Review

Prioritization of effective infrastructures on development of cultural tourism using interpretive structural modeling (Case study: Yazd city, Iran) - a review

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ABSTRACT:
        Yazd city's special ecological location in Iran (on the edge of Kavir plain and Lut desert) has led to the creation of special architecture and historical monuments synchronous to the natural environment such as aqueducts, cisterns and deflectors. Existence of nature-based ecotourism and historical attractions in this location has caused many tourists to visit this city. Regarding infrastructures' important role in tourism development and also in showing the correct vision of the destination, plan efficiently, identification and prioritization of them would be a great help for deciding on investments and how to expand them as an effective step for attracting tourists, better benefits and also as stable tourism development. The goal of this study is to identify and prioritize the infrastructures of cultural tourism. The method is quantitative – qualitative and is generally goal-based as it is practical. An ISM (Interpretive Structural Modeling) technique is used for the purpose of prioritization which includes six levels of prioritization for factors of the model where the factor of human resources training had the highest priority of influence compared to other infrastructures. Then, based on leverage and dependency of the infrastructures, they were placed on a MICMAC diagram in four different areas of autonomous, dependent, linked and independent conditions, which different measures were applied based on various conditions for investigating and showing the system improvement.

Keywords:
        Prioritization, Infrastructures, Cultural Tourism, ISM.

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INTRODUCTION

In the 20th century, culture and tourism are both important facts which have improved remarkably recently and their meet up with the cultural tourism sector have become one of the favorable steps of countries in development process all over the world. Iran country possesses many attractions for foreign and local cultural tourists as it has an old historical culture based on civilization history and also on the rich heritage of Islamic culture. The city of Yazd, has also rich cultural heritage for its historical age and also its ancient culture. Because of historical value, tradition and desert architecture, Yazd city has attracted much attention relating to experts and orientalists and it could be counted as one of the several economic bases of the country (Zareashkazri *et al.*, 2016). It is very important for the region to plan accurately for the purpose of serving a correct image of the destination and after that, to get more benefits and income (Liu, 2014). Regarding Yazd city's perfect, great and good classes of condition in April, May, October and November (Mirhoseini, 2016) months of the year, a correct consideration of ecological potential is necessary for the purpose of condition planning and fact prediction and also for preparing tourist demands list and finally for building the right image of the destination. Conveniences and right infrastructures are needed in order to create the right image to attract tourists (Karami *et al.*, 2013). Effective identification and Prioritization of infrastructure would lead to a correct step in managing time and costs. In this research, infrastructure identification for the purpose of cultural tourism improvement is targeted and they are prioritized based on their effect on others.

Principles and theoretical framework

Cultural tourism

Cultural tourism or heritage tourism is a tool for economic improvement which includes attracting foreign travelers to local historical attractions (Zareashkazri *et al.*, 2016). Cultural Tourism stands for a way of tourism in which the traveler knows or would like to know about the region history and its people's way of living and where about. And also, it is an action of infinite experience (Zakaria *et al.*, 2014).

Infrastructure

The word Infrastructure, stands for structures which are based on or underground and it grants a practical and main framework for the purpose of creating and improving the systems existed in places such as urban, industrial and tourism areas. In order to reach an improved and successful tourism industry, appropriate infrastructures are needed but it could reversibly be counted as a negative critical factor for undeveloped countries which suffer low possession of infrastructures (Hearty, 1989). Infrastructures are categorized into services and facilities of transportation, water, electricity, sewage and communications (Zarqam, 2014).

ISM

ISM stands for an interactive learning process. It includes several factors in a comprehensive systematic structuring model. Generally, ISM is a technique used for the purpose of investigating the system's complications and it shapes the system in way that it would be understood easily. Some of the positive points of the technique are like, it can be understood by all types of users, it has integrated form in composing experts' opinions, it has applicability to the study complex systems and also it has got various components (Azar *et al.*, 2013).

Literature review

Hernández-Mogollóna *et al.* (2017) investigated the influence of cultural events, structural elements and brand names of the destination image, emphasizing the religious and theaters events and claimed that the education plays an important role in tourism development.

