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EVALUATION OF AFTER SERVICE LOCATION WITH HESITANT FUZZY VIKOR: A CASE OF DRONE COMPANY IN TÜRKİYE

Dilan SARPKAYA[1]*, Gül Tekin TEMUR[2]

[1]Bahçeşehir University, Faculty of Engineering and Natural Sciences, Department of Industrial Engineering, 34353, İstanbul, Türkiye
[2]Bahçeşehir University, Faculty of Engineering and Natural Sciences, Department of Industrial Engineering, 34353, İstanbul, Türkiye

Abstract: This study is conducted to evaluate the suitability of after sales services in drone technology with the use of Hesitant Fuzzy VIKOR method. The main aim of the study is to compare cities' performances with considering critically important factors such as customer accessibility, operational costs, infrastructure availability, logistics access and regional needs. In this context, eight different after sales service locations of a drone company are evaluated. The research aimed to guide strategic planning processes of decision makers and to determine which cities are more suitable for the adoption of drone technology in commercial and logistics applications. At the same time, infrastructural availability considering regional needs and improvements of operational strategies are points that aimed to draw attention. The findings provide light on the order of importance of the criteria, as well as the strengths and weaknesses of the cities in terms of their ability to effectively use drone technology with ease.

Keywords: Drone technology, After sales service location, Hesitant fuzzy, Decision making

***Corresponding author:** Bahçeşehir University, Faculty of Engineering and Natural Sciences, Department of Industrial Engineering, 34353, İstanbul, Türkiye
E mail: dilan.emgili@toros.edu.tr (D. SARPKAYA)
Dilan SARPKAYA https://orcid.org/0000-0002-4515-5589
Gül Tekin TEMUR https://orcid.org/0000-0003-3853-0974

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1. Introduction

The execution of after-sale services is an essential component in ensuring continued competitiveness in the relevant industry and enhancing the level of pleasure experienced by customers. The proper identification of the service points is very important in order to reduce the costs and increase the effectiveness of the service delivery especially in the technology and service industries. From this view, MCDM approaches provide the solutions to the complex decision-making processes by performing the analysis in a systematic and efficient manner. The Hesitant Fuzzy VIKOR method is a flexible and realistic approach to solving multi-criteria decision-making problems by incorporating the uncertainty and ambiguity in the decision makers' preferences (Wei and Zhang, 2014). There is no need for decision makers to make precise appraisal when using this method than the traditional VIKOR strategy. This method allows decision makers to stipulate different preference ranges. Thus, the ambiguities that are inherent in the decision-making process are eliminated and decisions are made within the context of a more real-life situation (Liao et al., 2015).

As such, the Hesitant Fuzzy VIKOR approach is used for the purpose of this study to evaluate after sales support centres in eight different cities in the United States. In this analysis, criteria such as cost, quality, accessibility and support service capability were considered. Furthermore, the priority correlations among these criteria were determined by employing language terms (Liao and Xu, 2013). Then, calculations were made for each city, and conclusions were made on the overall performance of the cities (Gou et al., 2021).

Moreover, the research does not only offer a flexible decision-making recommendation for the case of decision making with multiple criteria but also proves the effectiveness of the Hesitant Fuzzy VIKOR approach in reducing the effect of the uncertainties. The numerical ranges of linguistic concepts are used in the decision-making processes during the application of the approach. Qian et al. (2023) and Liao et al. (2018) have stated that these phrases are useful in deriving information from sources that are somewhat vague and complex.

Decision makers may increase their accuracy by-elaborating their understanding of the linguistic words that are used in the decisions made by groups of people. This is because generating the numerical ranges of linguistic words leads to more accurate and consistent decision-making outputs (Gou et al., 2020). In this case, defining the numerical ranges of linguistic words is an important step to enhance the effectiveness of decision-making processes (Qian et al., 2024).

For the purpose of the study, the after-sales service regions of a drone manufacturer in Türkiye will be examined on the basis of several aspects at several locations. To this end, it is expected that an optimization of after-sales services will be achieved thus. Within the remaining parts, research that were carried out in this particular field, specifics of the methodology, findings from the application, and the outcomes of the study are described. There is a high probability that the findings of the study will assist firms in enhancing their after-sales service strategy and in making decisions that will result in increased levels of customer satisfaction.

