

Journal of Industrial Engineering Scientific Journal on Research and Application of Industrial System Volume 09 No 1 – March 2024 http://e-journal.president.ac.id/presunivojs/index.php/journalofIndustrialEngineerin ISSN 2527-4139 (*online*) – ISSN 2503-3670 (*print*)

# Proposing a Yatai Tori Business Expansion of using Constraint Management,

Mohamad Toha<sup>1</sup>, Kerfil Dylon Usboko<sup>1</sup>, Adi Saptari<sup>1</sup>, Anastasia Lidya Maukar<sup>1</sup>

<sup>1</sup>Industrial Engineering Department, Faculty of Engineering, President University Jl. Ki Hajar Dewantara

Kota Jababeka, Cikarang, Bekasi - Indonesia 17550 Email: <u>mohamad.toha@president.ac.id, kerfil.usboko@student.president.ac.id</u>

# ABSTRACT

Yatai Tori management expects the business to double in size from its current condition while facing a minimal market growth of 3.7%. It is crucial for every organization to discern its short-term and long-term goals and develop strategies to accomplish them in order to thrive in the fiercely competitive landscape. This research employs the constraint Management. Constraint management can enable the examination of a situation by merging the accuracy of cause-and-effect analysis with the perspectives and comprehension of those who possess or are closely linked to the issue. In the Market sector, performance needs to be perfect: tasty menu, Friendly Service, Clean and Attractive tools, Fast responses from the servants, and Clear and easy access to information on social media. In terms of the physical sector, the space of Yatai Tori is sufficient to handle 40 clients per day, which is double the existing performance of 15 customers per day. It should add one person to balance the workload of an employee. Following the Policy sector, Management should implement employee compensation to motivate workers to increase performance. Management should find an excellent supplier to make the minimum possible food cost, increase the favourite menu stock, and decrease the favourite lees menu to control the capacity of Yatai Tori. To elevate the limitation, an investment of Rp. 370.000.000 and a total working capital of Rp. 30.000.000 is required, yielding an internal rate of return of 23.36%.

**Keywords:** Business Expansion, Market growth, Constraint Management, Logit Model, Finance Feasibility

#### ABSTRAK

Manajemen Yatai Tori mengharapkan bisnis ini akan berkembang dua kali lipat dari kondisi saat ini sambil menghadapi pertumbuhan pasar minimal sebesar 3,7%. Penting bagi setiap organisasi untuk memahami tujuan-tujuan jangka pendek dan jangka panjangnya serta mengembangkan strategi untuk mencapainya agar dapat berkembang dalam lanskap persaingan yang sangat kompetitif. Penelitian ini menggunakan Manajemen Kendala. Manajemen kendala dapat memungkinkan pemeriksaan suatu situasi dengan menggabungkan ketepatan analisis sebab-akibat dengan sudut pandang dan pemahaman dari mereka yang memiliki atau terkait langsung dengan masalah tersebut. Di sektor Pasar, kinerja harus sempurna: menu yang lezat, Layanan Ramah, Peralatan Bersih dan Menarik, Tanggapan Cepat dari pelayan, dan Akses yang Jelas dan Mudah ke informasi di media sosial. Dalam hal sektor fisik, ruang Yatai Tori cukup untuk menangani 40 pelanggan per hari, yang merupakan dua kali lipat dari kinerja saat ini sebesar 15 pelanggan per hari. Harus ditambahkan satu orang untuk menyeimbangkan beban kerja karyawan. Mengikuti sektor Kebijakan, manajemen sebaiknya menerapkan kompensasi karyawan untuk memotivasi pekerja meningkatkan kinerja. Dan manajemen sebaiknya mencari pemasok yang baik untuk mengurangi biaya makanan sebanyak mungkin, meningkatkan stok menu favorit, dan mengurangi menu yang kurang diminati untuk mengendalikan kapasitas Yatai Tori. Untuk mengatasi batasan ini, diperlukan investasi sebesar Rp. 370.000.000 dan total modal kerja sebesar Rp. 30.000.000, menghasilkan tingkat pengembalian internal sebesar 23,36%.

Kata Kunci: Ekspansi Bisnis, PErtumbuhan pasar, Manajemen Kendala, Model Logit, Kelayakan Keuangan

## 1. Introduction

Today's restaurant business environment has become highly competitive. Restaurants have to start recognizing the importance of market demand in their businesses. Restaurants are facing to improve and expect the business to grow to double the current performance. To meet these challenges, restaurants often find themselves in situations in COVID-19 with a variety of market demands, capacity to accommodate the customer and policy to adapt to the situation, which raises the issue of finding the right balance between investing or not expanding the business for the future. According to Goldratt (1990), the goal of an organization is to earn more money now and in the future. To expect business expansion, the throughput of solving the constraint should be solved and elevated to ensure the strategy is in the right place.

Yatai Tori is a restaurant with the most famous Japanese food; it includes dishes like sate, Yakitori, and Oden, followed by Ochi tea, among many more words. Yatai Tori founded in October 2021 by Alfianto Totri, officially opened its doors in Grand Galaxy City, Pekayon, South Bekasi. In the middle of 2022, Management expects to grow Yatai Tori's business around twice by fulfilling the market demand, compatibility with the restaurant, and circumstances. Yatai Tori's performance shows ups and downs with uncertainty until the end of 2022. Yatai Tori's Management faces many problems in achieving Management's expectation to expand the business twice.

Market growth has been minimal with the rise of the economy from adversity due to Covid-19. It also compared with data economic growth in 2022 during Covid-19 is 3.7% at the end of December 2021. The restaurant's facility is designed to fulfil the requirements today. It is unclear whether it can support the Management's expectation to accommodate the customer more than 100%. Then, the company's policy was developed to fulfill the requirement of the Covid-19 environment and forced to determine whether it could survive.

