



## Shape Dimensions of Icons in Iranian Tourism Applications as Smart Intermediaries

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### Abstract

Nowadays, raising the quality of human life is one of the goals of development in different societies. In this regard, service delivery through smart intermediaries has made the access to services more efficient and faster. One of the things that help intelligent people transform their style and quality of life, are applications. They are part of programs that help users meet their daily needs. The graphic design of these apps has many components, including icons. The present study is a descriptive-analytical study of matching the icon samples in the Iranian tourism applications. The required information is obtained through documentary and library methods. This research aims to examine the shape characteristics of icons in applications. The purpose of this study is to examine the case sample more closely by emphasizing the shape characteristics of the icons in the Iranian tourism applications. The present study was done in order to answer the following question: what are the shape characteristics of Iranian tourism application icons? In the survey of the statistical population of this study, it was concluded that the icons of Iranian tourism applications consist of a combination of various visual elements and that the symbolic aspect of these elements, is the dominant aspect of their design.

**Keywords:** Application, Icon, Tourism, Smart tool



## Introduction

Various factors affect the quality of human of life. One of these factors is travel and tourism. Travel is an enjoyable activity and it frees people from everyday life and their worries for a short while. Tourism has many benefits and is not just a recreation, it is an enjoyable and informative experience that has beneficial effects at different stages of human life. "Tourism is a social, cultural and economic phenomenon that requires people to move to countries or places outside their usual environment for different purposes" (UNWTO, 2015). "Due to the informational and widespread nature of tourism, the concept of 'smart' is about Phenomena involving tourism are also used. The concept of smart city encompasses a variety of industries, including the tourism industry" (Guo et al., 2014). In order to stay in the tourism industry, intelligence is needed. It is needed at all stages, from information generation to communication. Intelligentization of products, actions, processes and services, by engaging different stakeholders at the same time, optimizes collective and competitive performance and creates solutions and value for all. The term smart is usually associated with being quick and getting results quickly. The term "smart" refers to the things that work on the latest technology (Jasrotia and Gangotia, 2018). Among these technologies can be referred to smart mobile applications. Applications play an important role in facilitating access to services needed by people in the community. These technologies can include finding addresses and locations in big and small cities, automating services and parking, finding the nearest mall or restaurant, and so on. The advent of smart cities has challenged mobile app manufacturers to adapt their ideas to the needs of such cities. Smart City is a connected city. These cities have an army of sensors. The sensors capture and monitor all urban events such as weather forecasts and levels of pollution, water levels of urban resources, traffic flows, city security cameras, and everything related to a modern city. If mobile app manufacturers can use these sensors properly, they can build apps that connect directly to the services of a smart city. These apps are a way of connecting citizens and cities. Smart cities have a positive impact on the quality of life of citizens and meet the needs of individuals. One of these needs is the need to spend leisure time. As noted, travel and tourism affect the quality of human life, and the use of tourism applications can be a good option to optimize travel time and expenses. The present study investigates the shape of the icons of Iranian tourism applications and seeks to answer the question of what are the characteristics of Iranian tourism application icons? It is assumed that tourism applications consist of a combination of different visual elements and that the symbolic aspect of these elements is the predominant aspect of their design. The present study is a descriptive-analytical that is based on icon samples in the of Iranian tourism mobile applications. The statistical population of the study consists of 50 Iranian tourism app icons that were randomly selected from the app store of Cafe Bazaar. The background to the research shows that several researches on smart cities and intermediaries have been carried out, including: "Explaining the concept and features of smart city" by Pour Ahmad et al. that is about Intelligent cities and its implications. Also, an article titled "Smart City Definitions, Dimensions, Requirements and Experiences, Provides Solutions for Tehran City



Civil and Assad Authorship 2014, in which the global definition of smart city, dimensions and models, indicators of progress assessment in cities and Experiences have been addressed: non-Persian articles also refer to the "Smart City Concept in the 21st Century", written by Jeremiah et al. 2017, which discusses the evolution of smart cities and their future changes. The difference between the present research is that none of these researches have focused on app icons and this is the major point difference of the present study.

## Smart City

The smart city is a sustainable and habitable city. There are several definitions for the smart city, some of which are mentioned below.

"A city is smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance." (Caragliu et al., 2011).