2. Literature Review

2.1. Decision Making

Identification of linguistic terms' numerical ranges and its use for decision making processes has been extensively discussed in the literature. Delgado et al. (1998) improved fusion operator to merge linguistic and numerical information. This operator develops a selection process for alternatives and allows obtaining solutions that comply with the majority opinion of experts.

Decision making is a critical step, and it can have a direct effect on success of companies. For instance, decisions for the companies which are in a problematic financial status play a critical role for the future of the company and return of partners (Leech et al., 1999). With this perspective, management information systems have also critical role to optimise the decision-making processes of companies with filtering and transforming information. These systems make more efficient and effective decisions possible thanks to easier data accessibility and control (Torres et al., 2022).

Research conducted for small and medium enterprises (SMEs) indicate that strong decision-making processes are very crucial for success and sustainability of the companies. This research establishes that financial accuracy, risk management, innovation and customer relationships are key factors that influence the performance of SMEs (Ullah et al., 2024). In addition, the application of the latest technologies can improve decision-making and make the right decision quickly in a complex environment (Neziraj and Shaqiri, 2018).

Hesitant fuzzy sets (HFS) are a very convenient tool for decision makers when defining the values of a variable when decision makers are uncertain or hesitant between more than two values (Zhu and Xu, 2017). Hesitant fuzzy sets can be used properly to the situation that involve imprecise and complex evaluations. These sets are also improved to extended versions in order to solve the problem of information loss (Zhu and Xu, 2017). In addition, hesitant bipolar-valued fuzzy sets (HBVFS) and bipolar hesitant fuzzy sets (BVHFS) are also developed for the multi attribute group decision making processes (Mandal and Ranadive, 2018). Like the reasons mentioned above, these sets offer a friendly and comprehensive environment for decision makers to express their hesitancy on multiple attributes. Application of hesitant fuzzy sets during decision making processes plays an important role especially for assessment of service locations. As an example, Karaaslan and Karamaz (2022) modelled disagreements between decision makers with using parametric versions of HFSs. Interval-valued hesitant fuzzy sets are defined to indicate uncertainty during decision making process (Shu-we, 2013). These sets are applicable to the situations where evaluations are interval based and able to analyse relationships with other fuzzy set types.

2.2. Drone After Sales Services

Rapid developments in drone technology increased the importance of after sales services. These services play critical role to provide customer satisfaction, increase the brand loyalty and support long term use of technological commodities.

The study of Hokey Min (2023) investigated the application of drone technologies in e-trade and logistics sectors and pointed out the importance of after sales services for the purpose of operational sustainability. More specifically, the study remarked that repair and maintenance processes of drones have direct impact on delivery times and customer satisfaction (Min,2023). In a similar manner, the study of Kunze and Li (2023) emphasise the comparison of air drones and land delivery robots and after sales services importance for the purpose of long-term use of technological devices (Li and Kunze, 2023).

Another study carried by Lafuente (2024) also draw attention to the optimization of afters sales service location while considering drone operations in 5G technology. Thanks to data transmission opportunity that provided by 5G, repair and maintenance processes could be managed in more efficient way (Lafuente, 2024).

Drone service companies' economical evaluations are addressed by Widada and Rahadi (2024), while the study pointed out the contribution of after sales services to company valuation. The study indicates the customer satisfaction and services quality impacts the financial performance of the company (Widada and Rahadi, 2024).

During the discussion of ethical dimension of drone technology, Molina and Campos (2018) converse about the requirement of after sales services arrangement in a regulational framework. Particularly, security and confidentiality issues should be considered during the services processes (Molina and Campos, 2018). The study of Ravich (2018) also pointed out that regulations may impact on effectiveness off after sales services and for this reason there is a need for more flexible adjustment framework.

Nonami's study discusses how after sales services will evolve with technological advances while addressing the future potential of drone technology. The study foresee that use of automation and artificial intelligence will increase for the repair and maintenance processes of drones (Nonami, 2016). In addition to that, study of Pöysäri (2023) indicated the important role of after sales services of drones which used in industrial area in order to increase the customer trust.

In the literature, latest studies considering drone technology is mainly related to fields such as operational optimization (Yin et al., 2024; Li et al., 2023), sustainability (Bruni et al., 2024), technological advancements (Akram and Araissi, 2024; Soares et al., 2023), applications of drones in delivery services (Singh et al., 2024).

