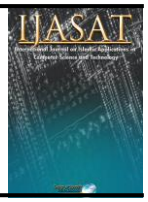

# Utilizing GIS for Modeling Sharia Compliant Proximity in a Smart City

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## Abstract
This research aims to explore, analyses and study the best locations to create a simplified model of smart cities in the framework of Islamic Sharia. This indicates the importance of communication with technological development for some important tourist services such as hotels in Kuala Lumpur compliant with Islamic Sharia. The study analyzed the visitors' favorite sites through the use of GIS, the analysis revealed that the central region for the division of the study comprise the biggest part of tourism services. The study also concludes by using the statistical program (SPSS) which resulted in a positive relationship between the real-time orientation of the community, the quality of life and services of the city with the requirements of Islamic Sharia for the Smart City.

***Keywords:*** **GIS, Sharia Compliant, Proximity, Smart City.**

## 1. Introduction
Nowadays, information technology dramatically changes with new features, programs, speed and capabilities, moving away from the ancient uses era to strategic information systems (Shah and Wani, 2015). GIS technology offers great opportunities for the development of modern tourism applications using maps, and modern methods of analysis and various data (Jovanović and Njeguš, 2013). This technology integrates joint database operations with the unique visualization and geographic analysis benefits offered by maps, and graphs. The flourishing of the local and global economic growth in general, has led into a plurality of different quality human activities, the challenges faced by Muslims and Islam while globalization is dominated, there is lack of skilled expertise. The majority of problems don't match with the requirements of Sharia Compliant. This paper investigates to explore the necessary GIS tools to build up a simplified model of the Sharia Compliant Smart City. To examine the influence of Sharia Compliant features to build up a simplified model of the Smart City. Proximity tools were used to highlight the importance of sites through the analysis GIS. The use of geographic information systems (GIS) played the ideal role in highlighting the importance of the sites and link them via electronic devices, which is considered the foundation targets of Smart City (SC), and Information Technology, for example, infrastructure and road networks, transportation, communications, and other services.

## 2. Research Method
There are several methods that can be used for refining Sharia Compliant tourism locations by using GIS tools, such as questionnaire and locations analysis.

## 3. Conceptualization of the Research and Development of Hypothesis

Conceptualizing is the process of taking a construct and refining it by giving it a conceptual or theoretical definition (Neuman, 2006). A construct is thus a conceptual term used to describe a phenomenon of theoretical interest (Nunnally, 1978) or "an element of scientific discourse that serves as verbal surrogates for phenomenon of interest" (Edwards & Bagozzi, 2000). The present research contains Two main constructs which the two are as follows: The First construction is for GIS analysis (shown in figure.1). The Second construction of the questionnaire analysis (shown in figure.2). Use of GIS is playing a much more important role when it comes to the process of building, developing and decision making process.Through the analysis of a random sample of the following key elements: Real-time guidance for society, Quality of life, City services and Sharia demands for smart city. Main idea of model of Conceptual Framework to integrate the items mentioned, demonstrate results that give clear indication of hypotheses, get the type of relationships that concept groups, Correlation analysis among the variables, Descriptive profile of variables, the relationship among is success variables, Reliability analysis and Correlation analysis.

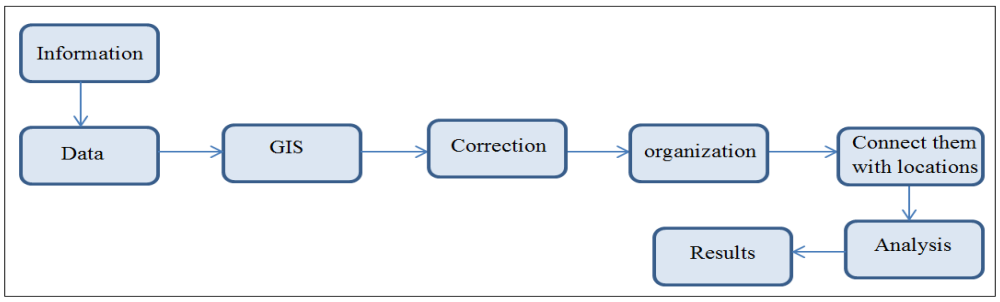


Figure 1. Proposed GIS Framework.

