Assessing the economy advantage of using information and communication technologies in the sale market of agricultural products

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Abstract

In this paper, we try to evaluate the economy advantage of using information and communication technologies in the supply and sale of date from the perspective of agricultural experts to assess the role of these factors. The research is applied conducted descriptive-correlation method. The population of study included all agricultural experts and marketing of Khuzestan were selected using by census method to respond the questionnaire. Based on obtained statistics R2 in the factor analysis for these factors, it can be said that supply and sale factor is the most important factor influencing this variable, followed by market dominance, economy advantage, date marketing, reducing the costs, building market relationships, and electronic preparation of experts, respectively. Results of the study indicate that electronic organization increases the flexibility and efficiency of electronic than traditional organization. Therefore, it has the highest rank with mean of 5/09, and training technical skills to employees of organization at the beginning of information and communication technology project has the lowest rank with mean of 2/93. Using information technology that helps to explore domestic and foreign markets of has the highest rank with mean of 4/05, while information and communication technology that helps to identify customers' behavior and preferences has the lowest rank with mean of 3/76.

Keywords:

Economy advantage, technology, market, sale, agricultural products.

1. Introduction

Today these ICT are also being used in the agriculture sector and more specifically in agricultural marketing for making use of informed way. The market price information help actors in agriculture value chain make informed decisions that promote efficient production and trade. It is especially valuable for the producers that sell in local and regional markets.

(Jairath & yadar, 2012)

Agricultural products of electronic marketing are means for consumer to provide his required products with high speed and quality and lower cost. As important factors in the transmission of information from consumers to farmers and vice versa, they create remarkable employment and income for experts. Different interest of this group causes that farmer to be in search of higher market prices for his products on the other hand, and it causes that consumers provide their desired products with speed and quality in low prices on the other hand. Additionally, intermediaries provide their livelihood by giving services for producer and consumer (Kheiri, 2013). Using internet in selling date and introducing products to buyers have created revolution in the process of its introducing in recent years. Use of information and communication technology (ICT) and providing needed information for customers have increased the confidence of buyers to agricultural products (Khajeh Shahkuyi, 2012). In producing and exporting of this product as well as the processing and producing of palm-based products, it plays an important role in income and employment in this province and even the country. However, given that other date producers who are often neighbor countries, they have done extensive activities in the export of this product, and they have monopolized markets. Therefore, traditional marketing of this product will not be certainly effective. Additionally, correct and targeted use of information and communication technologies in marketing of this product can fill the existing gaps, introduce Iran date to the world, and create markets (Karimi Fard et al., 2011). Using creative managers and experts, commonly use of continuous and public educational system, promoting teamwork, establishing communication in all aspects, focusing on processes, expanding the strategic thinking along with free flow of idea are improved gradually in such organizations

and they are included within high performance organizations as a result (Sulaiman et al 2009). Results show that if innovation is accepted in a social process, the attitude of people should change and more effective communications to be shaped. Communication networks and the wider innovation system are part of this process and hidden knowledge is major source in organizations to create change. He proposes following ways to promote local innovation proposes:

Identification of developed innovations by local people and rural cooperatives

Participatory innovation development of cooperatives

Combining the capacities of farmers in cooperatives to create an innovative environment. (Bayer et al, 2006)

In a thesis entitled "The effects of agricultural policies on small farmers' innovation", has stated that due to the low level of technology, lack of infrastructures and market institutions in Ethiopia, this study has become necessary. The results of this study suggest that agriculture strategy in Ethiopia emphasizes on capacity-building, the adoption of new innovations, diversity of products with higher value and sustainable development of natural resources. Data for this study were collected using semi-structured interviews.He has considered competition and leadership commitments at the scientific level as key factor for the lack of innovative capacities at the scientific. Although, innovation at the scientific and wider level, can be a key factor in improving innovation capacity. This study presents new method of government intervention to increase capacity for innovation and its approaches.(Lishan ,2012)

The main purpose: assessing the competitive advantage of information and communication technologies in the market for agricultural products

Particular objectives:

1. Prioritizing the use of information and communication technologies to create market relations
2. Prioritizing the use of information and communication technologies in date marketing
3. Assessing the use of information and communication technologies in marketing agricultural products
4. Assessing the consent of budget allocated for the development of ICT in organizations
5. Assessing the competitive advantage of information and communication technology application in supply and sale

2. Method

The research is applied research conducted in descriptive-correlational method. Theoretical studies and qualitative research stage were done by documentary method, while quantitative stage was conducted by field method through questionnaire. The result of Cronbach's alpha for the questionnaire of ICT part was obtained 0/85. The population of study consisted of Ministry of Agriculture experts of Khuzestan province and the number of population of study was selected 144. Census method was used to collect data. To describe the variables of research, the statistical characteristics such tables frequency distribution, percentage frequency, cumulative frequency, mean, standard deviation, coefficient of variation, minimum and maximum were used.