After sales services of drone companies have strategic importance since it has contribution to company valuation with customer satisfaction, operational efficiency. Optimization of service locations, technological integrations and ethical arrangements come to the forefront factors in this sector which is very limited in the literature. Flexibility of regulations and innovator technology integrations such as artificial intelligence have critical importance for future development of after sales services

3. Materials and Methods

3.1. Research Model

The aim of this study is to evaluate the performance of the current cities where a drone company provides after-sales service and to rank these cities.

1	Criteria Definition and Forming Decision Maker Group
2	Alternative Selection
3	Preparation of Evaluation Forms
4	Data Collection
5	Converting Linguistic Evaluations into Fuzzy Numbers
6	Calculating Fuzzy Weights for Criteria
7	Creation of Fuzzy Decision Matrix for Alternatives
8	Determination of Fuzzy Best and Worst Values
9	Calculation of Distances of Alternatives from the Best and Worst Values
10	Calculation of S and R Values
11	Clarification of Fuzzy Numbers and Ranking of Alternatives
12	Determination of Solution

Figure 1. Flow of the methodology.

In this process, the Hesitant Fuzzy Set (HFS) approach was used, taking into account the uncertainty and hesitations of decision makers.

3.2. Universe Sample (Research Group)

The research universe consists of the after-sales service locations of a drone manufacturing company based in Mersin, Türkiye. The study focuses on service centres operating in eight different cities: Adana, Konya, Kayseri, Urfa, Amasya, İzmir, Diyarbakır, and Mersin.

The sample group includes company personnel responsible for logistics, sales support, finance, and service operations. A total of 8 experts participated in the evaluation process, providing assessments for each location based on predefined criteria.

3.3. Data Collection Tools

The data for this study were collected through structured evaluation forms designed to assess the performance of different after-sales service locations with eight experts who are currently working in the company. The evaluation criteria formed through managers of the company and literature. Table 1 indicates these studies:

Table 1. Criteria list

Criteria	Related Study
Customer Accessibility	Facility Location Selection Using Complete and Partial Ranking MCDM Methods *Ray and Dan, 2015; Shaikh and Kim, 2021*
Operational Costs	Hub Location Selection for Third-Party Logistics Services Shiau et al., 2011; Yiğit et al., 2024
Infrastructure Availability	Design of a Reliable Facility Location Model for Health Service Networks Zarrinpoor et al., 2016
Logistic Accessibility	Determining the Location of Shared Electric Micro-Mobility Stations Jaber et al., 2024; Sousa and Calili, 2021
Regional Demand	Solving a Real-World Urban Postal Service System Redesign Problem Yu et al., 2021; Weaver et al., 2023

Each criterion was evaluated using hesitant fuzzy linguistic terms which indicated in Table 2 below, allowing experts to express uncertainty in their assessments.

Table 2: Triangular Fuzzy Sets

Linguistic Term	Hesitant Fuzzy Numbers
Absolutely High Importance (AHI)	(7,9,9)
Very High Importance (VHI)	(5,7,9)
Essentially High Importance (ESHI)	(3,5,7)
Weakly High Importance (WHI)	(1,3,5)
Equally High Importance (EHI)	(1,1,3)
Exactly Equal (EE)	(1,1,1)
Equally Low Importance (ELI)	(0.33,1,1)
Weakly Low Importance (WLI)	(0.2,0.33,1)
Essentially Low Importance (ESLI)	(0.14,0.2,0.33)
Very Low Importance (VLI)	(0.11,0.14,0.2)
Absolutely Low Importance (ALI)	(0.11,0.11,0.14)

The linguistic terms were then converted into hesitant fuzzy numbers (triangular fuzzy sets) for further analysis.

3.4. Data Analysis

HFS provides an effective method in cases where decision makers hesitate between multiple alternatives. Hesitant Fuzzy Sets are the extension of fuzzy logic methodologies. It can be used when decision makers can indicate more than one membership degree. Steps of HFS calculations are indicated below that used in this study.

Definition:

HFS may contain more than one membership degree for one variable in the universe. For one element x in the hesitant fuzzy set can be described as:

$$\widetilde{H}(\mathrm{x}) = \{\mu_{1(x)}, \mu_{2(x)}, \dots, \mu_{k(x)}\} \quad (1)$$

where:

$\widetilde{H}$(x) possible membership degrees for element x.

$\mu_{i(x)}$ describes the hesitant fuzzy membership values of element x, where i=1,2,3,.,k.

