



The Role of ICT in Sustainable Tourism Development and Natural Resources Capabilities: a Case Study of Ardabil Province

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Abstract

Due to the appropriate geographical and historical conditions and having many tourist attractions in various historical, cultural and natural fields, Ardabil province has not been able to transform its tourism industry in accordance with these capabilities and capacities of information and communication technology and provides a complete information base that can provide the information needed by each of the domestic and foreign tourists, such as physical infrastructure, climatic conditions of the region, suitable times for travel, etc. Therefore, using these perspectives in the development of tourism industry in Ardabil province is of special importance and necessity. Accordingly, this study aims to evaluate the challenges, capabilities and strategies for sustainable tourism development with emphasis on the use of information and communication technology in Ardabil province. The type of applied research and its method is analytical and descriptive and the method of collecting information is library and documentary. The results of SWOT model show that historical, cultural and natural background of Ardabil province with a final coefficient of 0.605 is the most important internal strength. The most important threat in the use of information and communication technology in the development of the tourism industry is related to the insufficient commitment of senior managers in the establishment of information and communication technology in the province. According to the respondents to the questionnaire, this threat point has the highest score among the threat points. This threat point with a final coefficient of 0.255 is ranked first in the threat points in the development of tourism industry in Ardabil province based on information technology.

Keywords: Ardabil province, SWOT model, Tourism, Information and Communication Technology.

Introduction

Tourism is considered a global phenomenon at the beginning of the 21st century. The importance of tourism and its place in the economic, social, political and cultural development of countries has led to it being referred to as white industry and invisible

exports. Ecotourism or nature tourism is a new trend in the tourism industry in which travel to natural areas for study purposes and visual enjoyment of landscapes, natural plants and wildlife and according to cultural aspects. The concept of nature tourism includes a variety of native plants and animals and the protection of nature as their

habitat. The living conditions of plants and animals in a forest area are very special because they include a diverse collection of native fauna and flora. Forests, in addition to containing a variety of plant elements including woody, herbaceous, vascular, mosses, ferns, climbing plants, fungi and animal elements including birds, fish, etc., also reflect the climatic and geological diversity of war zones. It always needs protection (Janér, 2000).

This has led to the emergence of new needs and various research in information technology. information technology products are of the most significant technological developments in the present age called information and communication technology revolution. Technology is a multi-purpose and flexible tool and includes many capabilities that have provided appropriate solutions in the form of individual and social applications to meet various needs (Moghimi & Namdari, 2006). Information and communication technology has increased employment and activity in the world by influencing how information is accessed, market competitiveness and the creation of new markets for consumers and producers (Mamaghani, 2009). Therefore, due to the expansion of the use of information technology in the development of tourism industry businesses, lack of research on this issue in developing countries, lack of information required by planners locally and regionally, and on the other hand a large share of Information technology use compared to other industries, it is necessary to expand the factors affecting this type of activity in Iran. Ardabil province is one of the tourist attractions in the country due to its potential and climatic conditions. Due to the great potential of Ardabil province for

tourism development, lack of knowledge of ICT technology in development planning, the current situation structure indicates underdevelopment and lack of optimal use of this structure.

Statement of the Problem

Therefore, this study aims to determine the indicators affecting the research and development of information and communication technology (ICT), the role of indicators in assessing sustainable tourism development, evaluating the challenges, capabilities and strategies for sustainable tourism development and seeks to answer the following questions:

What is the role of Information and Communication Technology (ICT) in sustainable tourism development planning?

What are the capabilities of sustainable development planning with an emphasis on the use of information and communication technology (ICT)?

What are the barriers to sustainable tourism development with an emphasis on the use of information and communication technology (ICT)?

What is a good model for sustainable development planning with an emphasis on the use of information and communication technology?

Research background and theoretical foundations

In the study of research background, we have studied the role of information and communication technology in tourism in the scientific literature of Iran and the world (Table 1).