Market demand helps considerably in acquiring new potential and regular customers in better in customers needs and wants. Strategy to accommodate the new potential customer and regular customer to enjoy, also for employee works with fine to achieve the best productivity. The result rate limits system performance at the system's constraint to achieve expected business expansion; identifying the constraint as the weakest area and eliminating it is then aligned to achieve the target is the main idea behind the Theory of Constraint. The theory can be a widely applied in many areas such as production, logistics, distribution, supply chain, sales and marketing, etc (Şimşitt, Günay, & Vayvayc, 2014).

It is important to find a suitable strategy to achieve the expectation of expanding the business and coping with the uncertainties and opportunities. For any organization, it is essential to identify its immediate and long-term objectives and formulate strategies to achieve them to sustain in the highly competitive environment.

Constraint Management allows the study of a situation by combining the precision of cause-andeffect reasoning with the insight and understanding of those who own or are directly associated with the problem. Thus, this research aims to analyze the possibility of Yatai Tori's business doubling from current performance (market, physical, and policy), identify possibility of constraints hold back business expansion, to manage the above constraint to achieve targeted performance (market, physical, and policy), and to evaluate the financial feasibility of the required improvement.

# 2. Methods

Figure 1 depicts the research methodology. The first step is to conduct the initial observation. The purpose of the initial observation is to identify the problem. The observation is conducted by observing the progress of Yatai Tori and acquiring data by interviewing the customer, owners, and employees regarding their progress and goals for Yatai Tori.

Data was collected through direct interviews and observation with the owner of Yatai Tori, Yatai Tori employees, Yatai Tori customers, and residents of the Bekasi region. These interviews and observations were conducted in phases to collect pertinent data and satisfy the research requirements.

Data Attribute for Market Research from the customer of Yatai Tori with the initial question "What makes you want to go to Yatai Tori and What is your advice for Yatai Tori for the future?" and observation at Yatai Tori. Data for physical constraints were taken from employee observation with

work sampling and customer flow. In policy constraint, the data was taken from direct interviews with Yatai Tori Management.

The number of samples specified must adequately represent the existing population. This study uses a small sample size because researchers cannot recruit all Bekasi consumers and inhabitants as participants. The population of Bekasi City consists of 2,543,670 people. The number of samples should derived by the Slovin formula, which resulted in 100 respondents.

The variables in this study were identified based on interviews with ten Yatai Tori consumers who were asked, "What makes you to Yatai Tori, and what changes are necessary for its future?" Customer attitudes combine a customer's thoughts, emotions, and behavioral intentions toward your company. Consumer behaviour influences the consumer's feelings, attitudes, and preferences in purchasing decisions. The result can be seen as the attributes of the market research, as shown in Table 1.

There are two data processing: the validity test and the reliability test. The validity test determines if an instrument adequately covers all the information it should concern a variable (Heale & Twycross, 2015) This research applies a significance level of 10%.

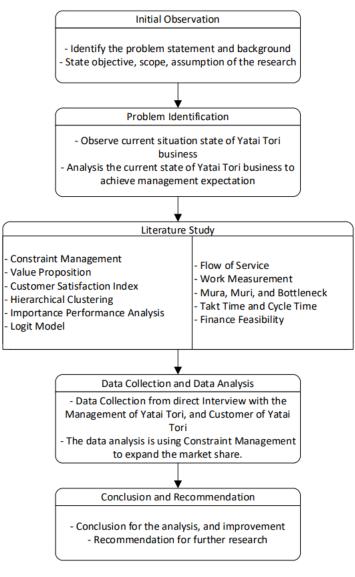


Figure 1. Research Methodology Flowchart

#### 2.1 Constraint Management

Constraint management used for management strategy focuses on the chain's weakest link(s) to improve system performance and proposes a strategy to expand the business. (Şimşit, Günay, &

Vayvay, 2014). As observed, it focuses on continuous system improvement by dealing with constraints; the theory can be implemented in almost every sector and company of every size.

- Identify the Constraint
- Identify the constraints that hold back management expectations. Yatai Tori has three constraints: market constraints to understand the demands and desires of the client, physical constraints to understand the workers' performance and capability of Yatai Tori, and policy constraints to comprehend the Management's policy.
- Exploit the Constraint
- After identifying the constraint, quickly improve the throughput of the market, physical, and policy constraints using existing resources.
- Subordinate the Constraint
- Review all other activities to ensure they align with and truly support the constraint's needs.
- Elevate the Constraint
- If the constraint remains (i.e., it has not shifted), evaluate what additional steps can be made to remove it as the constraint. Typically, actions are continued until the constraint is "broken" at this stage (until it has moved somewhere else). In certain instances, capital expenditures may be necessary.
- Prevent the Constraint broken.
- The Five Focusing Steps are a continuous improvement cycle. Therefore, the next constraint should immediately be addressed once a constraint is resolved. This step reminds never to become complacent aggressively improve the current constraints and then directly move on to the following constraint. (Farouk, 2016)

### 2.2 Market Constraint

Market in which no providers can adapt their capacity in response to a change in demand, or in which the suppliers' response does not correspond to the change in need, is considered inefficient. (Consequential-LCA, 2015). Market constraints make it challenging for a business to achieve its marketing objectives. (Richards, 2017). Constraints can influence every component of the marketing mix.

#### 2.3 Customer Satisfaction Index

Customer satisfaction is the most important factor in determining the quality delivered to customers through the product/service and any supplementary servicing (Pizam, Shapoval, & Ellis, 2016). Moreover, customer satisfaction depends on the performance of products and services and whether this performance is compatible with consumer expectations (Chen, Hsu, & Lee, 2019). Satisfaction is commonly defined as the happiness customers receive from utilizing products or services, which differs from expected performance.

The purpose of the Customer Satisfaction Index is to know customer satisfaction regarding the performance of the business. Provides sets of causal relationships that can be used to demonstrate the relationship between the variables of consumer satisfaction (customer expectations, perceived value, and service quality) and their respective impacts (customer complaints and customer loyalty). (Denga, Yehb, & Sung, 2013).

The following steps are to determine the CSI score.