Hesitant Fuzzy Decision Matrix:

The hesitant fuzzy decision matrix for alternatives $(A_1, ., A_m)$ and criteria $(C_1, ., C_n)$ is created as follows:

where H_{ij}Hij denotes the hesitant fuzzy membership values of alternative Ai for criterion C_j.

Normalized Hesitant Fuzzy Values:

Normalization of hesitant fuzzy values is necessary to compensate for the different scales of the criteria. Normalized hesitant fuzzy values are calculated as follows:

For benefit criteria:

$$\tilde{x}_{ij} = \frac{x_{ij}}{\max(x_{ij})} \quad (2)$$

For cost criteria:

$$\tilde{x}_{ij} = \frac{\min(x_{ij})}{x_{ij}} \quad (3)$$

Here:

$\max(x_{ij})$: The maximum membership degree for criterion Cj,

$\min(x_{ij})$: The minimum membership degree for criterion Cj.

Weighted Hesitant Fuzzy Values:

Weighting calculations are done in order to evaluate importance degree of criterion. Weights hesitant fuzzy values are calculated as follows:

$$v_{ij} = w_j \cdot \tilde{x}_{ij} \quad (4)$$

where:

w_j: The weight of the criterion.

Hesitant Fuzzy VIKOR Method:

Hesitant fuzzy VIKOR method is used to rank alternatives. This method includes following steps.

Determination of Positive and Negative Ideal Solutions

Positive ideal solution is maximum value for each criterion.

Negative ideal solution is minimum value for each criterion.

Calculation of Distances of Alternatives to Ideal Solutions:

S (Total Distance):

$$S_i = \sum w_j d\left(\tilde{x}_{ij}, \tilde{x}_j^+\right) \quad (5)$$

Calculation of Relative Closeness Values of Alternatives:

R (Relative Closeness) is calculated as follows:

$$R_i = \sum \max\left(w_j d\left(\tilde{x}_{ij}, \tilde{x}_j^+\right)\right) \quad (6)$$

where $d\left(\tilde{x}_{ij}, \tilde{x}_j^+\right)$ represents the distance between hesitant fuzzy sets.

The VIKOR index (Q) is calculated as follows:

$$Q_i = v \cdot \frac{S_i - S^*}{S^- - S^*} + (1 - v) \cdot \frac{R_i - R^*}{R^- - R^*} \quad (7)$$

where:

S^* *and* S^- : The min and max values of S.

R^* *and* R^-: The min and max values of R.

v: The compromise parameter (generally taken as 0.5).

Rank of Alternatives: Alternatives are ranked based on Q, S, and R values. The alternative with the lowest Q value is considered the best choice.

4. Results

The study is conducted to evaluate performances and current situation of after sales services by Hesitant Fuzzy VIKOR method. As a case study, drone producer company is used. This company has eight after sales services location in different regions of Türkiye. The aim is to analyse the current situation of locations in order make required actions to have better customer satisfaction.

During the analysis, the distances of the alternatives to the positive and negative ideal solutions were calculated in line with the determined criteria and the alternatives were ranked based on these distances. The findings guide decision makers in determining the most appropriate option and reveal the effect of the weights of the criteria on the results. Table 3 indicates the determined criterion. These criteria have decided with field related specialists.

Table 3: Determined Criterion

Customer Accessibility	It is an important factor that evaluates the ease of customer access for drone technology. Especially, this criterion reflects the capacity of fast and non-problematic delivery to customers. This criterion is an important factor that increases the customer satisfaction.
Operational Costs	It defines the total operational costs of drones. This criterion includes fuel, maintenance, labour and other operational costs. Lower costs increase the economical sustainability of technology and increases the probability of being preferred.
Infrastructure Availability	It evaluates the integration of drone technology to current infrastructure. This criterion consists of landing zone, charging station and contexts such as air zone regulations. Infrastructural conformance has direct impact on efficiency of drone operations.
Logistics Access	It refers to the integration of drones into logistics networks and their effectiveness in delivery processes. This criterion evaluates the capacity of drones to reach target points from warehouses or logistics centres, especially in last-mile delivery processes.
Regional Need	It defines the suitability of drone technology for specific regional needs. This criterion takes into consideration geographical situations, population intensity and regional demand. Regional need suitability can increase the ratio of technological adaptation.

