Analytical Hierarchy Process (AHP) Analysis to Selecting Best City for Opening Outlet of Grillto Indonesia

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ABSTRACT: The culinary business sector is a very popular one; apart from being a cultural identity, the culinary sector also plays a role in the country's economy, being the largest contributor to Indonesia's GDP in the creative industry. The rapid development of business in the culinary sector has made business actors continue to innovate, one of which is by taking advantage of the development and use of technology. Seeing this opportunity, Grillto Indonesia innovated to open a Cloud Kitchen outlet that only relied on online food delivery (OFD). Based on his considerations, Griilto Indonesia plans to open outlets in five potential cities, namely Medan, Pekanbaru, Jakarta, Bandung, and Yogyakarta. This research focuses on determining two priority cities for the launching strategy. The method used in this study is multi-criteria decision making (MCDM) with the analytic hierarchy process (AHP) method. The criteria for this method are determined based on literature reviews and the Focus Group Discussion (FGD) method. The results of the study show that the city of Pekanbaru and the city of Medan are the two highest in order, with a value of 0.3503 and 0.2332, respectively. Thus, Grillto Indonesia will open its first outlet in the cities of Pekanbaru and Medan.

KEYWORDS: AHP, Cloud Kitchen, Hierarchy Process Analysis, Online Food Delivery Service, MCDM.

INTRODUCTION

The culinary business sector is a very popular business; apart from being a cultural identity, the culinary sector also plays a role in the country's economy, being the largest contributor to Indonesia's GDP in the creative industry (Kemenparekraf, 2021) and ranking 6th in the world with the highest income after China, America, India, Japan, and Russia with a value of USD 257.8 billion (Stats, 2022). This is due to the complexity of business in this sector; the production of raw materials itself comes from agriculture, plantations, and fisheries. As the times progress, this business continues to increase from year to year. The latest data shows that in the 2nd quarter of 2022, this sector grew by 3.68% from the previous year, equivalent to a value of IDR 200.26 trillion, and contributed 37.77% of the non-oil and gas processing industry to Indonesia's GDP (Kemenperin, 2022). This is due to the increasing number of people who have high purchasing power and are supported by the large number of local and domestic tourists visiting areas in Indonesia. The rapid development of business in the culinary sector has made business actors continue to innovate, one of which is by taking advantage of the development and use of technology. The use of technology can affect business efficiency and increase market reach compared to normal. One of the uses of technology that is currently booming in the culinary sector is "cloud kitchen," which is a culinary business concept that relies on a delivery-only system without any on-site dining facilities. This technology is strategic due to flexible operations and cost efficiency because there is no need to set up a large business with enough qualified kitchens to prepare food. Grillto is a business engaged in the culinary field with a cloud kitchen concept. Seeing the opportunity for technological progress in mid-2022, Grillto Indonesia wants to build a business by planning a strategy to launch branches in two major cities. However, in the design process, in-depth research is needed to find out, from a total of five potential cities, which two will be the chosen locations to open outlets. These two cities will be a priority as the initial stage of launching the outlet opening strategy before moving to other cities. Therefore, it is necessary to sort according to the criteria to be designed. Therefore, it is necessary to invest in opening 2 outlets in 5 cities because this can encourage Grillto Indonesia's brand image to increase because it has branches in several cities, which will increase customer trust.

LITERATURE REVIEW

Cloud kitchen is a restaurant concept with an operating system that is different from other restaurants; this concept applies only to delivery orders, commonly known as direct delivery facilities; most restaurants that implement this concept work together with online

transportation services such as Go-Food, Shopefood, and Grab-Food (Setyowati, 2020). Customers who come do not directly come into contact with staff but only through third parties or what is commonly known as online delivery services (Chavan, 2020). The facilities owned by the cloud kitchen are very complete, so they can cook various types of food from many restaurants. According to Choudhary, the key to the success of this business is the development of high-middle-class consumers, changes in consumption patterns, and the availability of restaurants in locations closest to consumers (N Choudhary, 2019). Culinary services based on the cloud kitchen concept are gradually becoming more popular. Several major countries, such as China, America, England, and Indonesia, have started to adapt to this restaurant concept (Resti R, 2020). In 2026, it is estimated that the market for the cloud kitchen concept can reach USD 2.63 billion (Meita Fajriana, 2020). The main advantage of the cloud kitchen concept over the physical restaurant concept lies in cheaper capital, which is caused by the provision of a more flexible physical store and controlled food ingredients (Lapegna & Lapegna, 2016). As it is known, a restaurant with a physical restaurant concept requires many things, such as a large building accompanied by decorations that must have a concept to attract customers, waiters, chairs, and tables. This makes the budget for making a restaurant with a physical restaurant concept very large compared to the cloud kitchen concept.