Zhang and Chen (2015), based on one of their researches about the effect of transportation on tourism development, stated that tourists choose their destination based on transportation infrastructures and they

Table 1. Effective factors on development of cultural tourism of Yazd City

Row	Effective factors on development of cultural tourism
1	Informing and advertising
2	Proper management practice
3	Security
4	Building a culture among people
5	Hygiene
6	Electronic infrastructure
7	Training human resource
8	Improvement in roads and transportation
9	Investment in private sector
10	Tourism facilities
11	Improvement in historic sites and attractions
12	The development of anthropology, museums and festival facilities

evaluated them and their research conclusion showed that airports, railways, highways and transportation facilities play important role in tourism development.

Thapa (2012) stated that for preserving and amplifying tourists, hard infrastructures such as destination features, software, transportation network and etc. are needed to be prioritized for establishments which grant ease of mind for the tourist, however, soft infrastructures such as human resource developments, need to be supported by tourism sector.

Zal (1395) concluded that cultural potential has the most important role in tourism development of the region and the architectural and traditional factors, the attitude of the local community, infrastructures and officials' interact with the tourists are sorted for the least to most valuable factors in cultural heritage, social, infrastructure and basic aspects. Zarabi *et al*. (2014) stated that satisfaction of tourists is increased if there are much facility services in the destination.

Interview model

The method used in this study is quantitative – qualitative and is generally goal-based as it is practical.

In the research-based methodology framework, first a library research is done, then interview with experts is done for infrastructure identification and finally prioritization is done by experts in the process of cultural tourism infrastructural prioritization. It should be noted that the managers and experts within the field of cultural tourism with minimum working experience of 10 years were interviewed, which can be regarded as the metric taken into account for the interview.

The sampling phase was accomplished using snowball sampling method. Moreover, the questionnaire was approved by the experts of the field and it is validity was proved on the basis of face validity. According to the ISM technique, it is required to interview with at least 12 experts, while in the present research 15 experts were interviewed and the corresponding sets of data were collected from them.

Interview data

After examining the literature review and interviewing 15 experts, various factors are listed which 12 of them are categorized in table 1 and these factors were presented to the experts via questionnaire and after passing the steps of interpretive structural modeling (ISM), the rated model of the factors were obtained (Figure 1).

This model consisted of six levels, whose higher levels have a less impact. With regard to the Figure (1), it can be noted that training human resources has the highest impact on the development of cultural tourism. Hence, the main focus must be concentrated on the appropriate training practice since it is ranked as the most influential factor for realization of improvement in cultural tourism

Final fourth-level model of the effective factors on development of cultural tourism of Yazd City

Analysis of MICMAC Diagram

The analysis of MICMAC diagram aims at identifying and analyzing the leverage power and dependence between the factors. In this phase, the factors are divided into to four categories in term of leverage power

Table 2. Leverage power and dependence of factors

Row	Effective factors on development of cultural tourism	Leverage power	Dependence power	Coordinate points	Area in Diagram
1	Informing and Advertising	11	11	11.11	linked
2	Proper management practice	11	7	11.7	Linked
3	Safety	9	8	9.8	Linked
4	Building culture among people	11	9	11.9	Linked
5	Hygiene	6	6	6.6	Autonomous
6	Electronic infrastructures	9	8	8.9	Linked
7	Human resource training	11	5	11.5	Leverage
8	Improvement in roads and transportation	6	6	6.6	Autonomous
9	Investments in private sectors	10	8	10.8	Linked
10	Tourism facilities	6	9	6.9	Dependent
11	Enhancement of historical places and attraction	4	11	4.11	Dependent
12	Improvement in anthropology facilities, museums and festivals	5	11	5.11	Dependent

and dependence. Table 2 presents the leverage power and dependence associated with factors. It is essential to note that Table 2 contents are parts of ISM technique, implying that there is need for mean ± SD.