"Being a smart city means using all available technology and resources in an intelligent and coordinated manner to develop urban centers that are at once integrated, habitable and sustainable ".(Barrionuevo et al., 2012). A city that monitors and integrates conditions of all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens" .(Hall et al., 2000).

"Smart City refers to smart solutions that enable modern cities to improve their production quantitatively and qualitatively. Generally, smart city is defined as one of the concepts of technology, human resources or sovereignty. Manville et al. (2004) defined sovereignty, economics, human capital, life, and the environment as dimensions of smart cities, and Lambardini et al. (2012) identified these dimensions as key indicators for evaluating smart cities. "Urbanization and resource depletion, population growth, demographic change, climate change challenges, and so on, have made smart cities unmatched to solve problems" (Yousefi and Salimi,2016).

"In the present era of information, information is the most important strategic tool for the proper management and administration of all economic, social, cultural, political, technical and engineering units. The world of information technology is developing at a remarkable pace, affecting all the activities of everyday human beings. Creating smart cities can be an appropriate model of life for all aspects of the society in question and suitable for the information society. The most important advantage of smart cities is efficiency and effectiveness in managing urban affairs"(New and Zakaria, 2012).

"Half of the world's population now lives in cities and the tendency to accelerate urbanization is



accelerating. The future of the vast majority of the world's inhabitants is undoubtedly in urbanization - 5% of them will live in cities for up to 5 years. Improving people's quality of life is one of the most important goals of smart city implementation. Predictable and efficient transport organization, self-driving car parks, electric or solar powered cars, remote video conferencing, home automation, health Smart and smart healthcare, carbon-neutral buildings and automatic cleaners are renewable energy sources of the benefits of smart cities". (Ibid.) "Smart cities will be green cities with route generators that efficiently send in response to any need. Individual health applications that are attached to or under the skin of individuals to send a consistent flow of information to medical centers, provide accurate timing of alert or diagnosis, and always-on-the-go human identification devices and access to social networks. Digital communication between people and objects, smart education, smart services to the elderly are services of smart cities" (Roozgar & Javanmard, 2014). What was mentioned was a definition of smart city features. Since the present research focuses on the provision of tourism services through smart intermediaries, this topic is also addressed here.

"Tourism is travel for entertainment or business. It is also the theory and practice of tourism, the business of attracting, entertaining and entertaining tourists and managing tours." (Oxford, 2005) The World Tourism Organization generally considers tourism beyond the prevailing notion of limited tourism to holiday activities and travel and accommodation in places outside the normal environment, including tourism for more than one consecutive year for leisure time and not less than 24 hours for other occupations and purposes (UNWTO, 1995: 10). In 1936, the United Nations defined foreign tourism as "a person who travels abroad for at least 24 hours." "After that, the UN revised that definition in 1945, with a maximum of six months." (Theobald, 1998: 6-7) In 1941, Hansiker and Kraft defined tourism as "the sum of phenomena and relationships resulting from the travel and residence of non-residents", provided that they did not result in permanent residence and no accommodation. No monetization activity. (Hunziker and Krapf, 1942) (Spode, 1998) In 1976, the British Tourism Association defined: "Tourism is a temporary and short-term movement of people to a destination outside of their normal place of living and working. They carry out their activities during their stay in that location, which includes movement for all purposes." (Beaver, 2002)" In 1981, the International Association of Specialized Scientific Tourism defined tourism as a set of activities that were selected, perform outdoors. In 1994, in its recommendations for tourism statistics, the United Nations outlined three forms of tourism:

1. Domestic tourism, which includes residents of a given country, who only travel there.
2. Inbound tourism, which includes non-residents in a given country.
3. Offshore Tourism, Including Traveler Residents Abroad " (AIEST - World Network of Tourism Experts)

The World Tourism Organization predicts that international tourism will grow at an average annual rate of 4%. With the advent of e-commerce, tourism products have become one of the



commodities traded on the Internet. Tourism products and services are available through intermediaries, although tourism providers (hotels, airlines, etc.), including small operators, can sell their services directly. (Lu, 2004: 39-221) This has put pressure on traditional and online store intermediaries (Karanasios and Burgess, 2008: 82-169).