The Analytic Hierarchy Process (AHP) method is a method developed in the 1970s by Thomas L. Saaty, who came from the University of Pittsburgh as a mathematician. The analytical hierarchy process (AHP) uses a systematic approach whose purpose is to make decisions. Pairwise comparisons between selection criteria and comparisons between existing selection criteria. The comprehensive structure of the Analytic Hierarchy Process (AHP) is used to combine intuitive rational and irrational values in the decision-making process using the pairwise comparison method. Analytic hierarchy process (AHP) AHP allows decision makers to assess the consistency of the decision-making process by using the consistency ratio. AHP technology performs pairwise comparisons to measure the relative importance of items in each hierarchy and evaluates the alternatives at the lowest level in the hierarchy to make the best decision among the alternatives. AHP offers decision-makers a way to turn subjective judgments into objective actions. Because AHP is a simple and flexible method, AHP is a popular decision-making tool, for example, in the fields of technology, business, and public administration (Lidya Merry et al., 2014).

RESEARCH METHOD

The research method used in this study uses a mixed approach between two research methods, namely Qualitative and Quantitative methods. Qualitative research method is a non-numeric research method that is used to examine the condition of natural objects, where the researcher is the key instrument itself (Sugiyono, 2005). Meanwhile the Quantitative research method is a numerical research method based on the philosophy of positivism, which is used to examine certain samples, statistical data analysis which aims to test the hypotheses that have been set at the beginning (Sugiyono, 2005).

The data collection method is an important component in a study; the data collection process itself is determined based on which research methods are used in this study. The primary data collection method in this study was by conducting an Focus Group Discussion (FGD). The Focus Group Discussion (FGD) method is a form of qualitative research in which a group of people with an interest in a focused discussion are asked about their perspectives, beliefs, experiences, opinions, ideas, and personal experiences on the topics discussed (Henderson, 2009). The focus group discussion (FGD) in this study discussed "criteria that need to be considered in opening outlets". Focus Group Discussion (FGD) sessions were conducted to assess pairwise comparisons in this study based on criteria and sub criteria. Participants who took part in the Focus Group Discussion (FGD) sessions can be seen in Table 1.

Table 1. List Of FGD Participant

No.	Name	Location Of Residence	Role
1	Alvin Zeri Hardiansyah	Bandung	Moderator
2	Dimas Rizki Permadi	Pekanbaru	Participant, co-founder & local residents who understand the location of the business and its facilities.

3	Satriya Kurniawan Hoedajanto	Bandung	Participant, expert in the culinary business, which has 61 culinary business branches & local residents who understand the location of the business and its facilities.
4	Rifqy Imsya Al Ayubbi Lubis	Medan	Participant & local residents who understand the location of the business and its facilities.
5	Reyhan Al-Ghifari Siregar	Jakarta	Participant & local residents who understand the location of the business and its facilities.
6	Anas Iqbal Luthfiqa	Yogyakarta	Participant & local residents who understand the location of the business and its facilities.

Source: Author, 2023

Secondary data is research data that comes from outside the institution itself. Literature study was conducted to obtain secondary data obtained through other media through sources from literature, book references, journals, internet, and articles that are considered relevant.

ANALYSIS

The first step is to determine the criteria in this study, the main source comes from a literature review where each determination of criteria is explained based on literature studies related to location selection. Table 4.1 is a mapping of criteria and sub-criteria based on research and their defenition based by sub-criteria.