Table 1. Background

Results	Year	Author
Their results indicate that attitude and perceived usefulness are the two main factors influencing the use of information technology and the use of the Internet in hotels and ticket booking.	2015	Safaeipour et al.
In the study of e-tourism development indicators in Isfahan, they stated that e-literacy indicators are moderate among the citizens of Isfahan. Also, 5.5% of citizens at the low level, 45.2% at the medium level and 46.2% at the high level believed in virtual tourism.	2012	Yousefi et al.
The results show that access to ICT facilities in tourist places has an important role in introducing tourist attractions in Shiraz. Also, the level of satisfaction of tourists and their attraction by information technology is very important.	2013	Taqvaei et al.
It was concluded that the lack of tourism infrastructure and services, seasonal demand problems, poor advertising and information, cultural and social barriers and lack of cooperation of tourism-related organizations affect the development of tourism in Ardabil province.	2014	Darvish
The results indicate that tourism is an important factor in employment, investment and growth and development and is a motivating factor in the economy. The growth and expansion of tourism in developing countries is a good ground for employment, currency creation and exports.	2015	Abdoli & Moradi Asl
Their results show that the growth of web pages and the development of information frontiers are aimed at removing many weaknesses and obstacles in the world tourism industry.	2010	Sarfazazi & Memarzadeh
Examining the online advertising of the tourism industry and its impact on consumers showed that most tourists have obtained the information they need through the Internet.	2011	Sab

Source: Authors' Studies

Each of the researches has tried to solve the problems of e-tourism according to a part of the aims of the present study. This study focuses on tourism in Ardabil province and the impact of information and communication technology on its role and function. In this regard, this research has been applied with an orientation to assess the components governing the role of information and communication technology in tourism. The role and use of information and communication technology in the tourism industry

The ICT sector in the tourism industry has opened a new window (Ping, 2011). The impact of the Internet as a business channel for finding and presenting tourism characteristics has been well documented in studies (Castañeda et al., 2009). In 2008, Deepthi explored information technology and tourism, its threats and opportunities. In this research, he believes in the important role of the management system, GIS and hotel or place reservation system in the tourist destination. In 2011, Ping reviewed software management information systems in tourism management in the era of the circular economy. The results show that the

management information system has a great impact on increasing security, increasing the relationship between management and the tourist, as well as more effective control of tourist centers and attractions.

(Chung, 2004) examined the factors affecting the intention of Chinese tourists to use Taiwanese medical applications. The results showed that perceived quality and ease of use have a significant effect on attitudes toward technology. According to the above, it can be said that information technology has made a significant contribution to global communication by making information available (Moghimi & Namdari, 2006). Another change resulting from e-tourism in the field of tourism product supply is the formation of destination management organizations (DMOs). The tasks of these organizations include managing tourism resources, planning tourism activities, advertising and marketing, training staff, and providing services needed by tourists. These organizations actually form the middle ground in e-tourism between supply and demand.

The history of electronic markets dates back to the 1960s. In Iran, with the development of the aviation industry and the establishment of the National Aviation of Iran, the impact of new technologies in the tourism industry became apparent. In 1990s, the development of information technology revolutionized and transformed the world economy and trade regardless of size, product, or geographic coverage. At the macroeconomic level, information technology is increasingly used as a tool for land development and long-term prosperity (Buhalis & Jun, 2011). Tourism is inevitably influenced by the new commercial architecture created as a result of the technological revolution. The information technology revolution in the management of the tourism industry has provided inductions by providing efficient collaboration and the

tools of real globalization (Waghmode & Jamsandekar, 2013). As a result of the rapid development of supply and demand of tourism, information technology is the commander of this industry and therefore plays a more important role in marketing, distribution and promotion of tourism. Undoubtedly, the most important accelerator is the use of information technology in tourism distribution systems. Employees can work on the quality of services provided to customers and sales and travel advice (Büyükoçkan & Ergün, 2011). The collection of information in the tourism industry is evident in the functions of cooperation, distribution and marketing of the private and public sectors. Information technology has enhanced the distribution of tourism to an e-marketplace where there is easy access to information, thus increasing interaction between industry owners and consumers.

ICTs are used to improve tourism businesses by collecting information and making it available to users. The use of this technology in the tourism industry has led to the increasing development of this industry. In other words, it can be said that the prosperity of the tourism industry is due to information technology (Du et al., 2011). Using Internet sites is one of the best ways to inform a country's tourism potential. Official sites are country's digital spokesperson on the Internet. The stronger, more up-to-date, and multilingual these sites are, the more accessible they become (Buhalis & Law, 2008). By searching for information, people can book plane, train and bus tickets and buy each one online (Buhalis & Law, 2008). This type of online sales, such as room reservations, airline tickets and their use in the daily life shows e-tourism (Buhalis & Jun, 2011).