In [Table 1] order to calculate and determine the validity of the questionnaire, a number of experts and professionals confirmed the basic elements of the model and components. To determine the statistical reliability of questionnaire, 30 people of population of study tentatively completed questionnaire, and obtained data are as follows.

Table 1: Results of Cronbach's alpha coefficient for different parts of the questionnaire

different parts of the questionnaire	Number of items	Cronbach's alpha coefficient value
Preparation in information and communication technologies part	24	0/85
marketing	11	0/87
Supply and sale	12	0/81
Market penetration	6	0/80
Reduction in cost	6	0/76
Competitive advantage	6	0/84
	9	0/76

Moreover, its validity was examined and calculated by researcher of current study. To this aim, factor analysis was used, and Kaiser-Meyer-Olkin (KMO) index was calculated and Bartlett's test was conducted in this regard. The KMO index was higher than 0/5 (0/93) which shows

that the data of this study can be used to perform factor analysis. The significance level of Bartlett's test was lower than 0/05, indicating data are appropriate to be used in factor analysis. As seen in [Table 2], the value of statistics of test is 5652/56.

Table 2: The results of Bartlett's test of date marketing questionnaire

index	Chi square	Degree of freedom	Significance level
Value	5652/58	1176	**0/000**

In [table 3] for each of the components of date marketing.

Table 3: The value of calculated KMO index and Bartlett test are shown

components	KMO index	Bartlett test	Significance level
electronic preparation	0/88	562/53	0/000
market relations	0/86	471/54	0/000
date marketing	0/89	607/92	0/000
Sale and distribution	0/86	488/72	0/000
market penetration	0/81	420/47	0/000
reduction in costs	0/89	542/83	0/000
competitive advantage	0/84	387/80	0/000
all components	0/93	562/58	0/000

3. Results

Prioritizing of degree of electronic preparation of Agriculture Organization as seen in [Table 4], electronic organization item increased flexibility and efficiency than traditional organization. With mean of 5/09, it has the highest rank, and training of technical skills to employees at the beginning of each Information and communications technologies project has the lowest rank with mean of 2/93. In this regard, the lowest coefficient of variation with 24/55 also related to electronic organization resulting in increase of flexibility and efficiency than traditional organization. The highest coefficient of variation with 62/00 related to use of advanced network communication technologies such as fiber optic and wireless network.

Table 4: prioritizing the degree of preparation of Agriculture Organization

	mean	Standard of deviation		Coefficient of variation
Electronic organization increases flexibility and efficiency than traditional organization	5/09	1/25		24/55
The laws related to security and monitoring in the virtual environment of organization	4/73	1/32		27/93
The presence of physical space for the computer and information technology (IT) part in organization	4/40	1/37		31/14
The expertise and knowledge of computer and information technology managers in the organization of the potential and applications of information technology	4/06	1/14		27/09
Having a independent unit of management and information technology and experts to develop and improve it	3/65	1/48		40/44
Access of organization to LAN network 3	3/60	1/73		48/17
Educational software CD s proper in IT applications in the organization	3/39	1/40		41/36
Continuous presence and activity of counselors and experts in information technology of organization	3/29	1/62		49/29
The quality of investment, budgeting and resource allocation for entering and technology development in organization	3/22	1/51		47/02
Access of organization to WAN 3 network	3/12	1/73		55/61
Your access to the computer information from outside the organization (by entering username and password)	3/04	1/88		61/87
Holding in-service classes and seminars or continuous education in the field of IT for the organization's employees	3/04	1/57		51/61
Use of advanced communicative technologies and networks-such as fiber optic and wireless network	3/01	1/87		62/00
Technical skills training to the employees at the beginning of any project of information and communication technology	2/93	1/42		48/58
Total mean	3/58	1/57		

3.1 Prioritizing of using information technologies in the development of market relations

As seen in [Table 5], information and communication technology item can help to create a virtual cooperative of date producers to sale agricultural products. This item has the highest rank with mean of 4/03. In this regard, the lowest coefficient of variation relates information and communication technology item with mean of 15/83 leading into improvement of internal communications with date trading firms, while the highest coefficient of variation relates to date growers become aware of facilities and services of Agriculture Organization timely .

