

## The Role of Knowledge Stations in Bridging the Digital Information Literacy in Jordan

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### ABSTRACT

This study aims to examine the role of knowledge stations in bridging digital information literacy in Jordan and the perceptions of users of their current state of access to information in electronic forms. It is based on a review of existing technologies in all knowledge stations under the umbrella of the Ministry of Communication and Information Technology in Jordan. The design of methodology approach included a survey of (287) users drawn from all knowledge stations in Jordan made during the year 2014. The survey asked the participants about the current state of access online information focusing on barriers and interests for bridging the digital information literacy in the future. The findings provided greater understanding of the potential impact of the Internet on access to the information in Jordan and other Arab developing countries. Results of this survey were both a source of concern and hope. They believe that knowledge stations is a mean of overcoming the currently digital divide state of access to information, and a way to obtain more online resources both from overseas and local content among users from Arab countries, which could be used for their improved heritage and culture and consequently they developed the sector of products in all cities and urban areas. This study included practical implications. It is clear that there is a positive impact for knowledge stations as creating and finding new job opportunities. Information technology also helped people in local communities, especially those who are in distant and remote places, and it contributed in facilitating the process of searching for jobs electronically through using Internet information. Social implications indicated that success stories related to the provinces of the Central Region that most of the trainees stressed that the KS facilitated for females to get jobs as a result of acquiring skills in the field of information technology. Also applies this emphasis on KSs in the southern region the majority of trainees on that KSs in the southern region has been able to facilitate the process of getting jobs for females in the provinces of the south.

The originality and value will help government in Jordan to develop KSs services and numbers via the project to reduce unemployment rates and improve life's quality of the Jordanian society.

**Keywords:** Knowledge Stations, Information Literacy, Digital Divide, Developing Community, Internet, Jordan.

### Introduction

For most computer users, Knowledge Stations technology was first made available with the advent of the Internet and the associated technology of the World Wide Web. As a result of the Internet, the public gained access to numerous types of networked information resources and services, including e-mail, mailing lists, Internet chat, and different multimedia formats, both

audio and visual.

The Internet and networked communication have not, impacted equally on education, universities, individual, and on all level of community life, in all countries. Differences between countries in their rates of technology adoption, social conditions, economic, educational systems, and methods of information exchange, have resulted in differences in the extent to which transformation has occurred. Inevitably the change has been more rapid in those countries which enjoy a more fully implemented technology and communication infrastructure. Many of these countries use English as a first language, particularly for the purposes of all sectors

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exchange. The impact of the Internet on communities has been less profound in developing countries, which are often hindered in their access to the requisite level of technological, communication and infrastructure that is required to maximize the benefits of Knowledge Station technologies.

The research reported here is an attempt to trace the impact of Knowledge Station technologies on all sectors of communities setting of one such developing country, Jordan. Not all developing countries are equal in this regard. There are for example, substantial differences in the financial capacity, social circumstances and political ambition of developing countries in Africa, Asia and the Middle East. The situation in Jordan is therefore used as a study relevant to one group of countries-those of the rapidly developing Arab Middle East.

### **Literature Review**

"We will ensure that everybody is computer-literate. Every single school and community will be wired to be able to do that, simply because this is the type of quality and talent that we want in our work force." King Abdullah II. (His Majesty King Abdullah II, 2000).

The main problems facing people in Jordan are an acute shortage of funds, non-relevance of some programs from e-government, and issues of economics, governance and quality control as each knowledge stations is available in urban areas. In response to the need for knowledge stations' role, in 2007 his majesty King Abdullah II recommended the government to reorientate the policy and systems with a focus on building knowledge stations in different areas to meet the needs and ambitions of the country. This change is perceived as a necessity in order to take advantage of the many benefits offered by emerging ICTs as overcoming the digital divide.

Information literacy is knowing how to find, evaluate, use and manage information. It is part of lifelong learning and an important skill for all people. Digital literacy is how to find, organize, evaluate and create information

using digital technology. The term of digital information literacy coined the ability to use digital technology, communication tools or networks to locate, evaluate, use and create information. And ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. Also, person's ability to perform tasks effectively in a digital environment. Literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments (The Open University, 2015). A study conducted by Association of College and Research Libraries (2000) discussed the view digital literacy in a 2.0 world in College of Elmhurst in USA, provided an overview of what it means to be digitally literate, and the findings reported from the Pew Internet and American Life Project pertaining to student Internet usage, then why we should focus on digital literacy and included examples of how web 2.0 tools can be used to assist in the efforts. According to the New Zealand Digital Strategy (Ministry of Economic Development, 2008), there is an urgent need for the key players in a digital future i.e. learners and teachers. This phenomenon was eloquently stated "Critically, capability includes the ability of an institution to sustain e-learning delivery and the support of learning and teaching as demand grows and staff change". (New Zealand Ministry of Education, 2010).