- 1. Determine the Mean Importance Score (MIS) and Mean Satisfaction Score (MSS).
- The mean Importance Score (MIS) is the mean from the important attribute (see Equation (1)). Then, the Mean Satisfaction Score (MSS) average from customer perceived performance as seen in Equation ().

$$MIS = \frac{\sum_{i=1}^{n} Y_i}{n} \tag{1}$$

Where:

- Y<sub>i</sub> = Importance Score of the i-th Y attribute
- n = number of respondents

$$MSS = \frac{\sum_{i=1}^{n} X_i}{n}$$
(2)

Where:

Xi = Perceived Value of the i-th X attribute

n = number of respondents

2. Determine Weight Factor (WF). The weight is the percentage of MIS score indicator to the sum of MIS score using Equation (3).

$$WF = \frac{MIS_i}{\sum_{i=1}^{p} MIS_i} x \ 100\% \tag{3}$$

Where:

MIS<sub>i</sub> = Importance Score in i-th

 $\sum_{i=1}^{p_{i=1}} MIS_i$  = Sum of importance Score

3. Determine Weight Score (WS). This weight is WF is times the average of the perceived score using Equation (4).

 $WSi = WFi \times MSS \tag{4}$ 

Where:

WFi = Weight Factor in i-th MSS = mean of satisfaction score

4. Determine CSI uses Equation(5)

$$CSI = \frac{\sum_{i=1}^{p} MIS_i}{HS} \times 100\%$$
(5)

Where:

 $\sum_{i=1}^{p_{i=1}} MIS$  = Sum score of importance score HS = Highest scale has been used

### 2.4 Importance Performance Index

Importance-Performance Analysis (IPA) aims to illustrate that consumer happiness results from expectations related to specific important attributes and evaluations of those attributes' performance (Martilla & James, 1977). The IPA is a simple graphical tool, as seen in Figure 1that facilitates the creation of effective marketing plans based on each feature's relative value and effectiveness. The primary objective of IPA is diagnostic: this technique tries to identify elements for which the product or service underperforms or outperforms close to their relevance.



Figure 2 IPA Diagram

# 2.5 Physical Constraint

Capacity Constraint is a regulation that determines how many items a provider can receive. A capacity constraint can be used to give business to a favoured supplier, or the amount of business a provider receives can be limited. Suppliers can also establish a capacity constraint to describe the demand they can support. (IBM, 2021). The physical and capacity constraint is overload that cannot satisfy the demand.

#### 2.5.1 Flow Service

According to (Gouthier, Griese, & Bartl, 2012) refers to the delivery of superior service quality through a management system that exceeds a customer's previous expectations, resulting iboth customer satisfaction and delight and, consequently, customer loyalty. Business service excellence

underpins service flow. Service quality through a management system that exceeds customers' previous expectations and does more to provide enhanced service

#### 2.5.2 Work Measurement

Work Measurement is a method for determining the ratio of output units to human input. Determining the average time required to complete a task depends on the working time measurement. A worker with average skill would require this amount of time to complete the task. (Wignjosoebroto, 2008). Work sampling was used for work measurement. Work measurement is to know the performance output. The measurement method used is Work Sampling.

# 2.5.3 Takt Time and Cycle Time

Takt time and cycle time is are design parameters used in manufacturing or business to set the limit and period of time-making goods

### 2.6 Hierarchical Clustering

Clustering permits the aggregation of individual data points into the highest-level cluster and the subdivision of a top group into atomic data points (Bouguettaya, Yu, Liu, Zhou, & Song, 2015). Hierarchical clustering is the recursive segmentation of data sets into clusters and dividing the whole data set into top clusters and atomic data items. Hierarchical clustering is the recursive segmentation of data set into top clusters and atomic data items.

Hierarchical clustering employs Ward's method of reducing within-cluster variance to build evensized compact clusters. The objective of Ward's Method is to decrease within-cluster variance. Ward's method is commonly used to create compact and uniformly-sized clusters (Szmrecsanyi, 2012). Then Squared Euclidean Distance is measured between each cluster. Based on the definition above,

In this research, the Likert scale's five 16 levels are employed to determine the level of customer importance, which are as follows: 1 Strongly Agree will be given weight 5 2 Agree will be given weight 4 3 50 - 50 will be given weight 3 4 Disagree will be given 2 5 Strongly Disagree will be given weight 1

#### 2.7 Logit Model

In medical literature, logistic regression is the multivariable modeling technique most frequently applied. It has the advantage that it is straightforward to translate its coefficients into odds ratios, a commonly used measure of association in medical research (Khan, Chien, & Dwarakanath, 1999).

Logit Model is used to determine the factors influencing a customer's decision to visit an area. (Hapsari & Beik, 2014). Logit Model is a common association measure that can be computed using Euation (6). Additionally, it understands the importance of developing models from predictor variables to understand the impact of the variable.

$$CapMarket Share = \frac{e^{\alpha + \beta X1 + \beta X2 + \beta X3 + \dots + \beta Xk}}{e^{X\alpha + \beta X1 + \beta X2 + \beta X3 + \dots + \beta Xk + \sum_{k=0}^{k} e^{\alpha + \beta X1 + \beta X2 + \beta X3 + \dots + \beta Xk \text{ competitor } k}}$$
(6)

Annotation:

α = Intercept

β = Weight score

# 2.8 Financial Feasibility

Investment in Yatai Tori is needed if the constraint needs to be removed. Then, financial feasibility is required to know if the investment is feasible. The purpose of the financial feasibility model is to facilitate analysis of the probability of economic returns and cost (Richardson & Johnson, 2015). Finance feasibility is designed to enable analysis to see the comparisons of the value and benefit using the Internal Rate of Return.