Table 2. Criteria Source and Defenition

Criteria	Sub Criteria	Reference	Defenition
Investment Capital	ROI	Indarti (2004); Wahyudi (2014); Tzeng, et al (2002); Park and Khan (2005).	Return on Investment, or ROI, is a ratio used to determine how effective a certain investment was. Strictly speaking, return on investment (ROI) is the computation of the net profit we receive from the nominal investment money that has been invested.
	Operational Cost	Indarti (2004); Wahyudi (2014); Tzeng, et al (2002); Park and Khan (2005).	This is an operational cost calculated for one year, the provision for operational costs is more than the capital provided at the beginning by Grillto Indonesia.
ocation	Around Costumer Segment	Zuliarni and Hidayat (2013); Ariani (2009); Tjiptono dan Chandra (2011); Chen and Tsai (2015); Park andKhan (2005).	Ease of business location to be seen or observed by consumers clearly at a certain distance.
	Good Infrastructure	Kasmir (2014); Zuliarni and Hidayat (2013); Ariani (2009); Tjiptono dan Chandra (2011); Chen and Tsai (2015); Park andKhan (2005).	Ease of road access or quality of asphalt that will be traversed by Online Food Delivery Service (OFD) partners.
	Near Market		

		Kasmir (2014); Zuliarni and Hidayat (2013); Ariani (2009); Tjiptono dan Chandra (2011); Chen and Tsai (2015); Park andKhan (2005).	Access to the market from the business location is not too far so that the need to buy RAW materials is easy to reach.
Product Knowladge	Competitors Exist	Park and Khan (2005); Thiptono and Chandra (2011); Zuliarni and Hidayat (2013); Ariani (2009); Smith (1985); Indarti (2004); Tzeng (2002); Chen and Tsai (2015).	Product knowledge is based on whether there are already competitors in the city with similar products, if so, it means that the community is already familiar with the product so that it is easier to market the product.
	No Competitors	Park and Khan (2005); Thiptono and Chandra (2011); Zuliarni and Hidayat (2013); Ariani (2009); Smith (1985); Indarti (2004); Tzeng (2002); Chen and Tsai (2015).	Product knowledge is based on whether there are already competitors with similar products in that city. If there are no competitors, it means that the public is not familiar with the product, so the marketing costs will be higher.

Source: Author, 2023

The next step is to create a fuzzy AHP, which aims to map the results of the criteria and sub-criteria to finally determine which is the best alternative. Figure 1 is AHP fuzzy for this research.
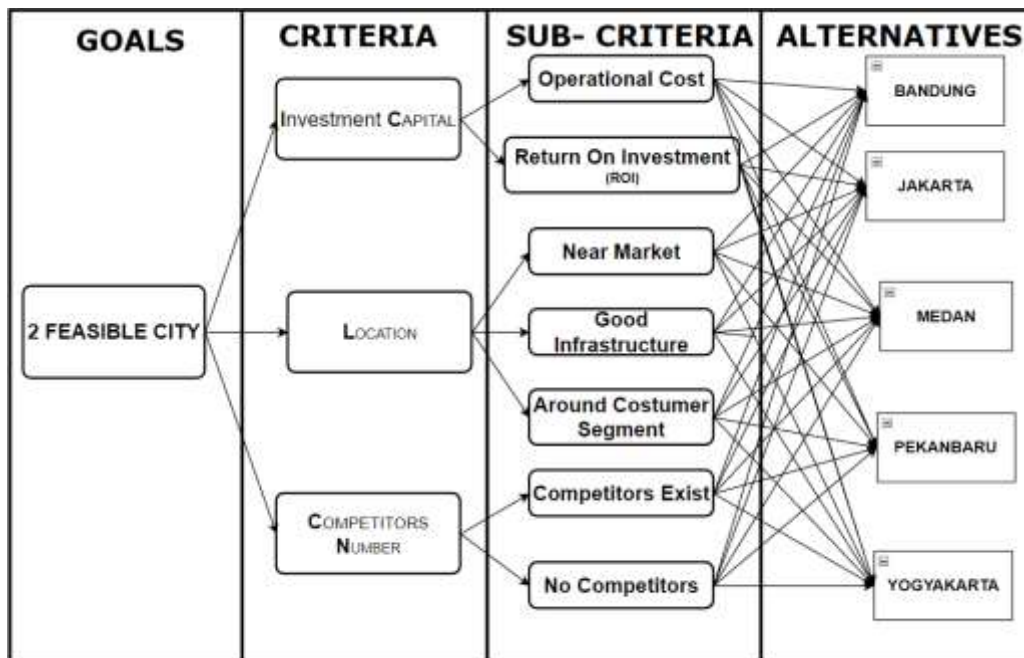

Figure 1. AHP Fuzzy

Table 3 is the result of the calculation of each criterion and sub-criteria, where the results are enhanced by the pairwise comparisons that have been prepared.