Autonomous region

Autonomous region refers to the metrics possessing a poor leverage power and dependence. These variables are almost separate from the model, as they have a poor connection with the model (Karbasiyan *et al.*, 2011). As the region names evokes, the factors encompassed by this region are autonomous. These factors do not have high priority for planning, since planning and taking a measure on these factors do not lead to a specific prosperity. These factors possess less leverage power and dependence, compared to other factors. As a result, they can be considered as separate factors and they have their unique planning designation. Hygiene and transportation are regarded as the autonomous factors. Thought, an enhancement of rail network, planning

for development of new international airlines and granting facilities for upgrading the safety level and equipping the roads are among the main measures that must be taken.

Dependent region

There exist variables of poor leverage power, but with high dependence. These dimensions included the factors whose formation and development are depended on numerous factors and they do not play any significant role in underlying other factors. By making a plan on the factors of linked and independent region, the above-mentioned factors can be highly affected. These factors are incongruous for planning, since they are located at lower levels of the model. The act of planning must be accomplished only for the factors which have a high impact and they are located at high level of the model (Azar *et al.*, 2013). The tourism facilities, improvement in historical sites and attractive places and development of anthropology, museums and festivals all
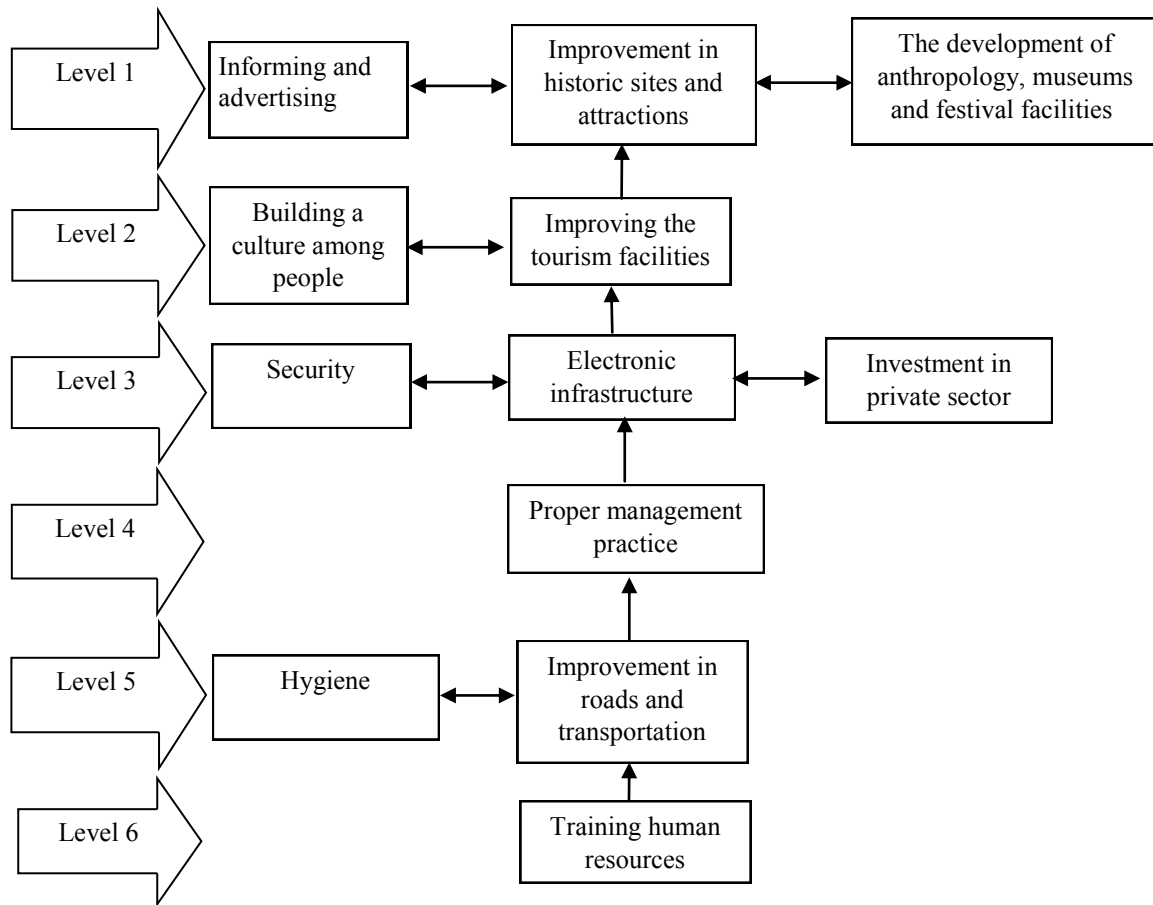
Figure 1. Ranking the effective factors on development of cultural tourism of Yazd City (ISM)