E-tourism and its components

The word e-tourism has been heard in Iran for several years and this word has been used in other parts of the world for about 15 years under the name of E-Tourism. Tourism itself is one of the largest industries in the world. It is considered a national treasure and this has caused almost all countries with this industry to pay special attention to its electronicization. The role of information technology in the development of Iran can be examined from two aspects: one is the use of information technology in informing and providing tourism services, that is full use of the potentials of the IT industry to develop the infrastructure of the tourism industry and the other virtual tourism, which means electronic Existing tourism resources or even artificial spaces (Sarfarazi & Memarzadeh, 2010). E-tourism: In general, it includes all components of business such as e-commerce include e-research and development, content production, and the provision of electronic services in cyberspace or communication (Chang et al., 2016). It can start with the simplest things like getting a catalog of a tourist area or buying tickets online and end up traveling to the virtual world (Buhalis & Jun, 2011). E-visa is one of the most popular services in the field of e-tourism and countries that provide visa services electronically, consider it as one of the indicators of their progress in the field of information technology and e-government.

Methodology

This research is descriptive in terms of data collection and applied in terms of purpose. Based on the numerical analysis of the data to explain the research of this research, it is a quantitative research. In this study, face validity was used to evaluate the validity of the questionnaire. The statistical population

in this study consists of managers and staff of Cultural Heritage and Tourism of Ardabil province and its affiliated cities, managers and staff of information and communication technology of the province, university professors, business owners of accommodation, hotels and restaurants, travel agencies, Transportation centers, tourists and students. Sampling in the present study was cluster-multistage. 385 sample volumes were determined using Cochran's modified formula. For statistical analysis, a questionnaire was distributed among the selected sample. The method of collecting information is also library, documentary. SWOT method was used to analyze the research. Internal and external factors were determined using the interview method of officials, employees, experts and professors. Likert scale was used to weigh each of the items mentioned in the SWOT analysis. After scoring, the final matrix was formed and finally strategies for information technology and its role in tourism development were presented.

Geographical scope of research

Ardabil province is located in the northwest of the Iranian plateau in terms of mathematical location between the geographical coordinates of 37 degrees and 45 minutes to 39 degrees and 42 minutes north latitude and 48 degrees and 3 minutes east of the Greenwich meridian. Ardabil province welcomes many travelers every year for its climatic characteristics, Spas and geographical location. Due to being located in high latitudes, this province has many natural tourism capabilities. This province is a suitable place for tourists in Iran and abroad in the warm period of the year due to the favorable weather conditions and low temperature. Hot springs and beautiful nature of this province can welcome many tourists

in the hot period of the year. On the other hand, in the cold period of the year, it creates very beautiful landscapes due to the heavy snowfall in this period. Also, those who are interested in winter sports in this period can

use this divine gift in this province. The province has 16 water treatment centers, 19 ecotourism centers, 87 apartment hotels, 142 hotels, 65 guesthouses (Figure 1).