Table 3. Criteria and Sub-criteria Weighting

Criteria	Result	Weight	Sub-Criteria	Result	Weight	Altenatives	Result	Weight
Investment Capital	0.5926	59.3%	ROI	0.3333	33.3%	BANDUNG	0.0726	7.3%
						JAKARTA	0.0289	2.9%
						MEDAN	0.1317	13.2%
						PEKANBARU	0.4922	49.2%
						YOGYAKARTA	0.2747	27.5%
			Operational Cost	0.6667	66.7%	BANDUNG	0.0726	7.3%
						JAKARTA	0.0289	2.9%
						MEDAN	0.1317	13.2%
						PEKANBARU	0.4922	49.2%
						YOGYAKARTA	0.2747	27.5%
Location	0.3223	32.2%	Around Costumer Segment	0.6090	60.9%	BANDUNG	0.0524	5.2%
						JAKARTA	0.1424	14.2%
						MEDAN	0.5634	56.3%
						PEKANBARU	0.1424	14.2%
						YOGYAKARTA	0.0995	10.0%
			Good Infrastructure	0.2817	28.2%	BANDUNG	0.2000	20.0%
						JAKARTA	0.2000	20.0%
						MEDAN	0.2000	20.0%
						PEKANBARU	0.2000	20.0%
						YOGYAKARTA	0.2000	20.0%
			Near Market	0.1092	10.9%	BANDUNG	0.2970	29.7%
						JAKARTA	0.0441	4.4%
						MEDAN	0.4923	49.2%
						PEKANBARU	0.0993	9.9%
						YOGYAKARTA	0.0673	6.7%
Product Knowladge	0.0851	8.5%	Competitors Exist	0.8000	80.0%	BANDUNG	0.2488	24.9%
						JAKARTA	0.6089	60.9%
						MEDAN	0.0293	2.9%
						PEKANBARU	0.0293	2.9%
						YOGYAKARTA	0.0838	8.4%
			No Competitors	0.2000	20.0%	BANDUNG	0.0532	5.3%
						JAKARTA	0.0291	2.9%
						MEDAN	0.4152	41.5%
						PEKANBARU	0.4152	41.5%
						YOGYAKARTA	0.0873	8.7%

Source: Author, 2023

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Table 3 shows the results of super decision software calculations based on pairwise comparisons derived from FGD results, this result shows which weighting is prioritized over the other weightings. The main criteria it can be concluded that investment capital is the top priority because it has the highest weight , namely 0.5925 (59.3%), followed by location with a weight of 0.3223 (32.2%), and finally product knowledge with a weight of 0.0851 (8.5%).

Graphic	Alternatives	Total	Normal	Ideal	Ranking
	BANDUNG	0.0332	0.0997	0.2847	5
	JAKARTA	0.0356	0.1068	0.3048	4
	MEDAN	0.0777	0.2332	0.6656	2
	PEKANBARU	0.1168	0.3503	1.0000	1
	YOGYAKARTA	0.0700	0.2100	0.5995	3

Figure 2. Synthesized Priorities For The Alternatives

Figure 2 shows that of the total calculations for each element of the criteria and sub-criteria, the final result is that Pekanbaru and Medan the most appropriate cities to open two outlets at the beginning simultaneously.

CONCLUSION

The results of business situation analysis conclude that Grillto Indonesia is feasible to run, but it just needs massive improvisation to remain sustainable. Analytic Hierarchy Process Analysis (AHP), which was carried out to identify the selection of two of the five best cities to open outlets based on the criteria obtained literatur review and The Focus Group Discussion (FGD) for the pairwise comparison assessment found that the final results showed that two cities were feasible, namely Pekanbaru City and Medan City, with an assessment weight of 0.3503 and 0.2332, respectively.

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