are located in this region. It is suggested that the managers aid and encourage the private sector for investing in enhancement and development of factors of dependent region, by assessing and ranking the designs.

Linked area

The variables of high leverage power and dependence are located in the linked region. Indeed, the variables of this region are not stable. Any variation and changes in these variables, will also affect other variables. The factors located at this level are both impressionable and effective. It is worth noting that the factors of preceding level are prerequisite for the present level's

factor, and also these factors are prerequisite for the factors of following level. Thus, the leverage power and dependence of these factors are high in the next and pervious levels, respectively (Azar *et al*., 2013). Among the survey factors, informing and advertising, building

people culture, proper management practice, and investment in the private sector, security and electronic infrastructure are located within the linked region. It is highly recommended that an expert and adroit manager must be employed, and encouraging the private sectors for investment and enhancing the electronic infrastructure and corresponding advertisement all are suggested.

Area of influence (independent)

The factors with high leverage power and low dependence are encompassed by area of influence, also known as independent area. These factors along with linked factors are considered as the key factors which constitute the foundation of the model, and for launching the system, an attention must be paid to them (Karbasiyan *et al*., 2011). Planning and taking a measure on these factors will lead to the best impact, if this is done by the managers themselves. These factors are located at a high level of the model and they can influ-

ence the factors. The factor of training human resources is located within this area. Planning for these factors can lead to the best results, since any improvement in these factors acts as the beginner of alteration and enhancement of other factors. In fact, this point acts as the source of alterations, in such a way that any change can cause the river stream to encounter with change and transmogrification. Therefore**,** with regard to the time constraint and financial limitation, the best option is to make a change within this region. To this end, the senior managers, agencies and hotel managers, etc. should be aware of a proper information and they should be trained in accordance with the most recent findings of the researches for gaining an improvement in the suitable infrastructure of the cultural tourism. Moreover, the establishment of tourism institute for training and educating leaders, marketing principles, granting vocational degrees for founding the travel agencies and codifying the discipline and courses linked to the tourism industry at vocation schools and universities all are highly recommended. In addition, training the local inhabitants and visitors and increasing their awareness and perceiving the natural and cultural features leading to the formation of more responsibility for preservation of natural and culture components, is highly advised.

Cultural tourism development

The present review demonstrated that the most important factor for development of cultural tourism is training factor. While, Shamaei and Musavivand (2011) have concluded that residence and transportation infrastructures are the most important and effective factors on development of cultural tourism. Moreover, Saghaei *et al*. (2014) has claimed that the lack of welfare facilities is the main obstacle to the development of the cultural tourism, while the present review has proved that the improvement in welfare facilities is depended on components, including management practice and investments in private sectors. Hernández-Mogollóna *et al*. (2017) have recognized training of human resource as

the most effective factor on the cultural tourism development, and this finding is in line with the findings of the present research, since human resource training was identified as the most influential factor.

CONCLUSION

The obtained results of the present review are presented in four sections, including autonomous region, dependent region, linked area and area of influence (independent). The interview demonstrated that hygiene and transportation are the autonomous factors. In addition, it was observed that the dependent region encompasses tourism facilities, improvement in historical sites and attractive places and development of anthropology, museums and festivals. It was deduced that the private sectors must be encouraged for investing in development of factors of dependent region. Moreover, the findings of the research proved the need for employment of an adroit mangers and encouragement of private sectors in order to enhance the infrastructure and advertisement linked to the tourism industry.

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