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## The Need and Use the Rural ICT Services in Iranian Rural Areas

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### Abstract

Nowadays, Internet access and use of information resources in all human societies are experiencing a rising trend, and different communities are used each with multiple infrastructures due to the benefits of ICT. The present study was based on applied research. In this research, a hybrid approach involving quantitative methods (survey) and qualitative (observation, interviews) was used. Statistical population of this study consists of two parts, the first part responsible for rural ICT offices, with a population of 125 people using Cochran Formula 80 subjects were selected as first sample, and the second part of the rural of first sample villages with a population of 84,836 people using Cochran formula and randomized-comparative method were studied as second sample. The questionnaire was subjected to reliability testing by using data collection in the pilot study with Cronbach's Alpha value 0.73 to 0.95 for all variables. SPSS statistical software was used to analysis the data. The results of the study indicate that the overall performance of the agencies providing services to the rural was lower-middle in the offices in banking services has received first place, and the final ranking in the provision of health services. The results of study showed that rural employment, level education and family size effect on the rate of rural ICT offices.

**Keywords:** *Electronic Government, ICT, Rural ICT Offices*

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## Introduction

ICT are key promoting community connectivity in contemporary society (Novo-Corti and et al, 2014). Some researchers believed that ICTs can be mechanisms that enable developing countries to leapfrog stages of development. Information and Communication technologies (ICT) have a potential for economic growth and social empowerment (Amosa and Adenusi, 2012). Information and communication technology has led to significant changes in the way people live, work, interact, and learn to be active. General ICT as a tool to combat poverty, which enables rural women In order to improve the delivery of social services and increase the level of information to support food security and equal opportunity for all some people and raise strategy of innovative knowledge in the fields of agriculture must move (Bakhshizadeh et al, 2010).

ICTs have the potential to support and enhance rural development initiatives in the following key areas:

1. Managing, storing, and sharing information: ICTs offer unprecedented information storage capacity, increases in processing power and speed, coupled with dramatic reductions in costs. ICTs can facilitate the improvement of existing information management processes by improving ease of access, transparency, accountability, efficiency, speed of delivery and providing new information sharing opportunities through affordability, availability and ease of use.
2. Access to more information, especially public information: The context of rural development has changed rapidly in recent years. Globalisation and continuing liberalisation of agriculture have substantially changed the market and institutional environment in rural areas. ICTs offer huge potential in support of improved education and training and need to be harnessed to build long term decision making capacity in rural areas. ICTs can also support improved provision of short-term information required by the rural poor for livelihood strategies.
3. Creating linkages for partnerships in information sharing (mutual, two-way, participatory): ICTs can help empower the poor to take control of their knowledge environment. ICTs provide practical opportunities for improved information exchange between different groups and new and innovative knowledge partnerships (Chapman and Slaymaker, 2002).

Developing countries are now aware of the benefits derived through adoption and use of ICTs but there are many serious challenges which must be addressed and chief among them are:

Inadequate communications and power infrastructure

Shortage of ICT facilities and ICTs skills

Inadequate institutional arrangements

Limited financial resources

Inadequate public private partnership

Limited data management capacity

Inadequate horizontal and vertical communication

Inadequate bandwidth nationally and on the Gateway

Some of the above challenges can be addressed through public-private smart partnerships

ICT infrastructure by itself is not sufficient for the dissemination of knowledge and information to occur through it. Access to ICT infrastructure must be accompanied by access to ICT services. In this respect, the other challenge is how to make ICT services both affordable and available in venues or modes that are convenient to smallholder farmers (Yimer, 2015).

Despite the large gap between the information society and Iranian type of society, there has been emphasis in the twenty-year perspective plan of Iran (2006-2025) and the fourth (2006-2010) and the fifth (2011-2015) development plan on gaining the information society and also developing the use of information and communication technology in the rural areas of Iran (Charmchian and et al, 2012). For this reason, in Iran has been established the rural ICT offices in rural areas.

## The Research Background

Novo-Corti and et al (2014) investigated the role of ICT to break the walls of social exclusion of women rural. The result of research showed that since internet has become an important tool for women' social and labor inclusion some measures must be implemented to avoid this gender digital divides (Novo-Corti and et al, 2013).

Arunachalam (2004) studied the impact of ICTs in rural areas in India. The result of research declared the role information and communication technologies (ICTs) can play in poverty alleviation. If intelligently used ICTs can make a difference to the lives of the people in rural areas.

Yimer (2015) investigated the role of ICT for good governance and agricultural development in Ethiopia: local evidence from Southern Ethiopia. The result of research showed that the major challenges inhibiting the use of ICT in disseminating agricultural knowledge and information include

the low level of access to ICT infrastructure and services, and need to be addressed. Policy and investment priorities that government and its partners should consider in order to promote cost-effective knowledge management in agriculture have been highlighted. Priorities include extending the existing ICT infrastructure to reach ICT agricultural offices, establishing rural ICT kiosks, establishing and strengthening community radios, integrating ICT at all levels of education, and making ICT hardware affordable to users (Yimer, 2015).