## Application

The mobile app is a tool that helps you waste less time with the pace of modern day technology development. In fact, the fast pace of technology growth in the world and the changes that have resulted in it has changed the style and quality of life and added new definitions to people's daily lives. Today, the closest electronic device to any person is his cell phone, which has always been of interest to all sections of society, and its use is an integral part of people's lives in today's societies.

"Application is part of software that one can be installed with a suitable platform without the need for technical expertise" (Martin et al., 2016) In the mobile software market, the term "application" Or, in short, "app" is more than a word for software, and this is what the term "app" means, also called "mobile app" or "mobile application". Application development refers to the process of building application software for devices such as mobile phones and tablets. Through the use of mobile applications, various features are provided to the user and the user uses their own application, depending on their needs (Baktha, 2017).

"Mobile applications were initially provided for information and productivity purposes including: email, calendar, contacts, calculator and weather information. Quickly zooming in on the technology and prospects of mobile app developer users, these apps are based on other categories such as mobile games, location, banking, ticketing, social media, video chat, factory automation, Location based service, fitness programs and medical plans were launched." (Inukollu et.al., 2014) This study investigates the shape characteristics of application icons.

Icon  
An icon can be defined as: a graphic representation of concepts that are symbolic of computer actions (Ware, 2004). Representatives of icons believe that these symbolic interfaces have several advantages. (Shank and Darke, 1999) One of the benefits are that icons are easily recognizable (hneiderman, 1997). Graphics help users remember and understand the functions of an application (Siau, 2005). In addition, symbolic interfaces are especially useful for novice users who rarely use interactive media, is important. To be effective, a symbol must meet various criteria, such as being visible, legible, and understandable. Icon design should be simple and clear. Studies have shown that the visual appeal and perception of the icon significantly influences its effectiveness (Blattner et al., 1989). Mobile interface designers use icons to illustrate the functionality users need to perform their tasks. Icons are a popular way to visually display performance, as the icons provide direct access and direct manipulation and can take advantage of valuable design space. The main concern in



designing the icon's symbolic interfaces is to effectively display the meaning of the icon in a fully understandable way. Potentially, an icon can represent your developer, features, community and country. (Gittins, 1986) Proper use of icon interfaces reduces system complexity and helps users interact better with mobile phones.

## Data analysis

In the statistical population of this study, 50 app icons in Iranian tourism applications were selected randomly from Cafe Bazaar app store. On the app info page, there is an icon of that application icon.

In order to better investigate the research topic, the icons of the statistical community icons are listed in Table 1. The tables are designed to answer the research question. In the rows of the table, the icons of the applications of the statistical population of the research are encoded as 1 to 50. In the columns of the table, the shape characteristics of the icons are examined, including text features (readable, unreadable, calligraphy, color, decorative, practical, Persian and non-Persian), visual features (figure: geometric, plant, animal, human). , Decorative, practical / Photo / Image: realistic, unrealistic, colored). Icon composition templates based on squares, triangles, circles and rectangles are also examined. Other features examined include the texture of the icon design and its symbolic aspect. Icon colors have also been evaluated based on warm color overlay, cold overlay and monochrome; and element composition (text and figure composition, text and illustration composition, text and photo composition). All data are plotted in Chart 1 through Excel software.





















