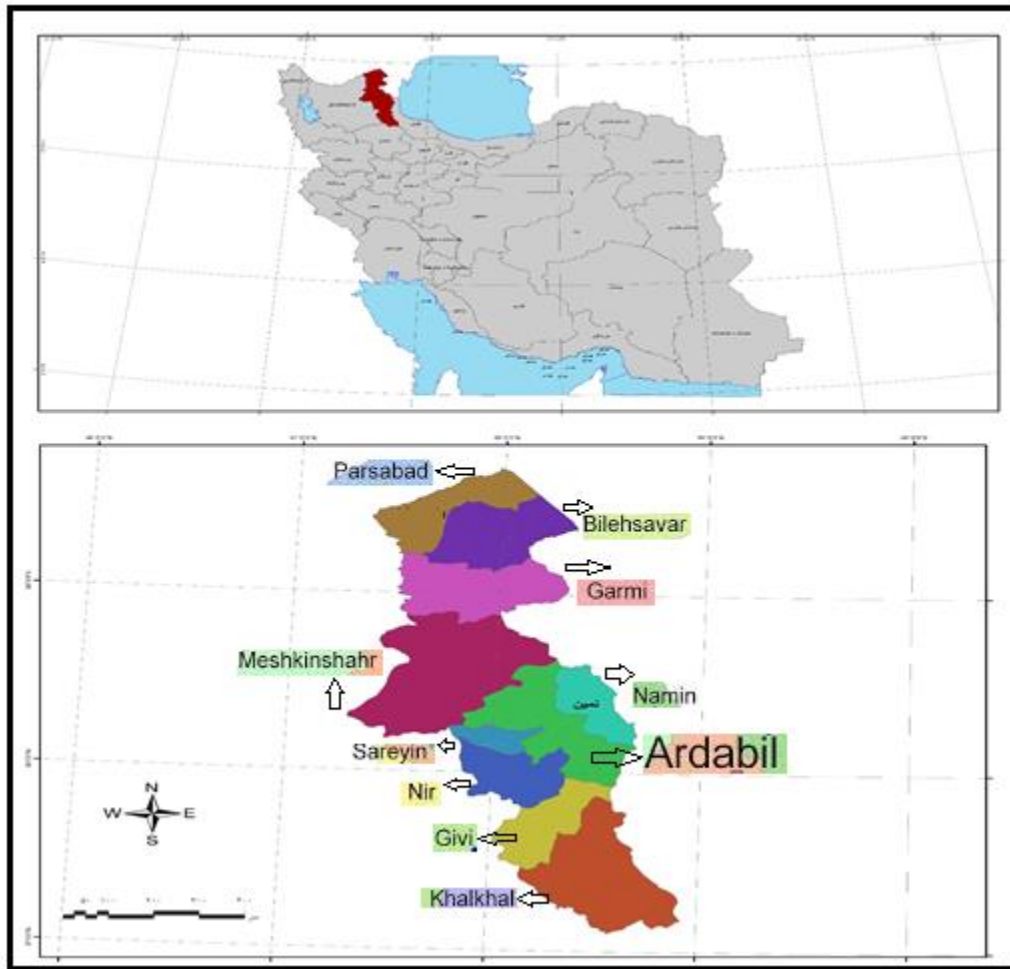


Figure 1. Location of Ardabil province in Iran

Results

According to the selection of SWOT model in this research, the parameters of this model are examined step by step. Each of the internal and external factors affecting tourism development based on information technology in Ardabil province was

examined according to the opinions of experts and officials of the Cultural Heritage, Tourism and Handicrafts Organization of Ardabil Province, managers of technology and information of the province, tourists, accommodation, hotels and university professors.



Descriptive findings


The highest frequency of respondents with 32.73% was placed in the age group of 34-25 years. The age group of 35-44 years with 29% was placed in the second place. In terms of gender, 67.53% are men and the rest are women. In terms of education, 47.27% have a bachelor's degree. About 30% of the respondents were managers and employees of Ardabil Cultural Heritage and Tourism Office and the cities of the province. After these people, tourists and visitors from different parts of the province make up about 24% of the total number of responsible people. Accommodation, restaurants and hotels also rank third with 22% of the total respondents.

SWOT model findings

Based on the results, it was found that there are 8 strengths against 12 internal weaknesses and 14 strengths against 17 external weaknesses. Strengths and weaknesses of tourism development in Ardabil province have been assessed by a questionnaire and Linkrt spectrum. The first of the four factors in the SWOT model is related to the strength. This factor, which is one of the internal factors, plays an important role in the development of the province's tourism industry based on information and communication technology. The stronger this part of the internal factor, the better and more accurate planning can be done regarding the development of tourism. (Table 2) shows the

sum of the weights obtained from the questionnaires, the ranking and the final weight of each of the strengths. Based on this table, it can be seen that historical, cultural and natural background of Ardabil province with a final coefficient of 0.605 is the most important internal strength. The lack of an integrated information and communication technology network in Ardabil province has been suggested as the most important weakness. The external factor of opportunity is one of the factors affecting the study area from outside the environment and creates opportunities for the development and expansion of the tourism industry in the province, which can be used to help the growth and expansion of this industry. According to the (Table 2), private sector investment in the field of tourism and activation of electronic media has the highest value with a final coefficient of 0.347 among 13 opportunities in Ardabil province. The most important threat in the use of information and communication technology in the development of the tourism industry is related to the lack of sufficient commitment of senior managers in the establishment of information and communication technology in the province with a final coefficient of 0.255. After the formation of the SWOT matrix, the leaders have been appointed. This is achieved by listing each of the strengths, weaknesses, opportunities and threats and the intersection of each of the strategies. The matrix leads to four strategy categories: ST, WT, WO and SO.