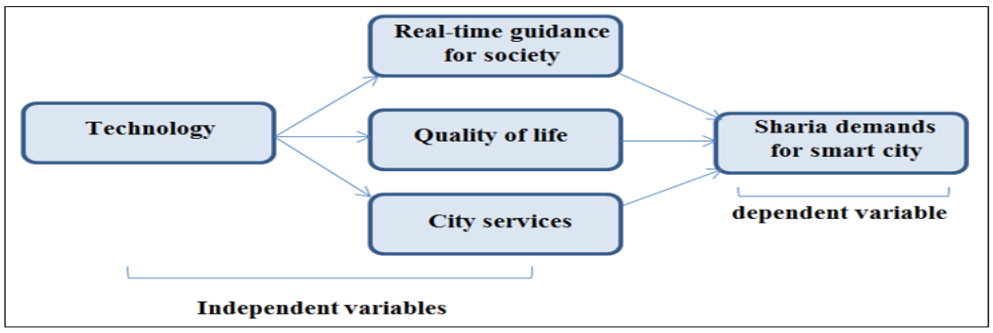


Figure 2. Proposed Conceptual Framework.

## 4. Background of the Study

List the importance of Geographic Information Systems (GIS) relate to all the science and other areas such as geography and modern scientific technology, to interpret and analysis the sites. To study and analyses the different spatial phenomena. This is done by giving preliminary data of the phenomenon through technical devices. Through the GIS program are analysed and converted into graphs and other scientific information accurate maps of the phenomenon. It also helps in making the right decision and science, which will play an active role in this regard. Geographical studies of the modern smart city it has been interacting with the development and progress in all areas of others science fields and reveals many other advantages of science, such as analysis of the sites for the establishment of various projects or development. Analysis the

reasons for the emergence of differences in the economic, administrative, intellectual and other developmental to give them new idea of scientific and sophisticated different perspective. It helped in the study of the pillars of development, population and tourism attractions in the regions of the world. It also helped to highlight the identity of these areas. Study them more deeply to see the negative and positive aspects in the study of the economic aspects of these areas. The tourist geography of the most prominent studies that help to know the economic growth in all countries of the world.

## 5. Analysis

Table 1 provides information on the overview of response rates that participated in the study. The estimated number of responses is the 300. This comprises Muslims tourists and foreigners inside and outside Malaysia, as well as Kuala Lumpur in general. Have been identified as respondents using internet systems to support their life functions, hence questionnaires were distributed to them through social networking and e-mail programs.

Table 1: Overview of Response Rates

| Responses | Total number distributed | Total returned | | Total usable | |
|---|---|---|---|---|---|
| 300 | 300 | 300 | 10% | 300 | 100% |

This part discusses the profile of Real-time guidance for society, Quality of life, City services and Sharia demands for smart city as evaluated by respondents. Table 2 shows the types of Real-time guidance for society, Quality of life, City services and Sharia demands for smart city evaluated and the usage profile of systems.

Table 2: Elements of the questionnaire

| Characteristic | Scale | Frequency | Percent |
|---|---|---|---|
| Real-time guidance for society | 7 | 300 | 100.0 |
| Quality of life | 11 | 300 | 100.0 |
| City services | 6 | 300 | 100.0 |
| Sharia demands for smart city | 9 | 300 | 100.0 |

### 5.1 Reliability Analysis

This part will be analysis is performed on both the dependent and independent variables. Table 3 provides the results of reliability analysis of modeling Sharia Compliant City Suitable for Creating a Smart City success factors after factor analysis. The results of reliability analysis show that all the success factors have alpha coefficients higher than the acceptable alpha value.

Table 3: Cronbach’s alpha for success factors (Dependent variable) Post–Factorial analysis

| Success factors | Number of items | Cronbach's alpha |
|---|---|---|
| Real-time | 7 | .823 |
| Quality of life | 11 | .871 |
| City services | 6 | .825 |
| Sharia demands | 9 | .830 |
| Total number of items | 33 | |

### 5.2 Data reduction & profile of Modeling Sharia Compliant City suitable for Creating a Smart City

For the dependent factor, thirty three items measuring four dependent variables (Real-time guidance for society, Quality of life, City services and Sharia demands for smart city) were entered into principal axis factoring with variance rotation. In total, four factors were explain about 100% of the variance among the independent factors. Factor 1 has the largest eigenvalue of 2.754 and explains about 68.855% of the variance. Table 4 shows the eigenvalue of each factor extracted.