Table 5: prioritizing the use of information technologies to create marker relations from the perspective of agricultural experts

	mean	Standard of deviation	Coefficient of variation
ICT can help to create a virtual cooperative of date producers to sale agricultural products	4/03	0/65	16/08
ICT provides the latest information about prices and weather conditions for experts and farmers.	3/99	0/74	18/62
ICT helps to build relations between date producers and domestic and foreign buyers	3/94	0/68	17/34
ICT leads into improvement of internal communications with date trading firms	3/91	0/62	15/83
ICT builds continuous relationship with buyers	3/86	0/73	18/88
ICT helps to build a network for contact of date producers with marketing industries	3/86	0/83	21/53
ICT leads to creation of a network between date producers in different parts of the country.	3/76	0/78	20/63
ICT is an important part of the company's marketing communications.	3/59	0/91	25/28
ICT reduces the information gap between date producers and date traders	3/53	0/93	26/47
By ICT, date producers are informed of facilities and services of Agriculture Organization timely	3/41	1/02	29/92
Total mean	3/78	0/879	

3.2 Prioritizing of information technology application in date marketing

As seen in [Table 6], item of information and communication technology helps to explore domestic and foreign markets of date. This item has the highest rank (with mean of 4/05). "Information and communication technology helps to identify behavior and preferences of customers" has the lowest rank (with mean of 3/76). In this regard, the lowest coefficient of variation relates to information and communication technology helps to develop packaging industry, marketing, and date processing industries (with mean of 14/06), while the highest coefficient of variation (with mean of 21/47) relates to item of information and communication technology helps to identify behavior and preferences of customers .

Table 6: prioritizing the use of information technologies in date marketing from the perspective of agricultural experts

	mean	Standard of deviation	Coefficien of correlation
ICT helps to explore domestic and foreign markets of date	4/05	0/61	14/96
ICT helps to develop packaging industry, marketing, and date processing industries	4/01	0/56	14/06
ICT helps to generate useful feedback from foreign customers who are not familiar with the date of Iran	4/01	0/74	18/48
ICT helps to track the information from domestic and foreign markets regarding the price and consumption of date	3/90	0/75	19/35
ICT helps to identify behavior and preferences of customers.	3/76	0/81	21/47
Total mean	3/94	0/69	

- Based on knowledge of information technology application in marketing of agricultural products (Kruskal-Wallis test)

The results of the Kruskal-Wallis test showed that there significant difference (at the level of 1%) among components of electronic preparation, date marketing,

market penetration, sale and supply, based on knowledge of people of information technology application in marketing agricultural products. In addition, there is significant relationship (at the level of 5%) between components of creation of market relations and reducing the cost of production and competitive advantage, based on knowledge of people of information technology application in marketing agricultural products [Table 7].

Table 7: comparing the components of the role of information and communication technologies on the basis of knowledge of use of information technology in marketing

components	level	n	mean	Chi-Square	Significance level
Electronic preparation	very low	12	30.71	3.65**	0.000
	Low	36	90.14		
	Average	44	65.90		
	high	42	61.83		
	Very high	5	124.00		
Creation of market relations	very low	12	73.46	10.86*	0.028
	Low	36	79.38		
	Average	44	60.32		
	high	42	66.00		
	Very high	5	113.00		
Date marketing	very low	12	72.96	15.24**	0.004
	Low	36	68.44		
	Average	44	73.86		
	high	42	59.36		
	Very high	5	129.50		
Supply and sale	very low	12	67.42	14.64**	0.006
	Low	36	67.81		
	Average	44	62.06		
	high	42	73.44		
	Very high	5	133.00		
Market penetration	very low	12	61.21	14.77**	0.005
	Low	36	71.40		
	Average	44	70.82		
	high	42	62.83		
	Very high	5	134.00		
Reduction in the cost of production and sale	very low	12	73.75	11.86*	0.018
	Low	36	64.79		
	Average	44	66.73		
	high	42	69.80		
	Very high	5	129.00		
Competitive advantage	very low	12	65.38	13.20**	0.010
	Low	36	61.99		
	Average	44	68.01		
	high	42	73.13		
	Very high	5	130.00		

Based on the consent of the budget allocated for the development of ICT in the organization (Kruskal-Wallis test)
The results of the Kruskal-Wallis test showed that there is significant difference (at the level of 1%) among components of electronic preparation, creation of market relations, date marketing, and market penetration, based on the consent of the budget allocated for the development of ICT in the organization. In addition, there is significant relationship (at the level of 5%) between competitive advantage, based on the consent of the budget allocated for the development of ICT in the organization [Table 8].