Research around digital literacy is concerned with wider aspects associated with learning how to effectively find, use, summarize, evaluate, create, and communicate information while using digital technologies, not just being literate at using a computer. digitally literate person will possess a range of digital skills, knowledge of the basic principles of computing devices, skills in using computer networks, an ability to engage in online communities and social networks while adhering to behavioral protocols, be able to find, capture and evaluate information, an understanding of the societal issues raised by digital technologies (such as big data), and possess

critical thinking skills. Also, digital literacy does not replace traditional forms of literacy. It builds upon the foundation of traditional forms of literacy. Digital literacy is the marrying of the two terms digital and literacy; however, it is much more than a combination of the two terms. Digital information is a symbolic representation of data, and literacy refers to the ability to read for knowledge, write coherently, and think critically about the written word (Association of College and Research Libraries, 2000).

Digital literacy helps people communicate and keep up with societal trends. Literacy in social network services and Web 2.0 sites helps people stay in contact with others, pass timely information and even sell goods and services. This is mostly popular among younger generations, though sites like LinkedIn have made it valuable to older professionals. Digital literacy can also prevent people from believing hoaxes that are spread online or are the result of photo manipulation. E-mail frauds and phishing often take advantage of the digitally illiterate, costing victims' money and making them vulnerable to identity theft (Van Dijk and Van Deursen, 2009).

Research has demonstrated that the differences in the level of digital literacy depend mainly on age and education level, while the influence of gender is decreasing. Among young people, in particular, digital literacy is high in its operational dimension (e.g. rapidly move through hypertext, familiarity with different kinds of online resources) while the skills to critically evaluate content found online show a deficit (Hargittai, 2002; van Dijk, 2005; van Dijk and van Deursen, 2009; Gui and Argentin, 2011).

Building on digital literacy is the concept of digital creativity which is the expression of creative skills in the digital medium. This can include programming, web sites and the generation and manipulation of digital images (Gurstein, 2003). Digital literacy and digital access have become increasingly important competitive differentiators. Study of Gurstein (2003)

assured that bridging the economic and developmental divides is in large measure a matter of increasing digital literacy and access for peoples who have been left out of the information and communications technology (ICT) revolutions. Scholar Howard Besser contends that the digital divide is more than just a gap between those who have access to technology and those who don't. This issue encompasses aspects such as information literacy, appropriateness of content, and access to content. Beyond access, a digital divide exists between those who apply critical thinking to technology or not, those who speak English or not, and those who create digital content or merely consume it (Cohen & Kahne, 2011). In addition, the information literacy is connected with the term of bridging the digital divide, as defined by access to information technology, does not exist amongst youth in the United States. Young people of all races and ethnicities report being connected to the internet at rates of 94-98%. There remains, however, a Civic Opportunity Gap, where youth from poorer families and those attending lower socioeconomic status schools are less likely to encounter opportunities to apply their digital literacies toward civic ends (Kahne, & Middaugh, 2008).

The literature review in this study was conducted to examine the use and skills of Information technology regarding bridge digital information literacy then bridging digital divide between developed and developing countries. It attempted to identify the most recent and relevant studies regarding information literacy and the Internet and networked information, including networked information provided by governments. However, the limitation of study is unavailable any literature review discussed and directly this role for knowledge stations. This study will add new information in theory and practice for future studies.

**Access to Digital Information in Jordanian knowledge stations**

Much of the attention at Ministry of ICTs environment was paid to the knowledge station introduction into Arab developing countries has focused on the 'digital divide' and the formidable inequities in basic access to hardware, software, and connectivity these nations face. DelCastillo (2002) reported that Jordan is one of the few developing countries that has commenced the integration of information technologies into the education system. This has occurred firstly in primary and secondary schools and through the implementation of distance learning as a method for the delivery of knowledge station training session for general people. The government has supported the establishment of distance-learning programs throughout the country's public areas as a part of a broad strategy to continue developing Jordan's e-government infrastructure through the integration of ICTs.