Anabestani and Vaziri (2011) investigated the social, economic, and physical effects of ICT on rural regions development. The result of this research showed that in villages having ICT centers, in all the variables, weight mean was higher than 4 and close to 5, which indicates that villages having ICT has favorable conditions in the variables (of participation, level of hygiene, migration, information gap, rural development, product increase, marketing, employment rate, housing pattern, the way of life and communication) which all prove the positive effects of ICT in the villages. While in the villages lacking ICT centers, all the variables had an average between 2 and 3, which shows that villages without ICT were in poor conditions in the variables examined (Anabestani and Vaziri, 2011).

Ashley and Maxwell (2004), ICT provide access to information that can create earning opportunities, improve access to basic services, or increase the positive impact of education and health interventions by government. ICT also provides the poor with a voice to demand government support and reform (Ashley and Maxwell, 2004).

Sefika and et al (2013) investigated the benefits of ICT in Lesotho rural communities of Mabote and Kubetsoana. This study has revealed that ICT has the potential to improve rural livelihoods through improving the way business and work is conducted, increased access to educational requirements and ease of communication and increased access to key information (Sefika and et al, 2013).

Karim (2014) investigated the ICT in rural development of Bangladesh. The result of this research showed that high service charge by the providers, lack of awareness of all concerns, poor telecommunication systems, poor infrastructure, restive political situation, government policy, low buying power of potential users and institutional supports are major barriers for development of IT services (Karim, 2014).

## Methodology

Iran, along with many of the leading countries of the world to move towards the development of ICT in rural areas and attempts to use this technology to transfer government services to the farthest parts of the country. Several measures were taken in this regard may be the most important project, "mobilizing tens of thousands of villages in rural ICT offices" mentioned. This study is applied research, carried out by the survey method. Statistical population of this study consists of two parts, the first part responsible for rural ICT offices, with a population of 125 people using Cochran Formula 80 subjects were selected as first sample (Table 1), and the second part of the rural of first sample villages with a population of 84,836 people using Cochran formula and randomized-comparative method were studied as second sample n=240(Table 2). The questionnaire was subjected to reliability testing by using data collection in the pilot study with Cronbach's Alpha value 0.73 to 0.95 for all variables. The results of the Alpha coefficients (Table 1) indicated that the selected scales were appropriate. SPSS 18 statistical software was used to analysis the data.

Table 1. First Sample population

Area Name	No. of Section	No. of district	No. of village	No. of village With ICT offices	Sampling method	No. of samples
Shahrekord	6	13	134	41	Proportional allocation	27
Brojen	3	5	50	14	Proportional allocation	9
Farsan	1	2	34	8	Proportional allocation	5
Kohrang	2	5	215	8	Proportional allocation	5
Lordgan	4	10	312	34	Proportional allocation	21
Ardal	2	4	117	20	Proportional allocation	13
Total	18	39	862	125	-	80

Table 2. Second Sample population

Area Name	No. of Section	No. of district	No. of village	No. of village With ICT offices	No. of ICT offices samples	Sampling method	No. Of user samples
Shahrekord	6	13	134	41	27	Proportional allocation	81
Brojen	3	5	50	14	9	Proportional allocation	27
Farsan	1	2	34	8	5	Proportional allocation	15
Kohrang	2	5	215	8	5	Proportional allocation	15
Lordgan	4	10	312	34	21	Proportional allocation	63
Ardal	2	4	117	20	13	Proportional allocation	39
Total	18	39	862	125	80	-	240

Table 3. Reliability Analysis (Alpha)

Scale Name	No. of items	Alpha Value
Index of post services	13	0.917
Index of telephone services	8	0.726
Index of health services	3	0.897
Index of agricultural services	14	0.970
Index of educational services	7	0.732
Index of other services	10	0.943

Table 4. Use of rural ICT services in Research areas

Area Name	Sex	No. of sample	Percent
Shahrekord	Male	63	88.8
Shahrekord	Female	18	22.2
Total	-	81	100
Farsan	Male	9	60
Farsan	Female	6	40
Total	-	15	100
Kohrang	Male	9	60
Kohrang	Female	6	40
Total	-	15	100
Lordgan	Male	31	49.2
Lordgan	Female	32	50.8
Total	-	63	100
Ardal	Male	26	66.7
Ardal	Female	13	33.3
Total	-	39	100
Brojen	Male	22	81.5
Brojen	Female	5	18.5
Total	-	27	100
Total samples	Male	160	66.7
Total samples	Female	80	33.3
Total	-	240	100

The result of research showed that the educational level of rural ICT services users was included: 3.8% were illiterate, 15.8% has primary education, 33.8 percent had diploma and 46.7 percent had higher education. Illiteracy index (6.3 %) among women than men (2.5%) in the study was calculated twice.