Table 8: Comparing of components based on the consent of the budget allocated for the development of ICT in organizations

components	level	n	mean	Chi-Square	Significance level
Electronic preparation	very low	28	33.57	38.83**	0.000

	Low	56	76.91		
	Average	50	76.16		
	high	5	135		
Creation of market relations	very low	28	52.82	24.44**	0.000
	Low	56	81.52		
	Average	50	60.57		
	high	5	131.5		
Date marketing	very low	28	65.11	5.99**	0.000
	Low	56	79.12		
	Average	50	61.67		
	high	5	78.5		
Supply and sale	very low	28	47.62	20.88	0.112
	Low	56	83.59		
	Average	50	63.59		
	high	5	107.2		
Market penetration	very low	28	59.95	12.09**	0.007
	Low	56	75.47		
	Average	50	64.35		
	high	5	121.5		
Reduction in the cost of production and sale	very low	28	61.07	6.60	0.086
	Low	56	79.53		
	Average	50	63.03		
	high	5	83		
Competitive advantage	very low	28	64.96	9.04*	0.029
	Low	56	69.12		
	Average	50	68.58		
	high	5	122.2		

`3.3 Structural equation modeling (SEM)

Having collected the data, the confirmatory factor analysis was used to analyze the data based on the research framework. The results of confirmatory factor analysis were examined in three parts:
Assessing the the fit of the model

In [Table 9] According to the studied criteria to assess the fir of model (9-1), it is seen that Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR), Comparative Fit Index (CFI),
Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), and Increase Fit Index (IFI) confirmed the good fit of model. Table 9: Criteria for the fit of model before and after the reforms

Fit index	Proposed criterion	results
Chi-square / degrees of freedom	3≤	1/893
Root Mean Square Error of Approximation (RMSEA)	0/08≤	0/047
Root Mean Square Residual (RMR)	0/08≤	0/083
Goodness of Fit Index (GFI)	0/85≥	0/76
Adjusted Goodness of Fit Index (AGFI)	0/80≥	0/73
Comparative Fit Index (CFI)	0/90≥	0/98
Normed Fit Index (NFI)	0/80≥	0/95
Non-Normed Fit Index (NNFI)	0/80≥	0/98
Increase Fit Index (IFI)	0/90≥	0/98

3.4 Results of measurement part of model

The first factor in theoretical framework of electronic preparation of experts consisted of 11 variables. Based on the results of study and based on the degree of standardized coefficient for these variables that was higher than 2/56, as well as the degree of t-statistic, it can be said that the variables of " your access to IT facilities such as computers, tablets, mobile phones in everyday life outside of the organization "," your access to hardware and office facilities such as computers, printers, scanners" and …, your confidence in the benefits and applications of information technology to accelerate and improve the affairs", "The use of network services such as the Internet to do things such as banking operations in everyday life

outside of the organization", "access to the in using ICDL computer and Internet (chat, email ...) "," the use of internet, intranet and extranet to perform every-day or administrative tasks ", "Having adequate bandwidth and Internet speed", " your knowledge and skill regarding the concepts, applications and benefits of information technology", and " your knowledge and ability to use the English language as a prerequisite for the use of IT" have appropriate correlation (at the level of 1%) with these factors.

The second factor under title of creation of market relations consisted of "ICT helps in creating the relationships between internal and external date producers and buyers", "ICT provides ongoing relationships with buyers", "ICT leads to improved internal communications with date trading companies ", "ICT is an important part of marketing relations of this company", " date producers become aware of facilities and services of Agriculture Organization ", "ICT reduces the information gap between date producers and date traders", "ICT helps to create a network to contact date producers with marketing industries "," ICT helps to create network between date producers in different parts of the country "," ICT can create a virtual cooperative of date producers for selling the agricultural products"," ICT provides the latest information on weather conditions and price for agricultural experts and farmers" in the theoretical model of study.

Based on standardized coefficients and obtained t-statistics for these variables, all 10 variables had high correlation (at the level of 1%) with this factor. The third factor was date marketing factor represented in [Table 10] based on research results, and standard coefficients and t-statistics of each five variables of model include:

"ICT help to create information from domestic and foreign markets of price and consumption of data ", "ICT helps to explore the domestic and foreign markets of date "," ICT helps to develop packaging industry, marketing and processing of date"," ICT helps to generate useful feedback from foreign customers who are not familiar with the date of Iran" and "ICT helps in identifying the behavior and preferences of customers ". They had appropriate correlation (at the level of 1%) with this factor and they were confirmed.

Supply and sale factor in the theoretical framework consisted of seven variables. Based on the results of the confirmatory factor analysis, standardized coefficients, and t-statistics, these seven factors included:

"ICT helps in increasing the sale of date in growing markets "," ICT facilitates the bypassing the local and foreign intermediaries in the date trade"," ICT facilitates the product ordering for customers "," ICT helps to sell date throughout of world", "ICT is an effective sale tool in foreign and domestic markets "," ICT helps to identify the right time to supply product to market " and " ICT helps to sell the products at reasonable prices.

