on the process of serving customers should be done to ensure fast and convenient service provision.QSR owners and managers must improve its service facility related to waiting line.

Restaurants should consider the use of electronic queuing number system to increase efficiency in serving customers.Restaurants should monitor the strict implementation of the queue management practices to ensure customer satisfaction. It should be ensured that the restaurants should implement the practices to the greatest extent to elicit the greatest satisfaction of the customers.

The QSR managers must review the waiting line structure they utilize to ensure that it fits with the characteristics of the customer's arrival.

Electronic queuing number system should be considered in serving the customer to achieve greater efficiency and customer satisfaction.

Further studies on waiting line are recommended to explore different areas and avenues for improvement. This will provide managers and owners of restaurants different ways on how to effectively serve the customers.

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