Thanks to contribution of experts via structured evaluation forms, linguistic variables converted into triangular fuzzy set, fuzzy decision matrix and best fuzzy and worst fuzzy values are calculated in order to reach the performance of alternatives according to each criterion (Table 4, Table 5 and Table 5).

Table 4. Integrated Fuzzy Weights of Criteria

Criteria	Fuzzy weights (w_j)		
	l	m	u
C1	0,25	0,2456	0,2308
C2	0,1875	0,193	0,2028
C3	0,1375	0,1491	0,1678
C4	0,15	0,1491	0,1608
C5	0,275	0,2632	0,2378

Table 5. Fuzzy Decision Matrix

Criteria	A1			A2			A3			A4		
	l	m	u	l	m	u	l	m	u	l	m	u
C1	7	9	9	3	5	7	7	9	9	3	5	7
C2	5	7	9	1	3	5	3	5	7	1	1	3
C3	5	7	9	1	1	3	1	1	3	1	3	5
C4	5	7	9	3	5	7	5	7	9	1	1	1
C5	7	9	9	7	9	9	7	9	9	5	7	9

Criteria	A5			A6			A7			A8		
	l	m	u	l	m	u	l	m	u	l	m	u
C1	5	7	9	3	5	7	5	7	9	7	9	9
C2	5	7	9	3	5	7	5	7	9	7	9	9
C3	3	5	7	1	3	5	3	5	7	7	9	9
C4	1	3	5	1	1	3	1	1	3	7	9	9
C5	3	5	7	3	5	7	5	7	9	7	9	9

Table 6. Best Fuzzy and Worst Fuzzy Values

Criteria	$\tilde{f}_j^*$		
	l	m	u
C1	9.0	9.0	9.0
C2	9.0	9.0	9.0
C3	9.0	9.0	9.0
C4	9.0	9.0	9.0
C5	9.0	9.0	9.0
Criteria	$\tilde{f}_j^-$		
	l	m	u
C1	3.0	5.0	7.0
C2	1.0	1.0	3.0
C3	1.0	1.0	3.0
C4	1.0	1.0	1.0
C5	3.0	5.0	7.0

Positive ideal solution and negative ideal solution are identified, distances of alternatives to these solutions are evaluated. These distances created baseline in order to evaluate the performance of alternatives.

Table 7. $\tilde{S}_i$ and $\tilde{R}_i$ Values

Alternatives	$\tilde{S}_i$		
	l	m	u
A1	0.43	0.15	0.0
A2	0.81	0.65	0.58
A3	0.58	0.35	0.26
A4	0.93	0.85	0.73
A5	0.78	0.6	0.36
A6	0.95	0.85	0.75
A7	0.71	0.55	0.21
A8	0.28	0.0	0.0

Alternatives	$\tilde{R}_i$		
	l	m	u
A1	0.1	0.05	0.0
A2	0.2	0.2	0.2
A3	0.2	0.2	0.2
A4	0.2	0.2	0.2
A5	0.2	0.2	0.2
A6	0.2	0.2	0.2
A7	0.2	0.2	0.15
A8	0.06	0.0	0.0

Values of $\widetilde{S^*}, \widetilde{S^-}, \widetilde{R^*}, \widetilde{R^-}$ are calculated as seen in Table 8.

Table 8. $\widetilde{S^*}, \widetilde{S^-}, \widetilde{R^*}, \widetilde{R^-}$ Values

	l	m	u
$\widetilde{S^*}$	0.2833	0.0	0.0
$\widetilde{S^-}$	0.95	0.85	0.75
$\widetilde{R^*}$	0.0667	0.0	0.0
$\widetilde{R^-}$	0.2	0.2	0.2

Table 9 indicates the VIKOR results which consists of total distance, maximum distance and VIKOR index. Total distance which referred as S calculated with summation of total distances of alternatives to positive ideal solution. Maximum distance is R value indicates the worst performance of each alternative. VIKOR index which is denoted as Q calculated with the use of compromise value (v= 0,5) and alternatives are ranked. At the end of calculations, alternatives are ranked based on Q values. The lowest Q value alternative defined as a best solution. Ranking can play a guide role to decision maker to choose most suitable choice. The effect of criteria weights on the results was analysed. It was observed that especially the criteria with high weights were decisive in the ranking of the alternatives.