Cost reduction factor as the sixth factor in the theoretical model study was composed of six variables. Based on the results, all 6 variables showed good correlation with this factor at a level of 1%. These variables include: ICT prevents from creation of agencies for date marketing ", " ICT reduces the costs related to warehousing, creation of sale branches in other parts ", " ICT can reduce marketing costs (through creating website, radio advertising, etc.)," ICT reduces the risk of production and sale of date "," ICT reduces the costs to obtain date market information "and "ICT reduces the costs of commuting and agricultural transactions".

Competitive advantage is the seventh factor in the theoretical framework of the study that was composed of 9 variables. Based on the results of the confirmatory factor analysis and based on standardized coefficients and t-statistics obtained for these variables, 9 variables included: "ICT leads into competitive advantage in foreign and domestic markets than other producers" " ICT increases the competitiveness with other producers ", " date produced in this region has this ability to compete with other produced dates in other parts of the country ", " produced date in this region has this ability to compete with other produced dates in different parts of the world ".

"One of the major weaknesses of date selling of this region is lack of appropriate processing industries", "One of the major weaknesses of the date selling in this region is lack of observing the health tips during the harvest time, storage,…........" varieties of dates produced in this region has a high quality in terms of market", " varieties of dates produced in this region are resistant against pests " and "the high cost of transportation of this region is one of the serious problems of date" in [Figure 1 and 2].
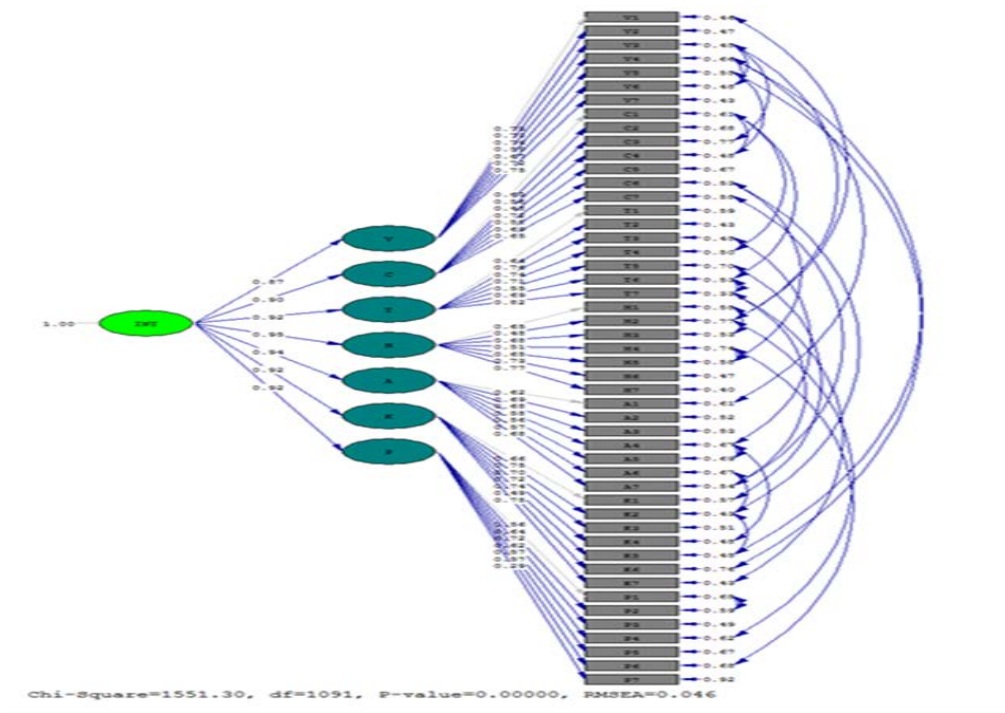
Figure 1: Confirmatory factor analysis of the impact of ICT on date marketing
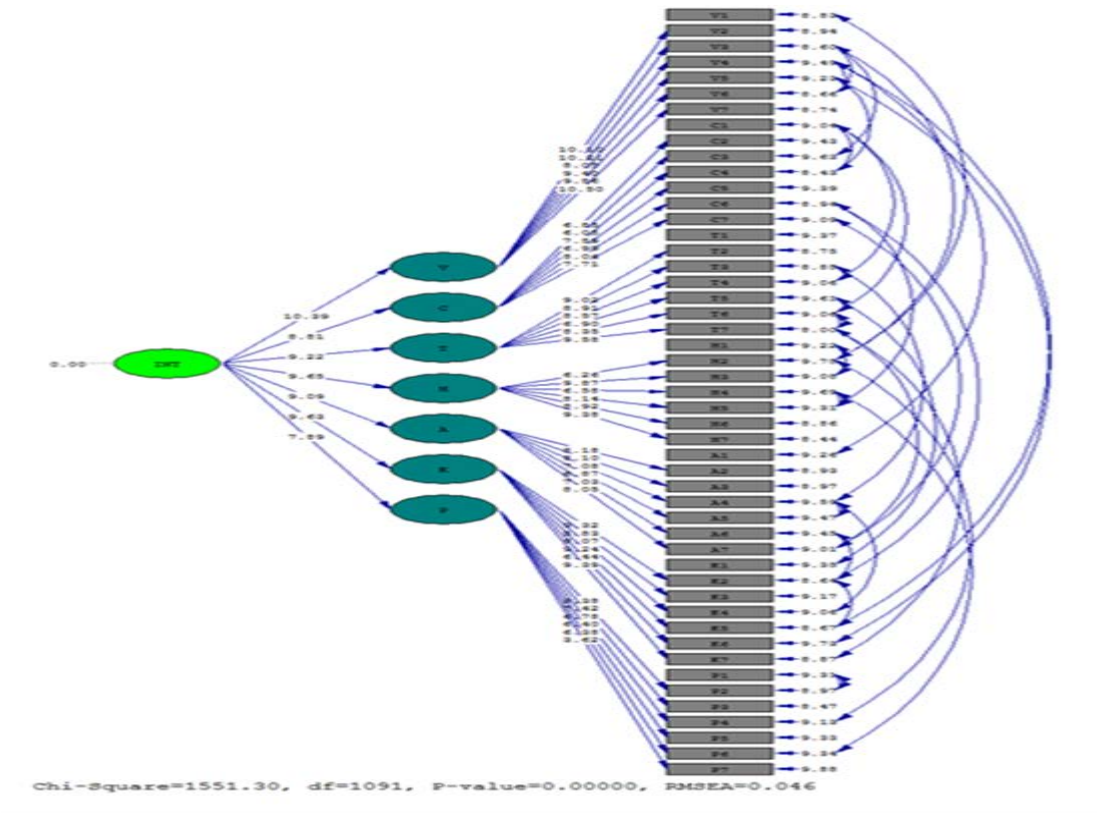