# 3. Result and Discussion

# 3.1 Identifying the Constraints

Constraints that limit the system's performance relative to the goal are identified in the beginning. There are several questions asked to the Management regarding the business expansion Yatai Tori:

- Yatai Tori has a large area. According to Top-Level Management of Yatai Tori, Yatai Tori wants to convert a store that was previously only accessible from the terrace into a full store.
- Yatai Tori has adequate tools. According to the Top-Level Management of Yatai Tori, the tools used by Yatai Tori already meet the minimum requirement for adequate tools.
- The capacity is adequate. According to the Top-Level Management of Yatai Tori, Yatai Tori's capacity is still sufficient due to a change in strategy. Like, the supply of less popular foods is decreased
- The services are satisfactory. According to Top-Level Management of Yatai Tori, the service will alter once Yatai Tori begins planning its expansion into the future store.
- Yatai Tori needs to extend the working time. According to the Top-Level Management of Yatai Tori, there is currently no additional working time. It has been adjusted to the target customer and is for working hours.
- Yatai Tori's employees utilize tools efficiently. According to the Top-Level Management of Yatai Tori, the tools used by Yatai Tori's employees already meet their requirements
- Yatai Tori has enough employees. According to the Top-Level Management of Yatai Tori, an additional employee is not required to reduce costs and maximize efficiency. It will be necessary if Yatai Tori wants to invest in the entire store
- It needs to open a new branch 38 According to the Top-Level Management of Yatai Tori, to dominate the Bekasi customer, Yatai Tori wants to concentrate first. Yatai Tori's Top Levels also have no plans or intentions to open new branches.

In addition, Yatai Tori customers are asked, "What makes you want to go to Yatai Tori, and What's your advice for the future?" Ten random Yatai Tori customers were asked, and their responses are in Error! Reference source not found. Each respondent's reaction varied. Some comment on the food's flavour, pricing, location, and service. Management believes Yatai Tori is problem-free after hearing from responders. To grow Yatai Tori's business, it is necessary to identify the possible constraints in the business, namely Market Constraints, Physical Constraints, and Policy Constraints. In market constraints, according to the response to the customer, the market has a demand to be fulfilled, and fulfilling the market demand increases the market share. According to market response, due to physical constraints, Yatai Tori may not have enough capacity to accommodate the customer and the material. Also, employee performance according to market response affects worker behaviour and customer behaviour and becomes a Policy Constraint.

# 3.2 Market Constraint

After determining the constraint, then Yatai Tori exploited the constraint with their resource. After Yatai exploits the constraint with their resource, the attribute is determined to ask the customer, as stated in Table 1.

Q	Questionnaire Question		Questionnaire Question
Q1	Unique dining concept	Q11	Easy to find the restaurant location
Q2	Yatai Tori served tasty food	Q12	Need small trash can
Q3	Yatai Tori served variety of food and drink	Q13	Friendly Service
Q4	Attractive food display	Q14	Fast respond from the servant
Q5	Customers can order a special way of serving food (half-cooked food and sauce variants)	Q15	Servant offers best seller to customer
Q6	Attractive Exterior and Interior of Yatai Tori	Q16	The menu ordered came quickly
Q7	The atmosphere around the restaurant is comfortable and quiet (noise, vehicle fumes or cooking)	Q17	Longer opening times
Q8	No smoke disturbance	Q18	Affordable price

Table 1. Attribute of Customer Attitude and Market Research

Q	Questionnaire Question	Q	Questionnaire Question
Q9	Clean and attractive tools	Q19	Information about Yatai Tori clear and easy to access in social media
Q10	Spacy and comfortable place		

39 respondents completed the questionnaire under Arrival to Yatai Tori Respondents. 39 respondents provided a score, which is the satisfaction score. The importance score was then calculated across all respondents. A summary of the Satisfactory Score of each question can be seen In Table 2. It shows that all the mean from Question 1 to Question 19 and the total mean score is 76.2307. Importance score is based on all questionnaire responses. The total mean importance is 83.26. After Mean Importance and Mean Satisfaction, the factors are then weighed. The CSI is 0.804 or 80.4%.

A 4 4 mile	Arrival to Yatai Tori							
Attribute	MIS	MSS	WF	WS				
Q1	4.50	4.03	5.40%	0.218				
Q2	4.68	4.56	5.62%	0.256				
Q3	4.52	4.03	5.43%	0.218				
Q4	4.45	4.31	5.35%	0.230				
Q5	4.17	4.18	5.00%	0.209				
Q6	4.31	3.64	5.17%	0.188				
Q7	4.41	3.38	5.29%	0.179				
Q8	4.19	3.10	5.04%	0.156				
Q9	4.64	4.21	5.57%	0.234				
Q10	4.10	3.41	4.93%	0.168				
Q11	4.29	3.85	5.15%	0.198				
Q12	3.80	4.10	4.56%	0.187				
Q13	4.68	4.49	5.62%	0.252				
Q14	4.61	4.26	5.54%	0.236				
Q15	4.32	4.15	5.19%	0.216				
Q16	4.46	3.95	5.36%	0.212				
Q17	4.07	4.08	4.89%	0.199				
Q18	4.52	4.05	5.43%	0.220				
Q19	4.55	4.46	5.46%	0.244				
Total	83.26		WT	4.021				
			CSI	0.804				

Table 2 Summary of Respondent's Satisfactory Score on Their Arrival

This study surveyed 108 customers in Yatai Tori using Google Forms and QR codes. The questionnaire can be answered online on a PC, smartphone, or internet-connected device. The "Customer Attitude" and "Market Research" sections take 510 minutes.

Data validity testing determines whether survey results are valid. The test findings show that the respondents' questionnaire answers are appropriate. For the reliability test, the alpha result is greater than Cronbach's Alpha of 0.6. That indicates that all the questionnaires distributed to respondents are reliable. The perceived value shows 0.894, and the expected value is 0.898.

After validity and reliability tests, clustering is used to find comparable interests among the sample size to propose market share expansion. Then, the mean is identified, the weighted score is calculated, and the Customer Satisfaction Index is determined.

This study's cluster is based on expected value because each person's needs and expectations are unique. The satisfaction index is used to find the difference between the perceived and expected value of the attributes by calculating the mean of perceived and expected value. After the Customer Satisfaction index is determined, clustering needs to determine most respondents with the same needs and wants. 108 respondents completed the questionnaire and were then classified using hierarchical clustering using IBM SPSS Statistic 26 software. 108 respondents provided a score, which is a satisfaction score. The importance score was then calculated across all respondents, presented in Table 3. After the Customer Satisfaction Index was determined in each cluster, the strategy was determined to determine which attribute has to be increased to meet criteria in cluster favor.