Table 2. The table below shows the matrix of SWOT strategies.

Threat points	Final coefficient	Final rank	Opportunity points	Final coefficient	Final rank	SWOT Analysis
Insufficient commitment of senior managers in establishing ICT	0.255	1	Private sector investment in tourism and activation of electronic media	0.347	1	
Internet Fraud	0.197	2	Creating competition in the field of hotel management and accommodation and improving the service and amenities of recreational and tourism places	0.338	2	
Lack of strong software facilities	0.193	3				
Lack of proper tourism infrastructure and main roads	0.189	4				
Lying about facilities and taking advantage of people's goodwill to attract them to travel and contradict it with the facts	0.187	5	Significant growth of the tourism industry in the province	0.333	3	
Lack of adequate bandwidth for the Internet and the existence of network and telecommunication problems	0.185	6				
Inadequate advertising space to tarnish Iran's image and isolate Iran internationally	0.182	7	Using ICT as a powerful tool in attracting tourists	0.327	4	
Lack of knowledge of managers about the benefits of ICT	0.170	8				
Inadequate government support for e-tourism security	0.125	9	Electronic tourism is the driving force of the tourism industry in the province	0.243	5	
Lack of motivation and support for managers and short management courses	0.123	10				
Lack of necessary transparency in IT policy making	0.117	11	Virtual world leading in the tourism industry	0.236	6	
Lack of necessary knowledge and experience of managers in relation to computers	0.113	12				
Inability to implement, pursue and maintain the principles of sustainable development related to ICT in tourism	0.107	13	Contribution to the economic development of less developed areas via marketing and advertising in order to attract tourists, sell handicrafts and establish resources in those areas	0.234	7	
Lack of spreading the culture of proper use of ICT	0.101	14				



Loss of some job creation opportunities for people	0.0961	15			
Multiplicity of advertising centers and different tastes	0.0941	16	Extensive use of information and communication technology tools in the world and the creation of new management mechanisms in the tourism industry	0.221	8
Lack of legal rules and regulations	0.0600	17			
			High employment in the tourism industry y	0.160	9
			Creating belief and motivation among senior officials of tourism organizations in the province to the efficiency of e-tourism as a powerful and new tool for advertising and marketing and also paving the way for tourists to enter the province	0.136	10
			Creating a platform for business and economical and healthy use of natural and environmental resources	0.116	11
			Easeily accessing to the required facilities and information in the shortest possible time using ICT	0.0741	12
			Existence of necessary capacity in the province to benefit from cyberspace in order to develop the tourism industry	0.070	13
Diversity Strategies (ST) Development of tourism	Competitive / Aggressive Strategies		Strength points	Final coefficient	Final rank

<p>information network and tourism information and education services Growth and expansion of facilities in the ICT sector in order to attract customer satisfaction Determining the capacity of the province regarding the amount of tourist attraction in each region of the province and preventing the destruction of resources, especially natural, historical and cultural resources Creating a culture in cyberspace to attract foreign tourists and ensure the security of cyberspace by using cyberspace police Using the tourism capabilities of Ardabil province and also using the beautiful landscapes of the province for ecotourism Assuring foreign tourists about the security situation in the country and the province and attracting foreign tourists Extensive publicity in the province to introduce tourist attractions in the province and use its salient features in cyberspace Organizing exhibitions and conferences on information and communication technology and their role in the development of tourism in the province Development and equipping of tourist routes and places of the province and creation and installation of signs and establishment of local guides, setting rules and regulations in these places and compiling guidebooks for tourists and educating them. Injecting budget into the tourism sector of the province in order to use information and communication technology Establishment of accommodation and recreation centers in the province. Ease of tourism affairs to use private sector investments</p>	<p>(SO) Developing cultural and historical tourism in the province due to the great potential of this type of tourism Attracting tourists to the region and increasing the duration of tourism to compete with other recreational areas Attracting private sector investment to introduce historical, cultural and natural attractions Use of committed and specialized forces in government agencies related to tourism to increase the success rate of sustainable tourism Providing extensive electronic services to customers in order to satisfy them Employing the natives in non-governmental organizations to increase the adaptation of the people and encouraging them to provide services to tourists Taking advantage of the tendency of the private sector to use their investment in the expansion of ICT in tourism in the province Optimal use of facilities and infrastructure in the province and efforts to expand them. Development of tourism facilities and use of the beautiful nature of the province</p>	<p>Positive attitude of officials to job creation through the expansion of tourism as the most important mechanism in the province</p>	0.247	6	
		<p>Creating an educational environment and expanding fields related to tourism sciences in the province's universities</p>	0.109	8	
		<p>Extensive use of accommodation centers, hotels and restaurants, travel agencies and transportation centers from ICT</p>	0.561	2	
		<p>Existence of historical, cultural and natural background</p>	0.605	1	
		<p>Expansion of private companies in the field of e-tourism</p>	0.352	4	
		<p>Proper distribution of tourism centers in the province and informing them through ICT</p>	0.252	5	
		<p>Ardabil province is capable of investing and planning e-commerce</p>	0.121	7	
		<p>Proper distribution of tourism centers in the province and informing them through ICT</p>	0.415	3	