Less often considered is the question of 'access to what', although vague references are made to the entrepreneurial and educational opportunities, which the websites provide. For what has become apparent is that culture and education in Arab developing countries face what has been identified as a 'digital divide' (Obeidat, 2010). Also, the Human Development Report (2008), the Strategic Plan 2007-2009, and Vision 2020, have all discussed the role of culture and education and the impact of national ICTs policy on the sector and they all include policy directives addressing issues relative to ICT development and implementation including ICT infrastructure; e learning; e-Library services; Management Information Systems (MIS) and general websites for culture; ICT resource management, and the role of government. In particular, these various government documents advocate that government programs are to be consistent with international standards and encourage collaboration between grass roots organizations and Ministry of ICTs through the joint of development with the aim of improving local content and reducing associated costs.

In addition, a plan by the Ministry of Communication

and Technology focuses on initiatives that aim to help Jordan to reduce the digital, language, and cultural divides on all levels, in the following objectives of the Knowledge Stations include:

1. Bridging the digital divide between the governorates and different regions in the Kingdom.
2. Introducing ICT to the different localities in Jordan and encouraging the use of ICT in the daily lives of citizens.
3. Alleviating IT illiteracy by providing training in ICT.
4. Encouraging the use of the National Information System for retrieving local information.
5. Enhancing the use of the Internet for socio-economic development at the community level.
6. Enhancing local community skills through ICT training.
7. Enhancing competition among citizens by increasing their knowledge in ICT.
8. Preparing the local communities to get involved in the e-government project.

In Jordan, Nine out of ten people own cell phones, which ranks third in engagement in social networking sites among Arab states according to the 2013 Spring Pew Global Attitudes Survey. The study, which covered 24 countries, showed that 95% of Jordanians own cell phones, compared to 88 % in Egypt and 86 % in Lebanon. 84% of total Internet users in Jordan use social networking sites compared to 88 % in Egypt, 85% in Tunisia, 72% in Lebanon and 79% in Turkey despite the considerable improvements in the availability of ICTs in Jordan, the gap in Internet access between Jordanians and Australians is still considerable. This is clear by comparing recent data prepared by the International Telecommunication United (ITU) indicating the Kingdom ranked second in Internet usage in the Arab world (47%). Lebanon topped the list with a 57% Internet usage rate while Egypt came third (43%), followed by Tunisia (40%).

(International Telecommunication Union, 2014).

### **A Nationwide Network**

Launched upon His Majesty King Abdullah's directives, the Knowledge Station initiative is based on the idea of involving local communities in the establishment and management of the stations and having them operated by local institutions to promote a sense of responsibility and participation in making positive change at the community level. (The Jordan Times, Tuesday, December 2, 2014).

The Knowledge Stations network includes more than (183) stations established over the past nine years and distributed all over the Kingdom. The network provides integrated and comprehensive ICT services for all members in the local communities. In addition, the network is a point of access to all initiatives in ICT and other programs that aim to provide services for individuals and communities. For example, in terms of Internet connections, all Jordanian universities have a broadband wireless service that provides Internet access to all staff and students. At the primary and secondary level, most private schools already have Internet connectivity and in the public schools, universal connectivity was implemented according to (Cartwright, 2007). Also, the education in Jordan provides a model of Internet connectivity which should be reviewed by both neighbouring and distant states with similar interests in developing the use of ICTs in education.

Government and private institutions are becoming increasingly aware of the advantages of having access to the Internet, and as a result, the number of users is growing. In Jordan, there are currently eight ISPs. The National Information Centre (NIC) is the main service provider to government, supplying workshops and training using fibre optics technology. NIC also provides leased lines and ADSL to other public institutions. There are also seven private service ISP providers and because of the increased competition, access to digital technologies has become more affordable for most people.

In Jordan, the emergence of the Internet café has become a popular way for citizens to access computers and the Internet. This is especially evident with young people and students who do not have laptops or cannot afford to pay for an Internet subscription. There are approximately 500 Internet cafes in Jordan whose main clients drawn from the 18 to 22--age bracket. In Jordan, the number of Internet users has increased significantly.

However, the limitation of natural resources in Jordan as a mean of economic development that prompted the government to emphasize development of the higher education sector. The development of human resources has been consistently viewed as a high priority by successive Jordanian governments including, the King himself. In recent years, the Government has focused on the improvement of the educational system and policies which aimed at addressing the needs of the country and advancement through the use of information technologies. Jordanians are now considered amongst the best educated, trained, and academically qualified of the Arab people with a literacy rate (91.3%), amongst the best in the Arab World (Ministry of Higher Education and Scientific Research, 2009). With slow but steady increase in Internet connectivity underway, questions were raised over how this access will affect faculty and students' ability to consult and contribute to the research literature.