Attribute	tribute Cluster I		Cluster II			Cluster III			Cluster IV			
	M SS	WF	WS	MSS	WF	WS	MSS	WF	WS	MSS	WF	WS
Q1	4.80	5.40%	0.259	4.53	5.40%	0.245	4.25	5.40%	0.230	2.67	5.40%	0.144
Q2	4.98	5.62%	0.280	4.72	5.62%	0.265	4.30	5.62%	0.241	3.17	5.62%	0.178
Q3	4.86	5.43%	0.264	4.34	5.43%	0.236	4.20	5.43%	0.228	3.67	5.43%	0.199
Q4	4.76	5.35%	0.255	4.22	5.35%	0.226	4.35	5.35%	0.233	3.50	5.35%	0.187
Q5	4.58	5.00%	0.229	3.69	5.00%	0.185	4.25	5.00%	0.213	3.00	5.00%	0.150
Q6	4.70	5,17%	0.243	4.44	5.17%	0.229	3.60	5.17%	0.186	2.67	5.17%	0.138
Q7	4.84	5.29%	0,256	4.69	5.29%	0.248	3.40	5.29%	0.180	2.67	5.29%	0.141
Q8	4.78	5.04%	0.241	4.44	5.04%	0.224	2.80	5.04%	0.141	2.67	5.04%	0.134
Q9	4.96	5.57%	0.276	4.63	5.57%	0.258	4.35	5.57%	0.242	3.00	5.57%	0.167
Q10	4.74	4.93%	0.234	3.97	4.93%	0.196	3.25	4.93%	0.160	2.33	4.93%	0.115
Q11	4.88	5.15%	0.251	3.84	5.15%	0.198	3.85	5.15%	0.198	3.17	5.15%	0.163
Q12	4.34	4.56%	0,198	3.03	4.56%	0.138	3.70	4.56%	0.169'	3.67	4.56%	0.167
Q13	4.92	5.62%	0.276	4.47	5.62%	0.251	4.70	5.62%	0.264	3.67	5.62%	0.206
Q14	4.92	5.54%	0.272	4.53	5.54%	0.251	4.50	5.54%	0.249	2.83	5.54%	0.157
Q15	4.78	5.19%	0.248	3.84	5.19%	0.200	4.30	5.19%	0.223	3.17	5.19%	0.164
Q16	4.72	5.36%	0.253	4.47	5.36%	0.240	4.10	5.36%	0.220	3.50	5.36%	0,188
Q17	4.54	4.89%	0.222	3.56	4.89%	0.174	3.95	4.89%	0.193	3.33	4.89%	0,163
Q18	4.78	5.43%	0.259	4.50	5.43%	0.244	4.25	5.43%	0.231	3.33	5.43%	0.181
Q19	4.90	5.46%	0.268	4.28	5.46%	0.234	4.40	5.46%	0.240	3.50	5.46%	0.191
		WT	4.785		WT	4.242		WT	4.042		WT	3.134
		CSI	0.957		CSI	0.848		CSI	0.808		CSI	0.627

Table 3. Summary of Respondent's Satisfactory Score for Each Cluster

Importance Performance Analysis is an analytical tool used to identify the most important areas for Management to focus on to raise the quality of Yatai Tori performance. IPA analysis was performed using a Cartesian diagram as shown in Figure 3. The results of the Customer Satisfaction Index computation were indeed between the perceived and expected values for each attribute to understand the position of each questionnaire attribute. Therefore, Cluster 1 is the cluster for which Importance Performance Analysis is required, as it contains 50 to 108 respondents or 46.3% of the total. Additionally, it illustrates the interest of 1,177,722 persons in Bekasi residents.

The result of the Quadrant can be seen clearly in Table 3. In Quadrant I, all characteristics are top priorities, with expectations taking precedence over perceptions and business performance. The following characteristics and remedies are of the utmost importance: Quadrant I shows customer dissatisfaction with the perception of the Yatai Tori service. The attributes included in Quadrant I are the Attractive food display (Q4), and the menu ordered came quickly (Q16).

Yatai Tori must maintain Quadrant II attributes because they are equally important to consumer expectations, perceptions, and business performance. Nine attributes make up Quadrant II, and Yatai Tori needs to keep improving to keep its customers coming back and attract new ones who will help it dominate Bekasi Market. The qualities listed must be preserved for it to perform well: Quadrant II shows Yatai Tori's performance and the Expected value from the respondent at cluster 1. Although this performance must be maintained, the business must continue to implement the Quadrant II attributes on a routine basis to retain existing customers and attract new ones.

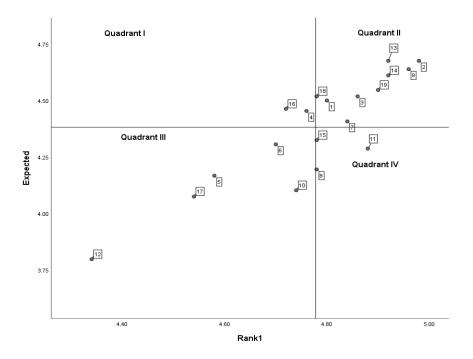


Figure 3 Diagram IPA per Attribute

Low priority is assigned to the characteristics in Quadrant III. It is due to the similarly low level of importance of the company's performance expectations and perceptions. Although these attributes are less important and part of quadrant III, Yatai Tori must continue to evaluate and enhance its performance because, in the future, these qualities might be crucial for meeting customer expectations and being required to raise the bar on quality and draw in new clients who fit the market.