Table 5. The educational level of rural ICT services users

Area Name	Sex	Illiterate	Percent	Primary	Percent	Diploma	Percent	Higher education	Percent
Shahrekord	Male	0	0	12	19	21	33.3	30	47.6
Shahrekord	Female	2	11.1	2	11.1	7	38.9	7	38.9
Total	-	2	2.5	14	17.3	28	34.6	37	45.7
Farsan	Male	0	0	0	0	2	22.2	7	77.8
Farsan	Female	0	0	0	0	2	33.3	4	66.7
Total	-	0	0	0	0	4	26.7	11	73.3
Kohrang	Male	1	11.1	2	22.2	3	33.3	3	33.3
Kohrang	Female	1	16.7	0	0	2	33.3	3	50
Total	-	2	13.3	2	13.3	5	33.3	6	26.7
Lordgan	Male	2	6.5	6	19.4	7	22.6	16	61.6
Lordgan	Female	1	3.1	3	9.4	10	31.3	18	56.3
Total	-	3	4.8	9	14.3	17	27	34	53.9
Ardal	Male	1	3.8	5	19.2	10	38.5	10	38.5
Ardal	Female	1	7.7	0	0	7	53.8	5	38.5
Total	-	2	5.1	5	12.8	17	43.6	15	38.5
Brojen	Male	0	0	7	31.8	9	40.9	6	27.3
Brojen	Female	0	0	1	20	1	20	3	60
Total	-	0	0	8	29.6	10	37	9	33.3
Total samples	Male	4	2.5	32	20	52	32.5	72	45
Total samples	Female	5	6.3	6	7.5	29	36.5	40	50
Total	-	9	3.8	38	15.8	81	33.8	112	46.7

The result of research showed that the types of services used were as follows: banking services, postal services and telephone services. Also there was the less use of agricultural, internet and health services in rural areas.

Table 6. The use of rural residents in types of Rural ICT Services

Types of Rural ICT Services	Mean(5)	S.D	C.V	Rank
Postal Service	2.61	0.75	0.287	2
Telephone Service	2.88	0.87	0.302	3
Educational Services	1.72	0.84	0.488	4
Health Services	0.67	1.11	1.64	8
Agricultural services	0.53	0.60	1.13	6
Banking Services	2.48	0.70	0.282	1
Internet Services	0.61	0.74	1.21	7
Public Service	1.01	0.88	0.871	5

The result of research showed that the need of rural residents in types of services used were as follows: banking services, postal services and health services.

Table 7. The need of rural residents in types of Rural ICT Services

Types of Rural ICT Services	Mean(5)	S.D	C.V	Rank
Postal Service	3.62	0.787	0.217	2
Health Services	3.27	1.22	0.373	3
Banking Services	3.81	0.630	0.165	1

The result of research showed that there are a significant correlation between the educational level of users by the use of the rural ICT services in agricultural and banking services in rural areas.

Table 8. The correlation between the educational levels of users by the use of the rural ICT services

Types of Rural ICT Services	r	sig
Postal Service	0.066	0.306
Telephone Service	-0.051	0.434
Educational Services	0.017	0.796
Health Services	0.96	0.137
Agricultural services	0.161*	0.013
Banking Services	0.135*	0.036
Internet Services	0.083	0.112
Public Service	0.010	0.882

The result of research showed that there are a significant correlation between the need of users by the use of the rural ICT services in health and banking services in rural areas.

Table 9. The correlation between the need of users by the use of the rural ICT services

Types of Rural ICT Services	r	sig
Postal Service	0.036	0.583
Telephone Service	0.210**	0.001
Educational Services	0.023	0.757
Health Services	0.315**	0.000
Agricultural services	0.054	0.705
Banking Services	0.179**	0.005

### Conclusions

The result of research showed that the most use of rural ICT services was by men however, due to the use of women of rural ICT services between 18-50 percent varied. Also the result of research showed that the illiteracy index (6.3 %) among women than men (2.5%) in the study was calculated twice. The result of research showed that the maximum use of rural ICT services was in banking, postal and telephone services. Also there was the less use of agricultural, internet and health services in rural areas. The result of research showed that the need of rural residents in types of services used were as follows: banking services, postal services and health services. The result of research showed that there is a significant correlation between the educational level of users by the use of the rural ICT services in agricultural and banking services in rural areas. Also the result of research showed that there is a significant correlation between the need of users by the use of the rural ICT services in health and banking services in rural areas.

The results of the study indicate that the overall performance of the agencies providing services to the rural was lower-middle in the offices in banking services has received first place, and the final ranking in the provision of health services. Continued research showed healthcare organizations has assigned the lower number to rural ICT offices to provide in people and post organization many more services. The results of study showed that, rural employment, level education and family size effect on the rate of rural ICT offices.

Therefore to provide more and better services for rural ICT offices, the following are recommended:

- Government facilities, the field represent of the IT professionals provided in rural areas.
- Encourage private sector In order to investment in field ICT and communication make comparative footing to provide more services.
- Agencies more services toward service from government and non-governmental organizations to office due to reduce rural transfer to the city center.
- Choice and training for those interested and local professional support and service of the office.

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