"Loku" application for culinary location determination

F A Mustika, S Sutrisno, Y Wibawanti, P Pujiastuti, W Rahayu, A Kuncoro, S Saputra, and H Sugeng

Universitas Indraprasta PGRI, Jakarta, Indonesia

*funny.alva@gmail.com

Abstract. The culinary business a few years back is showing a very significant development. Many things to be considered by culinary entrepreneurs, one of which is the business location. Location is a driver of cost and income, so locations often have the power to create business strategies. Strategic business location aims to maximize profits. The application "Luku" is a decision support application to choose the location of culinary business. This application was developed using Analytic Hierarchy Process (AHP) method. With this application is expected business actors can determine the location of the most strategic business in supporting his business accurately from several alternatives where the existing business. The test results show that the sequence generated from the created system is the same as the order created by the expert.

1. Introduction
Enterprises in the culinary field a few years back are showing a very significant development. Because it concerns the primary needs of human beings, business in the food and beverage sector will continue to exist and quite promising.

Business location planning has a very important role in supporting the development of the company and business location becomes one of the determinants of the success of a business establishment [1]. The primary factor that must be considered by employers is the accuracy in determining the location, this happens because the selection of the right location often determines the volume of sales, the location is the capital that became the reference to develop the business because of mistakes in site selection will be fatal to the business continuity to be opened [2]

The choice of business location is one of the business decisions to be made carefully. Previous studies have found that business locations are related to the sale of the business. However, these studies are still dominated by site selection in manufacturing, high technology, and large business, where the choice of business location is driven by consideration of the cost of transportation and production materials.

Effective selection of business locations means avoiding negative risks to a minimum or in other words obtaining locations with the most positive risk [3]. The right location is the capital to achieve the goal and vice versa the wrong choice of location will hamper all business movements that will limit the ability to gain profit [4]. Strategic business location aims to maximize profits. Thus the business actor must be able to choose the right business location to run his business.
In facilitating the selection of business location for the businessman, made a Loku application for the determination of the location of the culinary business. This application is made using Java programming language with analysis of criteria selection using AHP (Analytical Hierarchy Process). The AHP method is a decision support model developed by Thomas L. Saaty. The selection of business location in this culinary field uses 9 (nine) criteria in determining decision.

In the AHP method, describes the complex multi-criteria problem in the form of hierarchy. The hierarchy is defined as a representation of a complex problem in a multi-level structure where the first level is the goal, which follows the system level, criteria, sub-systems and so on down to the last level of the alternative criterion [1]. With a hierarchy, a complex problem can be broken down into groups that are then organized into a hierarchical form so that the problem will seem more structured and systematic.

By using the Loku application is expected business actors can determine the location of the most strategic business in supporting his business accurately from several alternatives where the existing business.

2. Research Method
The method used in this research is Analytical Hierarchy Process (AHP) method using 9 (nine) criteria in determining decision. Applications created using the Java programming language Applications created using the Java programming language with the Netbeans 6.7.1 tool.

3. Results and Discussions
The steps to make decision support system of culinary business location determination using Analytical Hierarchy Process (AHP) method:

3.1 Determination of Criteria
Criteria for determining the location of culinary business used in this research are: (a) the business location is visible, (b) the cost of building / leasing the place of business, (c) access is easy to reach, (d) target marketing / market segment, (e) legality of business place permit, (f) business environment (cleanliness and security), (g) parking area, (h) level of competition / business competition, (i) support of industry factors

3.2 The Formation of Hierarchical Structures
Criteria data is processed by using Criterium Decision Plus (CDP) tool with Analytical Hierarchy process, as follows:

![Figure 1. Hierarchy Structure Determining Location of Culinary Business](image-url)
Information:
Goal Level: (a) Target decision is the determination of the location of the culinary business, (b) Criteria Level: Criteria for determining the location of a culinary business, and (c) Alternative Level: Alternative business location.

3.3 Pairwise comparison between criteria
The pairwise comparison between criteria to compare between criteria based on the score score of importance as follows:

| Score | Information                                      |
|-------|--------------------------------------------------|
| 1     | The one criterion with each other is just as important |
| 3     | One criterion is slightly more important (somewhat stronger) than other Criteria. |
| 5     | Criteria that are of a more important character (of greater importance) than other Criteria |
| 7     | One criterion is very important compared to the other Criteria |
| 9     | Criteria are one extreme of importance compared to other Criteria |
| 2, 4, 6, 8 | The middle value between the two scoring scores above |

3.4 The result of weight between criteria

| No | Lowest Level                                           | Model Weights |
|----|--------------------------------------------------------|---------------|
| 1  | Legality of business place permit                       | 0,367         |
| 2  | The business location is visible                        | 0,219         |
| 3  | Access is easy to reach                                | 0,15          |
| 4  | Target marketing / market segment                       | 0,09          |
| 5  | The cost of building / leasing the place of business    | 0,058         |
| 6  | The level of competition / business competition         | 0,047         |
| 7  | Business environment (cleanliness and security)         | 0,027         |
| 8  | Parking Area                                           | 0,025         |
| 9  | support of industry factors                            | 0,017         |

3.5 Application Design
The design application of culinary business location determination is made based on the weight obtained in data processing using Analytical Hierarchy Process method with Criterium Decision Plus tool. Applications are created using the Java programming language with the Netbeans 6.7.1 tool.
3.6 Testing

| Data Testing | Expert | AHP   | Accuracy |
|--------------|--------|-------|----------|
| K1           | 2      | 2     | 1        |
| K2           | 5      | 5     | 1        |
| K3           | 3      | 3     | 1        |
| K4           | 4      | 4     | 1        |
| K5           | 1      | 1     | 1        |
| K6           | 7      | 7     | 1        |
| K7           | 8      | 8     | 1        |
| K8           | 6      | 6     | 1        |
| K9           | 9      | 9     | 1        |

The test results show that the sequence generated from the created system is the same as the order created by the expert.

4. Conclusion
Based on the results of the discussion, it can be concluded as follows:

a. Application of culinary locating location "Loku" can be built using Analytical Hierarchy Process (AHP)

b. Determining the location of culinary business with Analytical Hierarchy Process (AHP) method using 9 criteria in determining decision.

c. The test results show that the sequence generated from the created system is the same as the order created by the expert.

References

[1] R. Irawan and S. Winiarti, “Sistem Pendukung Keputusan Pemilihan Lokasi dan Evaluasi Lokasi Pemasaran Produk (Gula) Menggunakan Metode AHP (Studi Kasus: PT. Madubaru),” *Jurnal Informatika*, vol. 9, no. 2, pp. 1079–1087, 2015.
[2] Musrifah, M. Arief, and N. Andriani, “Penentuan Lokasi Usaha Berdasarkan Pendekatan Mystique (Study Fenomenologi),” *Jurnal Studi Manajemen Dan Bisnis*, vol. 4, no. 2, pp. 288–294, 2017.

[3] E. N. Fu’ad, “Pengaruh Pemilihan Lokasi Terhadap Kesuksesan Usaha Berskala Mikro/Kecil di Kompleks Shopping Centre Jepara,” *Media Ekon. dan Manaj.*, vol. 30, no. 1, pp. 56–67, 2015.

[4] R. T. Hidayat and S. Zuliarni, “Pengaruh Lokasi Usaha pada Volume Penjualan (Survei pada Restoran Kecil di Lingkungan Universitas Riau),” *Jurnal Ilmiah Akuntasi dan Bisnis*, vol. 9, no. 2, pp. 92–100, 2014.