Meanwhile, excessive characteristics make up Quadrant IV, where Yatai Tori performance exceeds customer expectations. In this Quadrant, three attribute items are present. Quadrant IV shows that the attributes are considered less important are implemented well by Yatai Tori, but needs to maintain the performance to attract new customer

Table 4. Quadrant

Q	Attribute	Quadrant
4	Attractive food display	I
16	The menu ordered came quickly	
18	Affordable price	II
1	Unique dining concept	
7	The atmosphere around the restaurant is comfortable and	
/	quiet (noise, vehicle fumes or cooking)	
3	Yatai Tori served a variety of food and drink	
19	Information about Yatai Tori clear and easy to access in social	
17	media	
14	Fast response from the servant	
13	Friendly Service	
9	Clean and attractive tools	
2	Yatai Tori served tasty food	
12	Need small trashcan	
17	Longer Opening Times	
5	Customers can order a special way of serving food (half-	
5	cooked food and sauce variants)	
10	Spacy and comfortable place	
6	Attractive Exterior and Interior of Yatai Tori	
8	No smoke disturbance	IV
15	Servant offers best seller to customer	
11	Easy to find the restaurant location	

To double the market share of Yatai Tori from its current performance and set the strategy, Yatai Tori must increase the effect of customers coming to Yatai Tori. The Equation (6) is used to determine the market share of Yatai Tori in Bekasi City.

Yatai Tori Market Share = 
$$\frac{e^{4.021}}{e^{4.021} + e^{4.6} + e^{3.7} + e^3}$$

Yatai Tori Market Share =  $0.2465 \approx 24.65\%$ 

Then, to increase the market share of Yatai Tori to double from the current performance, regarding the result presented in Table 3, the performance needs to be elevated.

Table 2 Performance Need to Be Elevated	
Increase Satisfaction score to 5	

	Table 2 Performance Need to be Elevated
Question	Increase Satisfaction score to 5
2	Yatai Tori served tasty food
13	Friendly Service
9	Clean and attractive tools
14	Fast respond from the servant
19	Information about Yatai Tori clear and easy to access in social media
Question	Increase Satisfaction score to 4.5
3	Yatai Tori served variety of food and drink
18	Affordable price
1	Unique dining concept
16	The menu ordered came quickly
4	Attractive food display
7	The atmosphere around the restaurant is comfortable and quiet (noise, vehicle fumes or cooking)
15	The servant offers best seller to customer
6	Attractive Exterior and Interior of Yatai Tori
11	Easy to find the restaurant location
Question	Increase Satisfaction score to 4
8	No smoke disturbance

Table 4 shows the additional weight score for achieving double market share.

Table	3	Additional	Weight	Score
Iavie		Additionat	VUCISIIC	JUUE

Iable 3 Additional Weight Score							
Question	MSS	WF	WS	Add Performance Score	Add Weight Score		
1	4.03	5.40%	0.218	0.47	0.026		
2	4.56	5.62%	0.256	0.44	0.024		
3	4.03	5.43%	0.218	0.47	0.026		
4	4.31	5.35%	0.230	0.69	0.037		
5	4.18	5.00%	0.209				
6	3.64	5.17%	0.188	0.86	0.044		
7	3.38	<b>5.29</b> %	0.179	1.12	0.059		
8	3.10	5.04%	0.156	0.90	0.045		
9	4.21	5.57%	0.234	0.29	0.016		
10	3.41	4.93%	0.168				
11	3.85	5.15%	0.198	0.65	0.034		
12	4.10	4.56%	0.187				
13	4.49	5.62%	0.252	0.51	0.029		
14	4.26	5.54%	0.236	0.24	0.013		
15	4.15	5.19%	0.216	0.35	0.018		
16	3.95	5.36%	0.212	1.05	0.056		
17	4.08	4.89%	0.199				
18	4.05	5.43%	0.220	0.45	0.024		
19	4.46	5.46%	0.244	0.54 0.029			
				Add Weight Total	0.482		

#### 3.3 Physical Constraint

A restaurant's capacity refers to the maximum number of customers it can accommodate at any time. To know the capacity of Yatai Tori, a simulation of the customer flow to enjoy the service of Yatai Tori and leave was conducted. In parking capacity, the parking someone takes care of it because the parking area is joint with other shops. The parking area can handle more than 100 motorcycles and at least 30 cars. If Yatai Tori wants to double the visitor dine-in in one day, with an average visitor dine-in of 15 visitors, the capacity of the parking area is still sufficient. For online orders, the courier can wait in the parking area because Yatai Tori is near the parking area. For dine-in customers, the current place of Yatai Tori has 40 visitors. With the current situation of 15 visitors dine-in per day, and Management wants to double it to 30 visitors dine-in per day, the capacity of Yatai Tori can still handle all the customers at once. Customers can immediately ask an employee for an order, and cashless payments are acceptable. If Yatai Tori has implemented cashless payment for twice as many dine-in customers, no upgrade is necessary.

A workload of more than 70% is categorized as heavy (Hanjani & Singgih, 2019). The workload percentage for employee 1 is 83.33 per cent, and employee 1 works 5 hours a day. This means that employee 1 is productive for 4.17 hours and not. This means that employee one can handle each visitor in 15.46 minutes. Employee 2's work percentage is 82.82 per cent, and they work 5 hours a day. During those 5 hours, employee 2 is productive for 4.14 hours. Employee 2 can also handle each visitor for 14.94 minutes. For employee 3, who does cook and has an 81.03 per cent workload and works 5 hours a day, employee 3 is productive for 4.05 hours. Employee 3 can also handle a visitor's order in 14.64 minutes. Employee 4, who has also finished cooking, had a workload of 82.56 per cent and worked 5 hours daily. Employee 4 is productive for 4.13 hours. Employee 4 can also take orders from visitors in 15.30 minutes per order. Moreover, regarding the heavy workload of Yatai Tori employees, Management should add one personnel to balance the workload as seen in Table 5.