Figure 2: Confirmatory factor analysis of the impact of ICT on date marketing

In [Table 10]the variables related to each factor and standard coefficient, standard error, t-statistic, and R2 are shown

Table 10: confirmatory factor analysis of theoretical structure of research

factor	item	Symbol in model	Coefficient of correlation	Standard error	t	R2
Electronic preparation of experts	Your access to IT facilities such as computers, tablets , mobile and …. In everyday life outside of the organization.	V1	0/73	---	---	0/54
	The rate of access to hardware and administrative facilities such as computers, printers, scanners ….	V2	0/73	0/072	10/10	0/53
	Your confidence in the benefits and applications of information technology to accelerate and improve the affairs	V3	0/74	0/072	10/21	0/55
	The amount of your use of network services such as banking services in everyday life outside of the organization	V4	0/59	0/073	8/05	0/34
	Access to Internet and network	V5	0/67	0/071	9/40	0/45
	Access to fax machine	V6	0/72	0/073	9/86	0/52
	your basic skills in using ICDL computers and the Internet (chat , email …)	V7	0/71	0/073	8/86	0/39
	The rate of use of Internet , Intranet or Extranet to perform every-day and administrative tasks	V8	0/67	0/071	8/64	0/37
	Having adequate bandwidth and Internet speed	V9	0/58	0/073	9/08	0/42
	Your knowledge and skills in relation to concepts , uses and benefits of information technology	V10	0/75	0/071	10/33	0/52
	your knowledge and ability to use the English language as a prerequisite for use of IT	V11	0/59	0/071	10/50	0/57
Creation of market relations	ICT helps in building relationships between date producers and domestic and foreign buyers	C1	0/63	---	---	0/39
	ICT builds continuous communication with buyers .	C2	0/56	0/081	6/85	0/32
	ICT leads to improvement of internal communications date selling firms	C3	0/48	0/79	6/05	0/23
	ICT is an important part of the company marketing communications.	C4	0/72	0/094	7/59	0/52
	In light of ICT, date producers are informed of facilities and services of Agriculture Organization	C5	0/58	0/082	6/99	0/33
	ICT reduced the information gap between date producers and date traders	C6	0/69	0/085	8/04	0/47
	ICT helps in building a network to contact of date producers with date marketing industries.	C7	0/71	0/86	7/78	0/42
	ICT leads to creation of a network between date producers in different parts of the country.	C8	0/60	0/70	6/69	0/38
	ICT can create a virtual cooperative of date producers for the sale of agricultural products	C9	0/46	0/079	6/05	0/32
	ICT provides the latest information about prices and weather conditions for experts and farmers.	C10	0/65	0/084	7/71	0/42
marketing	ICT helps to track information of date price and consumption from domestic and foreign markets	t1	0/64	---	---	0/41
	ICT helps to explore domestic and foreign date markets	t2	0/76	0/084	9/02	0/57
	ICT helps in the development of packaging industry , marketing and processing industries of date	t3	0/74	0/083	8/91	0/55
	ICT helps to generate useful feedback from external customers who are not familiar with date of Iran	t4	0/71	0/082	8/57	0/50
	ICT helps to identify the behavior and preferences of customers	t5	0/55	0/079	6/90	0/30
Supply and sale	ICT helps to increase the date sale in emerging markets	h1	0/65	---	---	0/42
	ICT facilitates the bypassing of local and external intermediaries that are active in the date trading	h2	0/48	0/076	6/26	0/23
	ICT facilitates the product ordering for customers.	H3	0/68	0/068	9/87	0/47
	ICT helps to sale date anywhere in the world.	H4	0/51	0/077	6/58	0/26