Table 9. Indexes and Rankings

Alternatives	$\tilde{Q}_i$		
	l	m	u
A1	0.2374	0.2132	0.0
A2	0.9	0.8824	0.8889
A3	0.725	0.7059	0.6778
A4	0.9875	1.0	0.9889
A5	0.875	0.8529	0.7445
A6	1.0	1.0	1.0
A7	0.825	0.8235	0.5195
A8	0.0	0.0	0.0

Alternatives	Q_i		R_i		S_i	
	Index	Rank	Index	Rank	Index	Rank
A1	0,15	2	0,20	2	0,25	2
A2	0,89	6	0,71	6	1	4
A3	0,70	3	0,42	3	1	4
A4	0,99	7	0,88	7	1	4
A5	0,82	5	0,61	5	1	4
A6	1	8	0,89	8	1	4
A7	0,72	4	0,52	4	0,91	3
A8	0	1	0,09	1	0,11	1

Table 10. Acceptable Stability in Decision Making

Q_i	A8 > A1 > A3 > A7 > A5 > A2 > A4 > A6
S_i	A8 > A1 > A3 > A7 > A5 > A2 > A4 > A6
R_i	A8 > A1 > A7 > A2 > A3 > A4 > A5 > A6

As seen in Table 10, two main conditions are evaluated based on rankings.

Condition 1: Acceptable Advantage

This condition checks if the distance between the best and the second-best alternative is not more than a certain threshold, as given by the Q ~ values.

The difference between the first two ranked alternatives must be less than 0.25:

$Q(a'') - Q(a') < 0.25$Q(a′′) −Q(a′) <0.25

The difference between the best alternative and the worst alternative must be greater than 0.25:

Q(a′′′) −Q(a′)>0.25

As a result of calculations, first condition provided an acceptable advantage and A8 can be defined as a best alternative.

Condition 2: Acceptable Stability in Decision Making

This condition checks on the consistency of the orderings Q~, S~ and R~. If the ordering Q is mostly consistent with the orderings S and R then the decision stability is ensured. Considering the case of this study, second condition also provided acceptable stability in decision making; Q and S values are mostly similar, and R rankings are parallel to these conclusions.

5. Discussion and Conclusion

This study employed the Hesitant Fuzzy VIKOR approach to assess drone technology according to several parameters. The research suggests that such factors as the accessibility of the customers, the operating costs, the availability of the infrastructure, the accessibility of the logistics and the local requirements are crucial for the acceptance and effectiveness of the drone technology. Specifically, such factors as the convenience of consumer access and the compatibility with the infrastructure are critical and must be considered during the evaluation of the alternatives. This paper contributes to the strategic decision-making process for the uptake of drone technology in the commercial and logistics sectors thereby. In addition, this study examined eight cities with the help of the Hesitant Fuzzy VIKOR approach, based on such characteristics as the ease of customer reach, the costs of operation, the availability of the infrastructure, the ease of logistics, and the regional needs. The analysis of the results has compared the performance of the cities with respect to these criteria and can therefore provide valuable information to decision makers as to which cities are more suitable for the application of drone technology. The results of the study show that City 8 is the most suitable, with S, R, and The total score of all criteria indicates that City 8 is the most similar to the ideal solution. This city was able to differentiate itself from the other cities because it did very well in critical areas such as access to customers and infrastructure. City 1 was ranked second. This paper proposes fuzzy VIKOR method for assessing after sales service centres as multi-criteria decision-making problem. The findings of the study are enough to enable the company to determine the best service points and improve on its decision-making processes. The use of fuzzy VIKOR method to analyse the data from the decision makers was a better and less restrictive way of making the decision than the conventional approaches. The company can use these results to review its current after sales service plan and make changes if needed. This comparison shows the advantages and disadvantages of the cities in the light of the potential uses of drone technology. It was clear that City 8 and City 1 were the most suitable for the application of drone technology as they outperformed other cities in the country. The strengths of these cities can be used to address the weaknesses identified in other cities. Investment in infrastructure and improvement of logistical access can be used to enhance the position of cities that are currently not very strong. These findings are very useful for decision makers in the strategy development and resource allocation processes.

Author Contributions

The percentages of all authors' contributions are presented below. All authors reviewed and approved the final version of the manuscript.

	D.S.	G.T.T.
C	50	50
D	50	50
S	50	50
DCP	50	50
DAI	50	50
L	50	50
W	50	50
CR	50	50
SR	50	50
PM	50	50
FA	50	50

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Consideration

Ethics committee approval was not required for this study because of there was no study on animals or humans.

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