	Workload Rate									
Emp . No	Obser ve Time	Productiv ity	Visitor come	Cycle Time	Normal Time	Standard Time (minute/unit)	Standard Production	Workload		
1	900	750.00	80	9.38	11.63	15.46	58.21	83.33%		
2	900	745.38	80	9.32	11.27	14.94	60.25	82.82%		
3	900	729.23	80	9.12	10.85	14.64	61.46	81.03%		
4	900	743.08	80	9.29	11.33	15.30	58.83	82.56%		

Table 4 Summary of the Workload

#### 3.4 Policy Constraint

In terms of human resources, according to a statement from Yatai Tori management, Yatai Tori employees only receive a base wage. To meet the expectations of Yatai Tori's clients, Management must enhance employee motivation if Yatai Tori doubles its existing performance. Yatai Tori should implement compensation because compensation has a favorable and substantial impact on employee performance

In the function of marketing, the result of the questionnaire response shows that most of the respondents are students and employees. Management set the target marketing of Yatai Tori itself for students and employees around 15 - 34 years old. With a theme set of Japanese culture with favors the current trend. Also, Management chose the location based on socioeconomic to adjust the price for the product of Yatai Tori. For the financial function, Management is willing to spend more money to invest in the development of Yatai Tori. Management believes with the journey of Yatai Tori shows an impact on the Management to develop more.

The function of operational, the result of the respondent, Yatai Tori should do more research and train to achieve the best taste for the market, be more friendly to customers, have a clean area and comfortable place, fast response, clear information on social media, variety menu, and no smoke disturbance. Management overtime work must accommodate the customer more. Source of raw material for Yatai Tori itself still buys from the local market.

In terms of investment function, the decision to invest or not is crucial for any management team, as it has a significant impact on the organization's financial health and future prospects. The Management must carefully consider various factors such as market conditions, the organization's financial position, the potential returns on investment, and the risks involved before making a decision.

According to the market constraint, 50 out of the 108 respondents in cluster 1 (or 46.3% of the 2,543,676 Bekasi population) are respondents. Therefore, if we improve the Logit Model performance, Yatai Tori will satisfy the requirements and wants of 1,177,722 people in Bekasi and gain new potential clients.

Due to market constraints, Management expanded the store from the terrace to the entire store to accommodate the new potential customers. Next, the working environment should be improved to maximize employee performance, and an extra employee should be hired to help balance the workload of other workers.

In Policy Constraint, according to Market Constraint and Physical Constraint, Management should research new potential customer favours to satisfy and train, maintain, and implement employee compensation to improve and maintain employee motivation, consistency, and effort.

According to the result of exploiting the market, physical, and policy constraints need to be elevated to achieve the management expectation of double the total sales and income. To compensate for these limitations, the researcher invested in increasing the store's overall space, improving the area around it, and reducing smoke disturbance. Then, incremental analysis is done to compare before and after the investment.

Table 6 shows the result of the growth predicted using the learning curve with initial growth from year 1 respected to year 2 is 80%, and 100% and maintains the performance from year 3 to year 5. In addition, the cost of goods sold is stated to be 47% of the current performance cost of goods sold divided by the sales. The result in the table above with capital investment Rp. 370.000.000, - and total Working capital Rp. 30.000.000, - with an IRR is 23.36%. It means that the investment has shown great results. Also, to maintain the performance about the investment and prevent the constraint from breaking again, PDCA is recommended to keep the performance and achieve sustained performance.

### 3.5 Summary of Business Expansion Plan

Management can expand the business to achieve management expectations; Yatai Tori's sales have continuously grown throughout the year, and it is still possible to conquer more of Bekasi City. Yatai Tori can expand the whole store to accommodate new potential customers and distribute the workload of each employee equally. Management consent is needed if policy changes are needed to expand the business.

To manage the challenges of expanding Yatai Tori's business, several aspects must be addressed. For doubling the market share, the performance must be flawless, encompassing a delicious menu, friendly service, clean and appealing utensils, quick responses from staff, and readily accessible social media information. Competitive attributes include a diverse menu of food and drinks, reasonable prices, a unique dining experience, prompt delivery of orders, visually appealing food presentations, a comfortable and quiet environment, popular dishes, appealing decor, an easy-to-find location, and a smoke-free atmosphere. Notably, these advantages favour Cluster I, as evidenced by the representation of 46.3% of Bekasi residents, with 50 out of 108 respondents.

For Physical, Management should add one personnel employee to balance the workload. For Policy, Management should implement employee compensation to motivate workers to increase performance. Moreover, Management should find good suppliers to make the minimum possible food cost, increase the favourite menu stock, and decrease the favourite lees menu to control the capacity of Yatai Tori.

To subordinate the constraint and accommodate new potential, Management's decision to enlarge the space from the shop terrace into the whole store is correct. Creating better work conditions for employees to maximize their performance and adding one employee help balance the workload.

Then, Management should research to achieve new potential customer favours to satisfy and train and implement compensation for the employees to improve and maintain their motivation, consistency, and effort.

Last, investment is needed at the next level to achieve business expansion based on the result of managing the constraint. To achieve double sales from current performance, a learning curve is needed from year 1 to year 2, respectively 80%, and 100%, and to maintain the performance from year 3 to year 5. Then, Management should invest in Rp. 370.000.000, - and total working capital Rp. 30.000.000, - with the result of IRR 23.36%.

		Year 1	80%	Year 2	100%	Year 3	100%
Add Sales			275,227,996		357,796,395	Tear 5	361,924,815
Add Cost of Good Sold Add Fixed Cost		306,862		322,205		338,315	
Add Variables Cost	47%	128,316,261		166,811,139		168,735,883	
			128,623,123		167,133,344		169,074,198
Add Gross Profit			146,604,873		190,663,051		192,850,616
Add Op Ex Dep. of Add		5,903,135		6,198,292		6,508,206	
Expense		74,000,000	79,903,135	74,000,000	80,198,292	74,000,000	80,508,206
Add Net Income before Tax			66,701,738		110,464,759		112,342,410
Tax 30%			20,010,521		33,139,428		33,702,723
Add Net Income after Tax			46,691,217		77,325,331		78,639,687
Add back dep. of add inv. Cash Flow from			74,000,000		74,000,000		74,000,000
Operation			120,691,217		151,325,331		152,639,687
Add Investment Add Working		- 370,000,000					
Capital		-7,750,000		-9,750,000		-10,250,000	
Investment		409,000,000	120,691,217	151,325,331	152,639,687	166,000,413	167,788,856
		-					