	<p>in order to attract tourists and create new jobs for the people.</p> <p>Utilizing the desire and motivation of residents of rural and urban communities for the development of the tourism industry in the province.</p> <p>Planning to organize suitable places to create a travel camp for mass tourism seasons</p> <p>Expansion of ICT in the whole province and its easy use in different parts of the accommodation centers of the province in order to make the reservation of accommodation centers electronic</p> <p>Selection of senior managers with high expertise in each of the organizations related to tourism and information technology in the province to apply ICT</p> <p>Expansion of airlines in the province for the transit of passengers to tourist areas</p> <p>Creating and improving land infrastructure in the province for the comfort and convenience of tourists</p> <p>Encourage the private sector to invest in the tourism industry and ICT development in the province.</p> <p>Creating employment</p>				
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	and sustainable tourism development by focusing on the spaces and natural landscapes of the province Utilization of historical and valuable monuments in the province based on ICT				
<p>Defensive Strategies (WT) Development of information sites for tourism centers in the province as well as their quality improvement Teaching information methods to officials and local people in dealing with tourists and satisfying them Expanding the infrastructure of the province to attract the satisfaction of tourists and encourage them to travel to the region Diversifying the province's attractions to attract tourists to the region Design and implementation of a comprehensive information and communication technology plan in Ardabil province. Expansion and development of Internet banking, especially in the infrastructure sector Preparation of these letters and laws regarding the development and improvement of management institutions Use of specialized managers in the tourism sector Continuity of managers in the implementation of long-term tourism projects</p>	<p>WO Review Strategies)) Prioritization and distribution of facilities in the tourist areas of Ardabil province in order to sustainable development of the province Improving the method of distribution of tourism services and facilities in the target areas of tourism Use of rural tourism in order to sustain development in rural areas Preservation of cultural heritage and valuable historical and tourism buildings in Ardabil province Presenting various plans regarding e-tourism and organizing them by related organizations to develop this part of the tourism industry Preservation and creation of tourist areas Developing the tourism landscape of Ardabil province and giving a high share of e-tourism in it Using the Internet to introduce the important attractions</p>	Weakness points	Final coefficient	Final rank	
		Lack of an integrated ICT network in the province	0.366	1	
		Lack of government planning and investment in e-commerce	0.334	2	
		Lack of coordination of tourism-related organizations in order to access e-tourism content	0.272	3	
		Lack of specialized personnel and lack of specialized personnel related to ICT in tourism-related organizations	0.176	4	
		Inadequate infrastructure for e-commerce	0.176	5	
		Low awareness of tourism managers about current technological issues	0.243	6	
		Lack of full ICT coverage in the province	0.171	7	
		Weak communication network in the structure of tourism organizations	0.170	8	
		High cost setting up ICT	0.170	9	
Lack of suitable cyber environment and low speed of websites in the province	0.168	10			