 Code (1) Irangardi Icon App (Irangardi Application)	 Code (2) Visit Iran Icon App (Visit Iran Application)	 Code (3) Irangardesh Icon App (Irangardesh Application)	 Code (4) IranPlanner Icon App (IranPlanner Application)	 Code (5) Iran361° Icon App (Iran361°Application)	 Code (6) Ami Gilan Icon App (Ami Gilan Application)	 Code (7) Tourism in Iran Icon App (Tourism inIran Application)
 Code (8) Artamgardehgari Icon App (Artamgardehgari Application)	 Code (9) Arbaeen Icon App (Arbaeen Full) (Guide Application)	 Code (10) Esfehan Ruydad Icon App (Esfehan Ruydad Application)	 Code (11) Hamgardai Icon App (Hamgardai Application)	 Code (12) Kishgardai Icon App (Kishgardai Application)	 Code (13) Tehran Tourism Icon App (Tehran Tourism Application)	 Code (14) Iran Tourism Places Icon App (Iran Tourism Places Application)
 Code (15) North landmark app icon (North landmark app iconApplication)	 Code (16) Meshgingardi Icon App (Meshginshar Tourism Application)	 Code (17) Tabriz Tourist Icon App (Tabriz Tourist Application)	 Code (18) Ghazvin Tourism Icon App (Ghazvin TourismApplication)	 Code (19) Tourism724 Icon App (Tourism724 Application)	 Code (20) Tourism Icon App (Ghasedak Tourism Application)	 Code (21) Zahedan Tourism Icon App (Zahedan Tourism Application)
 Code (22) Iran Nazanin Tourism Icon App (Iran Nazanin Tourism Application)	 Code (23) Islamic Tourism Icon App (Islamic Tourism Application)	 Code (24) Kashmargardi Icon App (Kashmargardi Application)	 Code (25) Kasham Map Icon App (Kasham Map Application)	 Code (26) Safarnama Icon App (Tour guide and Tourism services Application)	 Code (27) Virtual trip to Shiraz Icon App (Virtual trip to Shiraz Application)	 Code (28) Trip to North Icon App (Trip to North with offline map Application)
 Code (29) Kordestan Tourism Icon App (Kordestan Tourism Application)	 Code (30) North Tourism Icon App (North Tourism Application)	 Code (31) Zanjangardi Icon App (Zanjangardi Application)	 Code (32) Dubai Tourism Icon App (Dubai Tourism Application)	 Code (33) Iran Audio Guide Icon App (Iran Audio Guide Application)	 Code (34) Turkey Trip Guide Icon App (Turkey Trip Guide Application)	 Code (35) Iran Landmarks Icon App (Iran Landmarks Application)
 Code (36) Khoozestan degar Tourism Icon App (Khoozestan degar Application)	 Code (37) Charpaye Icon App (Charpaye Application)	 Code (38) Hormoz Island Icon App (Hormoz Island Application)	 Code (39) Iran Fun Places Icon App (Iran Fun Places Application)	 Code (40) Jestro Icon App (Jestro app for tourism recreation in Iran Application)	 Code (41) Tehran Landmarks Icon App (Tehran Landmarks Application)	 Code (42) Tourist Attractions Icon App (Tourist Attractions Application)
 Code (43) Tourist Attractions Icon App (Tourist Attractions Application)	 Code (44) Tourist Attractions Icon App (Tourist Attractions Application)	 Code (45) Tourism Icon App (Tourism Application)	 Code (46) Tourist Icon App (Tourist Application)	 Code (47) On Foot Icon App (On Foot Application)	 Code (48) Tourism Package Icon App (Tourism Package Application)	 Code (49) My Iran Icon App (My Iran Application)
 Code (50) Iran tour and sightseeing Icon App (Iran tour and sightseeing Application)						

Table 1: Characteristics of Tourist Application Icons (Authors)