Table 4: Eigenvalues and Variance for Modeling Sharia Compliant City Suitable for Creating a Smart City

| Factor | Eigenvalues | % Variance | % Cumulative variance |
|---|---|---|---|
| 1 | 2.754 | 68.855 | 68.855 |
| 2 | .463 | 11.579 | 80.434 |
| 3 | .398 | 9.939 | 90.373 |
| 4 | .385 | 9.627 | 100.00 |

## 6. Results

Through the above, we have reached the following results: 1- This research formulated the hypothesis below: Hypothesis 1: Real-time guidance for society is positively associated with the Sharia demands for smart city with. .570. Hypothesis 2: Quality of life is positively associated with the Sharia demands for smart city with .556. Hypothesis 3: City services positively associated with the Sharia demands for smart city with 556, which shows that we can implement all aspects of life under principles of Sharia Compliant (shown in figure 3). 2- The average nearest neighbor it is one the tools of proximity, and is specialized in measuring the distance between each central point and location of the nearest center. Is a tool that assists to per point of measure the distance between sites units of different phenomena. The distance averages between all these points are they calculated. In general, all the phenomena of the study appear in the areas where there are elements of life, such as the transport and communication network, which helps to converge and link areas. Although there is a lack of sample preparation, the analysis of neighborhood link showed that all elements of the study follow the cluster pattern, and that all elements of the sample are closely related, which makes addition of data or modification or addition of the developmental ideas of the area is considered distinctive and substantially as shown in figure 4. Given the z-score of -42.0318970894, there is a less than 1% likelihood that this clustered pattern could be the result of random chance. By observing the result we find that: Given the Z score of -42.031897 there is a less than 1% likelihood that this clustered pattern could be the result of random chance. Where the Z

represents scores, measures of the standard deviation. The pattern of the distribution of units of phenomena is the Clustered. Where the Z will be between (< -2.58 or > +2.58) p-value = < 0.01, Confidence level= 99%, where Z is the closest to < -2.58, this means that the spatial pattern is probably too unusual to be the result of random chance.

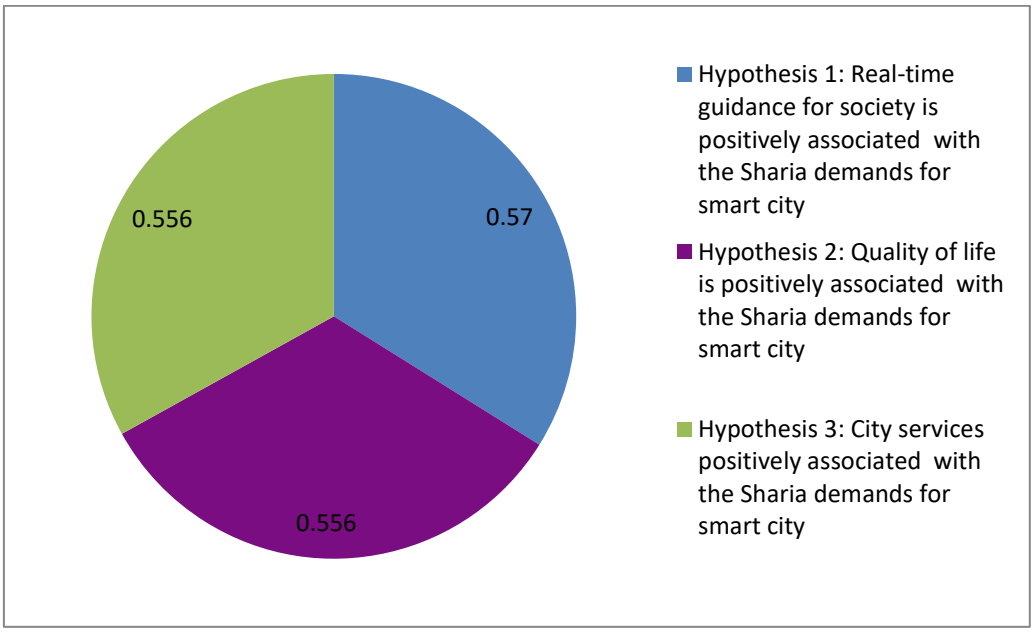


Figure 3. The research formulated the hypothesis.


Figure 4. The Average Nearest Neighbor.

## 7. Conclusion

The city of Kuala Lumpur has many tourist and entertainment places which include one of the methods Sharia Compliant, most of which have sophisticated technological services and high-speed internet access. It also possesses working forces and multiple development projects. The creation of internet networks to link tourism services should be pursued. There should be alternatives for development projects. In order to preserve their property and security and keep pace with the developed countries in development projects.

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