	ICT is an effective sale tool in domestic and foreign markets	h5	0/65	0/079	8/14	0/42
	ICT helps to identify the right time to supply product to market	h6	0/73	0/081	8/92	0/53
	ICT helps to sell at reasonable price.	H7	0/77	0/082	9/38	0/60
Market penetration	ICT helps to penetrate unfamiliar foreign markets	a1	0/62	---	---	0/39
	ICT leads into creation of secondary markets.	A2	0/69	0/084	8/18	0/48
	ICT provides international appropriate knowledge about date marketing	a3	0/68	0/083	8/10	0/47
	ICT helps to introduce new varieties and marketable date	A4	0/58	0/081	7/08	0/33
	Those date producers who use ICT have high level of self-confidence	A5	0/56	0/081	6/87	0/31
reduction in costs	ICT prevents from creation of agencies for date marketing.	K1	0/66	---	---	0/43
	ICT reduces the costs related to warehousing, creation of sale and storing branches in other parts	K2	0/75	0/080	9/33	0/57
	ICT can reduce marketing costs (through creating website, radio advertising, etc.).	K3	0/70	0/079	8/83	0/49
	ICT reduces the risk of production and sale of date.	K4	0/72	0/079	9/07	0/52
	ICT reduces the costs to obtain date market information	K5	0/74	0/080	9/24	0/55
	ICT reduces the costs of commuting and agricultural transactions	K6	0/49	0/076	6/44	0/24
Competitive advantage	ICT leads into competitive advantage in foreign and domestic markets than other producers	P1	0/56	---	---	0/32
	ICT increases the competitiveness with other producers	P2	0/64	0/076	8/38	0/41
	Date produced in this region has this ability to compete with other dates produced in other parts of country.	P3	0/72	0/097	7/62	0/51
	Date produced in this region has this ability to compete with other dates produced in other parts of the world.	P4	062	0/091	6/78	0/38
	One of the major weaknesses of the date selling in this region is lack of processing industries	P5	0/57	0/089	6/40	0/33
	One of the major weaknesses of the date selling in this region is lack of observing the health tips during the harvest time, storage and …	P6	0/57	0/081	7/03	0/33
	varieties of dates produced in this region has a high quality in terms of market	P7	0/68	0/084	8/05	0/46
	Date varieties in this region are resistant to pests.	P6	0/57	0/089	6/38	0/32
	The high cost of date transportation of this region to the market for sale is a serious problem.	P7	0/29	0/080	3/62	0/082

3.5 Result of the structural model section

Based on standardized coefficients and t-statistics obtained for the 7 factors of model shown in the [Table 11], all 7 factors have appropriate correlation (at the level of 1%) with the impact of ICT date marketing. Based on statistics R^2 obtained for these factors, it can be said sale and supply factor is most important factor influencing this variable, followed by market penetration, competitive advantage, date marketing, reduction in costs, to build market relationships and electronic preparation of experts, respectively.