<p>of the tourism industry in Ardabil province to people in the country and other countries using the expert force in the field of information technology</p>	<p>Lack of familiarity of tourists (domestic) with the performance of ICT</p>	<p>0.070</p>	<p>۱۱</p>	
<p>Strengthening and expanding the culture of using the Internet in the province and region. Involvement of local and indigenous people in tourism planning in Ardabil province Improving the communication and telecommunication network of Ardabil province. Improving various advertising methods in identifying the province's tourist attractions. Strengthening the indigenous culture and traditions of the region Using private sectors and their investment along with government strategies to attract foreign and domestic tourists Review of government support for tourism areas, rational use of institutions, support laws for infrastructure development, various tourism facilities in the province. Review of government support for tourism areas</p>	<p>Limited use of new technologies by tourists</p>	<p>3۰,۰۶۶</p>	<p>۱۲</p>	

Based on the above table, different strategies were determined for Ardabil province in order to develop tourism. SWOT is prepared.

(Table 3) shows the final coefficient of external and internal factors.

Table 3. Final coefficient of internal and external factors in Ardabil province

Threat	Opportunity	Weakness	Strength	indicator
2.51	2.85	2.47	2.61	-

Based on this table, it is observed that among all internal and external factors, the weight of the external factor is more than others and the

internal factor of weakness has the lowest score (Figure 2).

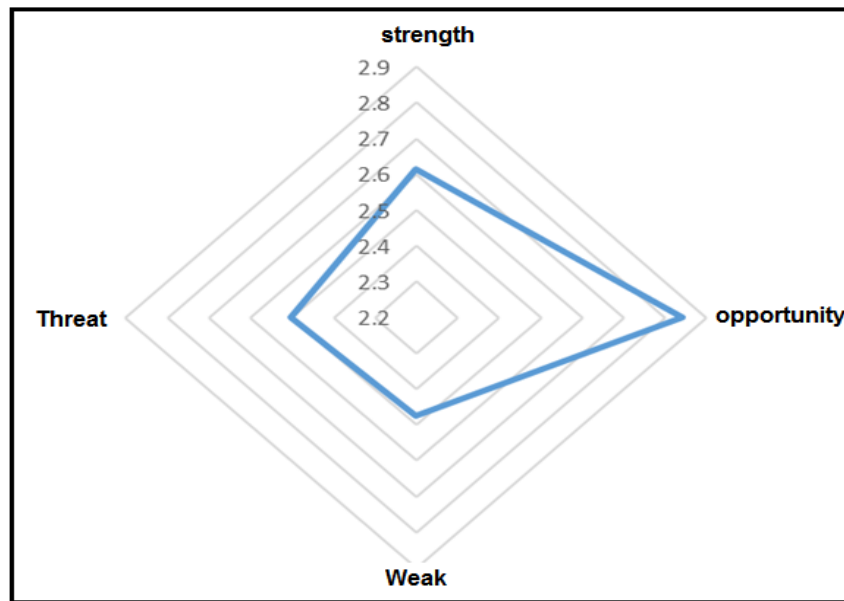


Figure 2. Status of strategies in Ardabil province regarding the role of information and communication technology in tourism development

Discussion

Based on the above chart, it can be seen that the strategies of Ardabil province regarding the development of tourism based on information and communication technology are closer to the aggressive strategies and we should try to make the most of the strengths and opportunities in this province and move towards These strategies moved. Finally,

research questions can be examined using research findings.

Question 1: What is the role of Information and Communication Technology (ICT) in sustainable tourism development planning?

Due to the existence of many attractions in Ardabil province, it can be said that it has the main requirement to attract tourists. Based on this, we can pave the way for the development and success of this province in



the tourism industry by using information technology. Accordingly, it can be concluded that there is a significant relationship between these two sectors. And developing the use of information technology can lead to sustainable development of the tourism industry.

Question 2: What are the capabilities of sustainable development planning with an emphasis on the use of information and communication technology (ICT)?

According to the tables, the results show the strengths and opportunities facing this industry, some of the most important of which are listed below. Existence of historical, cultural and natural background of Ardabil province, widespread use of accommodation centers, hotels and restaurants, travel agencies and transportation centers of information technology, development of electronic banking are among the positive internal factors. These points are considered as the most important internal factors (strength) in Ardabil province, which are ranked 1 to 3, respectively.

Investing in tourism and activating electronic media, creating competition in the field of hotel and accommodating and improving the services and amenities of recreational and tourism places, significant growth of tourism industry in the province as the most important external factors (opportunities) in the province Ardabil private sectors are listed in order of importance in the related parts.