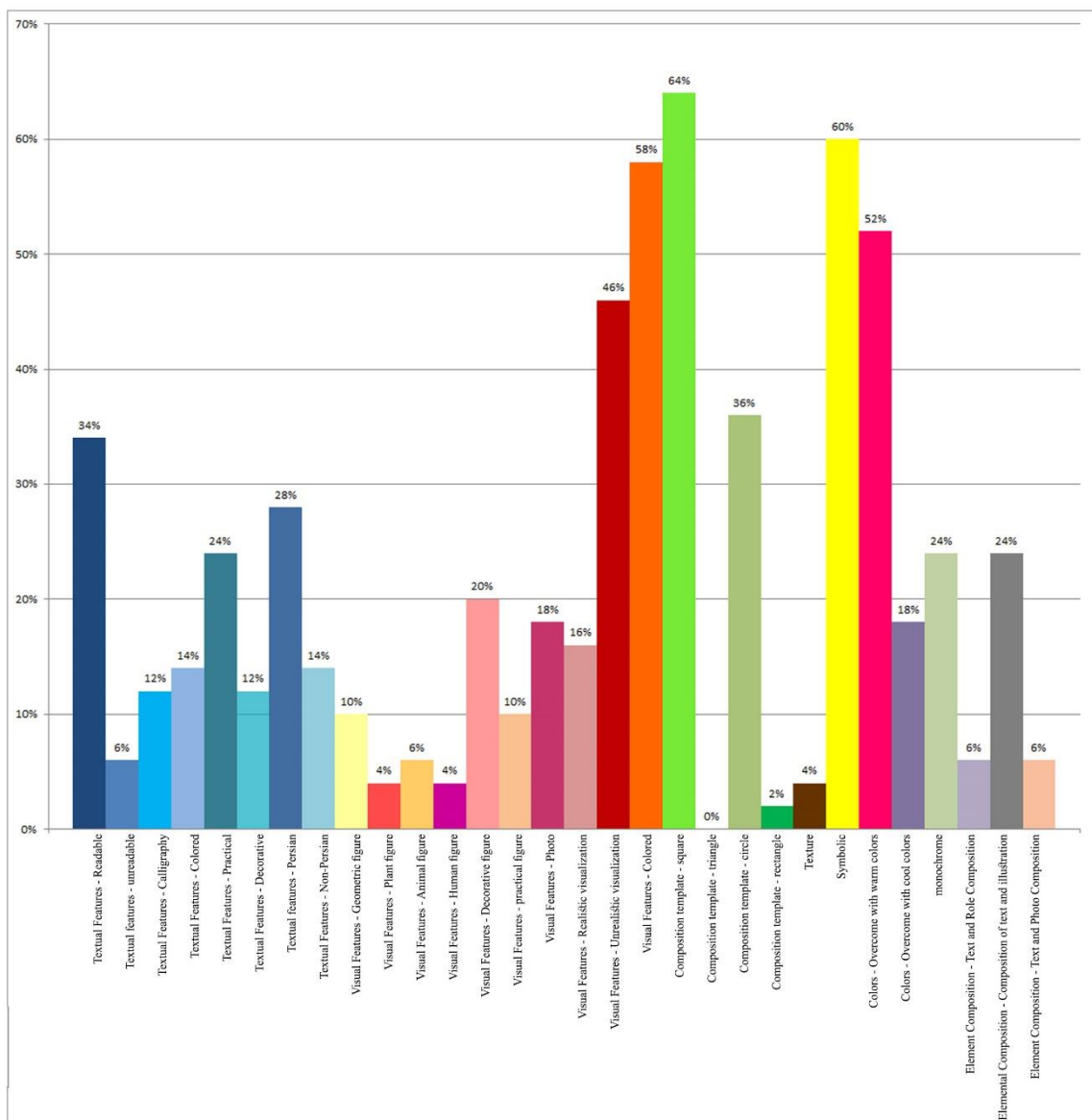


Chart 1 - Features of tourism app icons (authors)

Graph Analysis: Based on Chart (1), the average shape characteristics of Iranian tourism app icons are as follows: readable text attribute 34%, unreadable text attribute 6%, calligraphic text attribute 12%, color text attribute 14%, practical text feature 24%, decorative text feature 12%, Persian text feature 28% and non-Persian text feature 14%. Features: Geometric figure 10%, plant figure 4%, Animal figure 6%, Human figure 4%, Decorative figure 20%, Practical figure 10%, Photo 18%, Realistic 16%, Unrealistic image 46%, colored image is 58%. The icons are 64% square, 36% square and 2% rectangular. The texture use is 2% and the iconic icon is 60%.



The predominance of warm color was 52%, the predominance of cold was 18% and the use of only one color and white (monochrome) was 24%. In the combination of elements, the composition of text and role was 6%, the composition of text and illustration 24% and the composition of text and image 6%.

## Summary

This study was conducted to answer this question:

What are the visual characteristics of Iranian Tourism Applications Icons?

According to the results of this study, the icons of Iranian tourism applications have been coined with a combination of textual and visual features, while visual features are superior to the color images and the tendency to overpower them warmly. In the case of the composition template in the icon design, the square format is used in most of them. The use of symbols is also one of the dominant features in the design of icons.

Therefore, it can be acknowledged that the research hypothesis has been proven that "the icons of Iranian tourism applications are made of a combination of textual and visual features with emphasis on the symbolic aspect".

## Conclusion

One of the most important issues in human life is the discussion of travel and tourism. Smart agents are one of the factors that help improve the quality of tourism services. Apps play an important role in these smart interfaces. In application design, icons are one of the most important things. App icons have different features. These features include content and form items. The icons are made up of a combination of text and image elements, and they are used symbolically.

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