Based on this situation, this paper discusses one of the critical issues concerning Internet connectivity in Jordan by addressing the role of the Internet in helping people in their fields. Selecting see a sample of participants drawn from knowledge stations from North to south of Jordan, this paper establishes the level of need, interest, and readiness for greater access to the information through the Internet. Its findings showed the support required not only for bridging the digital divide experienced by developing countries in relation to developed countries, but also for simultaneously narrowing the access-to-knowledge gap when it comes to general environment.

While (Warschauer, 2002) assured that the ‘digital divide’ in developing countries remains a real and pressing problem, considerable efforts are underway to address this divide, with technological support from government, NGOs, and corporate interests. At the same time, however, the closely linked knowledge gap is not receiving the same attention. By researching these two issues in close association, this paper seeks to inform the community about the vital link between access to the Internet and access to information. The case for narrowing the digital divide can only be strengthened by demonstrating what greater access to this literature can do for the development of local content capacities and for the larger circulation of knowledge. This paper demonstrates how information on the ‘digital divide’ can focus on the close association between Internet connectivity and digital information content. Okunoye and Karsten (2003, p. 365) found that ‘even though their Internet use was still in experimental stages during this study, the informants were able to obtain considerable benefits by acquiring, sharing and applying knowledge via the Internet’ and concluded that ‘research communities were much more accessible as a result’ (2003, p. 365).

Open access initiatives for developing countries forms a benchmark for assessing the impact of online information during the first phase of Internet access in Jordan. We believe that the participants’ expressions of interest in access to information for general activities – despite having only the most basic and still unreliable forms of online access, will contribute to the sense of value and urgency in enacting further plans to expand both access to the technology and to the knowledge that this technology can make available. Although the digital divide that separates developing countries from the developed countries continues to require attention, it obviously does not make sense to suggest waiting until the divide is closed before readdressing the access-to-knowledge gap that separates them as well. Work needs to continue on both fronts, hand in hand regarding the

state of internet access.

### **Statement of the Problem**

The use of Knowledge Station information by communities, is steadily growing, very little of this research has been based in the Arab World, or Jordan in particular. The use of Knowledge Station in the developed countries had an impact for some time before it was transmitted to the developing countries. As a result, research in ICT conducted in the developed countries has significantly exceeded the amount of research conducted in developing countries. Studies of general people adoption of the Internet and Knowledge Station need to be conducted in developing Arab countries in order to:

- Assess the information and technology gaps that exist between developing Arab countries and developed countries and also between developing Arab countries.

- Identify if patterns of research related uses of Knowledge Station in developing Jordanian communities have been influenced by local factors, such as the existing social, educational, and linguistic factors.

- Assess the impact that Knowledge Stations have had on the productivity of community and quality life in Jordan.

### **Objectives and Research Questions**

The primary objectives of the proposed research are to:

1. Investigate the use of Knowledge Station and its impact on patterns of productivity of community and quality life, using Knowledge Stations in Jordan as an example.

2. Determine the extent to which the results of the Knowledge Station study can be generalized to similar in the Arab World.

In meeting these objectives, it is intended to address the following research questions:

1. What is the role of knowledge stations in bridging digital information literacy in Jordan?

2. How often do you turn to online (digital) versions of information? In addition, to more expository responses.

3. What poses the greatest challenge in getting online access to information you would like to consult?

### **Significance of the Study**

The primary significance of this study lies in constituting the first exhaustive investigation of the use of Knowledge Station for the purpose of bridging digital information literacy in Jordan and the results of the study will potentially form the basis for related future planning and decision making by Jordanian government.

Additional significant outcomes of this study can be described as follows:

- It will assess the extent to which the objectives of the Knowledge Station at Ministry of ICT in Jordan are adequately implemented.
- It will assist the Ministry and Knowledge Station managers to understand the way in which they can best support the community in Jordan.
- It can be used to enhance effective decision-making by Ministry of ICT and e-government in developing services of information and their roles.
- It will provide the basis for a model for the policy makers at Ministry and Knowledge Station in Jordan, thereby promoting the global presence of Arabic community and bridging the digital divide.