Table 5. Investment of Yatai Tori

	Year 4	100%	Year 5	100%
Add Sales Add Cost of Good Sold		398,323,717		403,783,553
Add Fixed Cost Add Variables Cost 47	355,231 8 185,705,708		372,993 188,251,182	
Add Gross Profit		186,060,940 212,262,778		188,624,175 215,159,378
Add Op Ex	6,833,617		7,175,298	
Dep. of Add Expense	74,000,000		74,000,000	
	,,	80,833,617	,,	81,175,298
Add Net Income before Tax		131,429,161		133,984,080
Tax 30% Add Net Income		39,428,748		40,195,224
after Tax		92,000,413		93,788,856
Add back dep. of add inv. Cash Flow from		74,000,000		74,000,000
Operation		166,000,413		167,788,856
Add Investment Add Working Capital Investment	-11,250,000			0

## 4. Conclusion

Based on the research results, several conclusions were obtained. Constraints that limit the performance of the system relative to the goal have been identified. Constraint Management can be applied by identifying the constraints related to market, physical, and policy.

First, Management can expand the business to achieve management expectations; Yatai Tori's sales have continuously grown throughout the year, and still possible to conquer more of Bekasi City. Yatai Tori can expand the whole store to accommodate new potential customers and distribute the workload of each employee equally. Management consent is needed if policy changes are needed to expand the business.

Second, These three constraints are affecting Yatai Tori. First is marketing constraints; the researcher interviewed ten customers, showed that the market has demand to be fulfilled, and then increased the market share. Then, it is possible that Yatai Tori does not have enough capacity to accommodate customers and materials. Also, employee performance according to market response affects worker behaviour and customer behaviour and becomes a Policy Constraint.

### References

- 1. Bouguettaya, A., Yu, Q., Liu, X., Zhou, X., & Song, A. (2015). Efficient agglomerative hierarchical clustering. *Expert Systems with Applications*, 42(5), 2785-2797. doi:https://doi.org/10.1016/j.eswa.2014.09.054
- Chen, M.-C., Hsu, C.-L., & Lee, L.-H. (2019). Service Quality and Customer Satisfaction in Pharmaceutical Logistics: An Analysis Based on Kano Model and Importance-Satisfaction Model. *International Journal of Environmental Research and Public Health*, 16(21), 4091. doi:https://doi.org/10.3390/ijerph16214091
- 3. Consequential-LCA. (2015). Consequential Markets. Consequential-LCA.
- Denga, W., Yehb, M., & Sung, M. (2013). A customer satisfaction index model for International tourist hotel. International Journal of Hopitality Management, 35, 133-140. doi:10.1016/j.ijhm.2013.05.010
- Devani, V., & Rizki, R. A. (2016). Analisis Kepuasan Pelanggan dengan menggunakan metode Customer Satisfaction Index dan Potential Gain in Customer Value. Jurnal Rekayasa dan Manajemen Sistem Informasi, 2(2), 24-29. doi:DOI: http://dx.doi.org/10.24014/rmsi.v2i2.2605
- 6. Farouk, H. H. (2016). The Application of Theory of Constraints in A Production Planning Process. College of International Transport & Logistics Department of Supply Cahain Management.
- 7. Gouthier, M., Griese, A., & Bartl, C. (2012). Service Excellence models: a critical discussion and comparison. *Managing Service Qualiy: An International Journal*. doi:10.1108/09604521211281378
- 8. Hanjani, A. R., & Singgih, M. L. (2019). Workload Analysis at Biro Human Capital to Increase Productivity. *IConBMT*. doi:ISSN 2354-6026
- 9. Hapsari, F. T., & Beik, I. S. (2014). Analisis Faktor-Faktor yang Memengaruhi Nasabah Non-Muslim dalam Menggunakan Jasa Bank Syariah di DKI Jakarta. *Jurnal Al-Muzara'ah*. doi:https://doi.org/10.29244/jam.2.1.75-94
- 10. Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence BAsed Nursing*, 1-2. doi:DOI: 10.1136/eb-2015-102129
- 11. IBM. (2021). Capacity Constraint. Emptoris Sourcing 10.1.3.
- 12. Khan, K., Chien, P. F., & Dwarakanath, L. S. (1999). Logistic Regression Models in Obstetrics and. Obstetrics & Gynecology, 93(6), 104-1020. doi:DOI: 10.1016/s0029-7844(98)00537-7
- 13. Martilla, J. A., & James, J. C. (1977). Importance-Performance Analysis. *Journal of Marketing*, 77-79. doi:10.1177/002224297704100112
- Pizam, A., Shapoval, V., & Ellis, T. (2016). Customer satisfaction and its measurement in hospitality enterprises: a revisit and update.l. *ternational Journal of Contemporary Hospitality Management*, 28(1), 2-35. doi:DOI:10.1108/IJCHM-04-2015-0167
- 15. Richards, L. (2017). What is Constraint in Marketing.

- 16. Richardson, J. W., & Johnson, M. D. (2015). Financial Feasibility analysis of NAABB developed technologies. *Algal Research*, 16-24. doi:10.1016/j.algal.2015.03.020
- 17. Şimşit, Z. T., Günay, N. S., & Vayvay, Ö. (2014). Theory of Constraints: A Literature Review. Social and Behaviorial Science(150), 930-936. doi:10.1016/j.sbspro.2014.09.104
- 18. Şimşitt, Z. T., Günay, N. S., & Vayvayc, Ö. (2014). Theory of Constraints: A Literature Review. *Procedia: Social and Behavioral Sciences, 150*, 930-936. doi:doi: 10.1016/j.sbspro.2014.09.104
- Szmrecsanyi, B. (2012). Grammar and Syntax, English Language and Linguistics: General Interest, Language and Linguistics. Cambridge: Cambridge University Press. doi:https://doi.org/10.1017/CB09780511763380
- 20. Wignjosoebroto, S. (2008). Ergonomi Studi Gerak dan Waktu: Teknik Analisis untuk Peningkatan Produktivitas Kerja. *Guna Widya*.