Table 11: seven factors of model

factor	Symbol in model	Coefficient of correlation	Standard error	t	R^2
Electronic preparation	v	0/87	0/083	10/39	0/75
Market relations	c	0/90	0/102	8/81	0/81
Date marketing Date	t	0/92	0/099	9/22	0/84
Supply and sale	h	0/95	0/098	9/65	0/90
market penetration	a	0/94	0/103	9/09	0/88
reduction in costs	k	0/92	0/095	9/63	0/84
competitive advantage	p	0/92	0/116	7/89	0/85

4. Discussion

Prioritizing the electronic preparation of Agriculture Organization suggests that indicate the highest coefficient of variation (62/00) relates to item of using advanced communication technologies such as fiber-optic and wireless network. Additionally, prioritizing information technologies application in the field of building market relations suggests that the highest coefficient of variation (29/92) relates to item of "date producers are informed of facilities and services of Agriculture Organization timely". While prioritizing information technologies application in the field of date marketing suggests that the highest coefficient of variation (21/47) relates to item of "information and communication technology helps to identify behavior and preferences of customers". the first factor in theoretical framework of electronic preparation of experts consists of 11 variables. The results of the Kruskal-Wallis test showed that there is significant correlation among components of date marketing, market penetration, and sale and supply, based on degree of knowledge of information technology application in marketing agricultural products). Additionally, it was found that there is significant difference (at the level of 5%) among components of the market relations, reduction in cost production, competitive advantage, based on knowledge of information technology application in marketing agricultural products. the results of the Kruskal-Wallis test showed there is significant difference (at the level of 1%) among components of electronic preparation, market relations, date marketing, and market penetration, on basis consent budget allocated for the development of ICT in the organization. While, it was found that there is significant difference (at the level of 5%) between competitive advantage and consent of budget allocated for the development of ICT in the organization. the first factor in theoretical framework of electronic preparation of experts consists of 11 variables. based on results of study and standardized coefficient obtained for these variables that is above 2/56 as well as the t-statistics, it can be said that variables have appropriate correlation with this factor at the level of 1%. the second factor was building market relations in the theoretical model of research. Based on standardized coefficients and t-statistics obtained for these variables, all 10 variables had a high correlation with this factor at the level of 1%. The third factor was date marketing that had appropriate correlation with this factor at the level of 1%, based on results of study, standard coefficients, and t-statistics. the sale and supply factor in the theoretical framework of study included 7 variables. Based on results obtained by confirmatory factor analysis, standard coefficients, and t-statistics, it can be said that all 7 variables had appropriate correlation with this factor at

the level of 1%. the fifth factor in the model of study was market penetration that consisted of 5 variables. Based on a standardized coefficients and t-statistics derived from confirmatory factor analysis, all the variables showed good correlation with this factor at the 1% level. Operating cost savings sixth of the theoretical model study was composed of 6 variables. based on results, all 6 variables showed good correlation with this factor at a level of one percent. Competitive advantage was the seventh factor in the model of study that consisted of 9 variables. Based on a standardized coefficients and t-statistics derived from confirmatory factor analysis, all 9 variables showed good correlation with this factor at the 1% level. based on statistics R2 obtained for these factors, it can be said that the sale and supply factor (with R2=0/90) was the most important factor affecting this variable, followed by market penetration (with R2=0/88), competitive advantage (R2=0/85), date marketing and reduction in costs (with R2=0/84), building market relations (with R2=0/81), and electronic preparation of experts (with R2=0/75). some of the factors that have contributed to the failure of input and output markets comprise: high transactions costs by the farmers in the input markets, lack of best use of ict, economic problem, distance to information sources and absence of the type of information the farmers need to produce their choice crop. Thus, Information an d Communication Technology (ICT)-based projects have been recently introduced as part of the strategies to overcome the low farm productivity and improve agricultural performance among smallholder farm households. (Sylvester et al, 2013) Investigations conducted in the marketing management and agricultural products production indicate that level of marketing process is one of the other effective indicators in assessing the innovation and success in agricultural products market (klerkx et al ,2009). Qualitative and open communications, formal monitoring, strict environmental examinations, management support, support of companies, and the value that helps a company to become more entrepreneurial and successful (Caggese, A, 2010). In another study conducted on the impact of information and communication technologies in improving food security of villagers, Giagnocavo et al (2010) have considered the following factors as requirements: Knowledge of the effective use of technology, creating a positive attitude towards the advantages of using information and communication technologies in improving food security, and supporting government policies in its implementation.

Recommendations

1. Identifying date sale markets through cooperatives that are widely spread in the country.

2. Creating date database, including product type, uses and properties, the domestic and export price of product, and picture of product.

3. Selecting concentrated market (eg union of rural and agricultural cooperatives) as sale center of date, in a way that customers can order this union to sale this product by building database and union can provide needed guarantees for customers regarding the quality of product.

4. Training agricultural experts in the field of electronic marketing and information technology application to improve date sale through training classes.

5. The access of farmers to prices related to the date sale is facilitated through the Web.

6. Electronic business can enable managers and agricultural experts to access the global market information, and enter to regional markets, which means increased sale prices and increase in farmers' incomes.

7. As we develop information systems, we must consider three major structures of information technology, including hardware, software and human resources

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