### **Methodology**

This study integrates a review of the current state of Internet access at knowledge stations with a survey, which they conducted on this theme of access to information and the Internet with general community; from Knowledge Station (see Table 1). The subjects volunteered to participate in the study through a request that was posted through the site of Knowledge Station. The survey was completed and submitted with the assistance of stations' managers at each area. The instrument was developed by researchers and data were

analysed by SPSS. It will translate into Arabic and the responses of the participants were translated into English. A total of 287 questionnaires was completed and returned making a response rate of 48%. Both descriptive and inferential analyses were derived from the data in order to answer the research questions of the current study.

The version of the survey was prepared with questions about role of the Knowledge Station in access to the Internet and information, with one tuned to the needs and activities of people. The survey was divided into questions on access to general information from websites and local content, access to Internet technology, and e-government resources and policies.

This allows an analysis that would capture benchmark numbers on access and usage among people in general community, as well as providing more detailed analysis of interests, needs, and attitudes. Participants were given a choice of anonymity or attribution in responding to the questionnaires. By providing further background into this study, Jordan is a country estimated of 6 million people in the heart of the Middle East with a per capita income of \$300 (USD). Jordan has 250 knowledge stations; while, Arabic and English are official national languages.

### **Engaging the Local Community**

Launched in 2001, the initiative adopted the concept of involving local communities in the establishment and management of the stations and having them operated by local institutions to promote a sense of responsibility and participation in making positive change at the community level. (Royal Hashemite Court, 2014).

The aims of the KSs are to effectively the local communities and individuals in addition to the different organizations in cooperating in establishing, managing and operating the centers through the hosting organizations. The aim is to enhance the feeling of belonging and responsibility and encourage participation in the socio-economic development process at the local level, in addition to, work within the following framework to enhance cooperation in:

1. Selection of the hosting organization is subjected to specific consideration that includes experience in community service.

2. Knowledge Stations are established within the premises of the hosting organization to facilitate management and community ownership.

3. The hosting organizations should feel enthusiastic about the new service to guarantee sustainability and recognize the Knowledge Stations' services as an integral part of their own.

4. The ability of the hosting organization to provide suitable space that is convenient and easily accessible to the community members.

Hosting organizations include a myriad of organizations, public and private, that aim to provide service to the community including city councils, the Jordan Hashemite Fund for Development, youth centers of the Higher Council for Youth, Noor al-Hussein Foundation, Jordan River Foundation, and numerous cultural centers. The continued expansion and success of the Knowledge Stations will undoubtedly have a profound impact on enhancing the awareness and cooperation of all segments of the Jordanian society towards developing and modernizing the national economy, diminishing poverty, and working together towards creating a country prominent with the unique combination of cultural heritage and technological advancement and progress. Local communities are provided with the opportunity of exchanging information and sharing their experiences and knowledge in various areas such as health, education, environment, and livelihood, through a virtual medium of communication ([http://www.ks.jo/objectives\\_AR.htm](http://www.ks.jo/objectives_AR.htm)).

Knowledge Stations allow all communities, particularly remote rural communities, to become actively engaged in the knowledge economies of the world. The Knowledge Stations have classified their activities under two inter-linked categories: ICT capacity building and skill enhancement on the one hand, and community

development and awareness services on the other hand. In the field of ICT capacity building and skill enhancement, the Knowledge Stations ensured the basic knowledge infrastructure facilities such as personal computers, printers, Internet access, electronic libraries and chat rooms, which are supported by tailored training courses in basic computer literacy, database management, the seven-module International Computer Driving License (ICDL) certification and other customized courses that directly address the community's needs.

### **Results and Discussion of the Study**

By the end of August, more than 1.759 million citizens had benefited from services provided by the country's Knowledge Stations, which were opened in 2001 to teach ICT skills to the public (The Jordan Times, Tuesday, December 2, 2014). This research presents the findings derived from the questionnaire survey. As indicated in the methodology, the questionnaire was intended to generate a basic understanding regarding the current use of knowledge station information in Jordan.

The results of the questionnaire are presented in tables, or in bar and pie charts where appropriate.

### **Descriptive Analysis**

This section presents the frequencies and percentages of the variables distributions. Mean scores were calculated where appropriate in order to indicate the comparative frequencies of the participants' responses. The presentation of the data in this chapter follows the sequence in which questions were presented in the questionnaire, with some changes made to the sequence within groups of variables where it is desirable to present a descending categorization of mean scores.