Question 3: What are the limitations for sustainable tourism development with emphasis on the use of information and communication technology (ICT)?

Considering that the transformation of a potential point into an action requires the preparation of its special requirements. So, achieving sustainable tourism development also requires creating a structure and the removal of obstacles. According to the results, Ardabil province has many attractions

to achieve sustainable development and be raised at the national and international levels. However, so far, the necessary measures have not been taken for the growth and prosperity of its tourism industry as it deserves in the province. Obstacles and problems in Ardabil province are divided into two categories, internal and external. Based on the results of weighting internal factors, it is observed that the lack of an integrated information and communication technology network in Ardabil province is the most important weakness according to the respondents. Also in the external factors section, insufficient commitment of senior managers in the establishment of information technology was recognized as the most important external factor.

Question 4: What is the appropriate model for sustainable development planning with emphasis on the use of information and communication technology (ICT)?

In order to achieve a suitable model for sustainable tourism development planning based on information and communication technology, SWOT analysis was used to determine the strongest strategy in sustainable tourism growth and development. Based on the results of the research, it was found that the offensive strategy is the first priority for the growth and development of the tourism industry with emphasis on information and communication technology (Figure 2). In other words, it can be said that the use of internal strengths of the province and the opportunities ahead can be approached to the sustainable development of tourism. That is, we should try to make the most of the strengths and opportunities in this province and move towards these strategies to make Ardabil province the leader in this industry in the country.

Conclusion

Due to the appropriate geographical and historical conditions and having many tourist attractions in various historical, cultural and natural fields, Ardabil province has not been able to transform its tourism industry in harmony with these capabilities and capacities. Since most of the natural attractions of Ardabil province are located in rural areas and this is especially seen in the field of natural attractions, the description of the services of the rural guide plan and the valuable texture improvement plan in the areas and villages with tourist attractions have been modified and Studies in the field of tourism (not the general sphere of influence of the village) have been considered in more detail in previous research. Also, the role and position of the village and the attraction in the field of tourism are obvious, and physical measures and plans to strengthen the tourist attraction are clearly presented.

The results of the SWOT model show that the existence of historical, cultural and natural background of Ardabil province with a final coefficient of 0.605 is the most important internal strength. The lack of an integrated information and communication technology network in Ardabil province and the lack of government planning and investment in the field of e-commerce have been suggested as the most important weakness from the perspective of the respondents to the questionnaire. Private sector investment in tourism and activation of electronic media has the highest value among 13 opportunity points with a final coefficient of 0.347 in Ardabil province.

The most important threat in the use of information and communication technology in the development of the tourism industry is related to the lack of sufficient commitment of senior managers in the establishment of information and communication technology

with a final coefficient of 0.255 in the province. Comparing the findings of the research with other researches, we can point to the alignment of the results of this research with the studies of (Castañeda et al., 2009). (Haghtalab, 2012) stated that proper management and advertising have a great role in the development of Ardabil tourism industry. This was also confirmed in the present study. (Safaeipour et al., 2015) stated that the manifestations and tools of ICT, especially radio, television, satellite and the Internet have an effective role in choosing Shiraz as a tourist destination. These results were also confirmed in the present study and evaluated the role of information technology in the development of tourism is very important. The results of (Taqvaei et al., 2013) as well as (Esteelaji et al., 2014) show that access to ICT facilities in tourist places has a role in attracting satisfaction with attractions and in introducing tourist attractions and information technology has an impact on attracting tourists. Our results also confirm this claim. (Atafar et al., 2012) research showed that in terms of tourists, the variables of income, general use of the Internet, promotion of services and destination characteristics in the dependent variable (use of e-tourism services) in Ilam province have a positive and significant effect.

Recommendations

In the end, according to the mentioned cases, the following suggestions are presented:

Assessing the ecological potential for tourism development

Evaluating and expressing the role of marketing in the development of e-tourism

Investigating the willingness of tourism officials and providers to use social networks

Assessing the impact of economic growth on tourism in Ardabil province



Holding training courses related to the use of ICT in attracting tourists for managers and officials of the province and its dependent cities

Holding training courses for tourism service providers and how to use ICT

Expansion of tourism websites in each of the accommodation and entertainment centers bilingually

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