As indicated previously, 287 returned questionnaires were judged to be suitable for analysis. In the first part of the questionnaire (Part A.), demographic features of the respondents were identified.

**Table (1)**

Gender of respondents

Variable	Categories	Frequency	Percent %
Gender	Male	46	16.0
	Female	241	84.0
	Total	287	100.0

**Table (2)**

Age of respondents

Categories	Frequency	%
20-29 years	136	47.4
30-39	122	42.5
40-49	29	10.1
50-Upward	0	0
<b>Total</b>	<b>287</b>	<b>100.0</b>

**Table (3)**

Sample of population from each region.

Region of KSs	City	City	City	City
Knowledge stations in the northern region - 63 KSs.	Knowledge Stations in Ajloun	Knowledge Stations in Irbid	Knowledge Stations in Jarash	Knowledge Stations in Mafraq
Total of KS in Each City	8	26	11	18
<b>Sample of Users</b>		<b>53</b> <b>18.5%</b>		<b>41</b> <b>14.3%</b>
Knowledge stations in the Northern region - 72 KSs.	Knowledge Stations in Amman	Knowledge Stations in Balqa	Knowledge Stations in Madaba	Knowledge Stations in Zarqa
Total of KS in Each City	34	17	6	15
<b>Sample of Users</b>	<b>65</b> <b>22.6%</b>	<b>41</b> <b>14.3%</b>		<b>32</b> <b>11.1%</b>
Knowledge stations in the southern region – 48 KSs.	Knowledge Stations in Aqaba	Knowledge Stations in Karak	Knowledge Stations in Ma'an	Knowledge Stations in Tafileh
Total of KS in Each City	9	20	13	6
<b>Sample of Users</b>		<b>36</b> <b>12.5%</b>	<b>19</b> <b>6.7%</b>	

As indicated in Table 1, this study's sample has nearly parallel percentages of female (84%, n=241) and

male (16%, n=46) respondents, thus it reflects accurately the distribution of female and male users of knowledge station in Jordan. This disparity in the balance between female and male is likely to be explained by the cultural attitudes of the Arab societies that may result in males being working, or busy in other positions. Moreover, women may be reluctant to pursue their studies beyond an undergraduate degree due to socio-cultural expectations that they will marry and their focus will be on home and family rather than on higher education and professional careers.

The age variable reported in Table 2 indicates that there was a similar distribution across the age ranges 20-29 years (47.4%, n= 136) and 30-39 years (42.5%, n=122). The results also report that there were fewer respondents in the older age ranges of 40-49 years (10.1%, n= 29), and 50 years of age or upwards (0%, n=0). These results indicate that the users of knowledge station in Jordan are comparatively young. These figures pointing to the relative youthfulness of the users are also likely to be relevant when assessing their attitudes towards digital technologies and changes in the ICTs environment.

Users are employed by the KSs in Jordan according to the number of KSs Are available in each City. The Knowledge Stations in Amman, Knowledge Stations in Irbid, and the Knowledge Stations in Karak host the largest numbers of Knowledge stations in the southern region respectively. Of those responding to this research (Table 3), there were 22.6% (n=65) from the Knowledge Stations in Amman; 18.5% from the Knowledge Stations in Irbid (n=53), and 14.3% (n=41) from each of the Knowledge Stations in Mafraq and Knowledge Stations in Balqa. The Knowledge Stations in Karak (12.5%, n=36) and Knowledge Stations in Ma'an (6.7%, n=19) had the lowest number of respondents. It was difficult to attract respondents from the Knowledge Stations in Ma'an due to their number of population little and the customs and traditions in society different from the rest of the cities of Jordan.

### Use of the Knowledge Stations

“Citizens from all walks of life and from different parts of the country have benefited from the stations’ services and we plan to increase the number of beneficiaries” (The Jordan Times, Tuesday, December 2, 2014).

In Part B of the questionnaire, respondents were asked to answer questions that aimed to assess the extent to which community and users of KSs in Jordan use information services from access the computer and Internet. Further questions investigated respondents’ opinions on the digital information impact on their social life and daily work.

In the first three questions from this section, the users were asked to indicate whether they have access to a networked computer from their Knowledge stations and at home (Table 4).

**Table (4)**

**Use information services of KSs.**

Question		Frequency	Percent
Do you have access	Yes	233	81.5%
Internet at Home?	No	53	18.5%
Do you use	Yes	281	98.6%
Services in your	No	4	1.4%

When the respondents were asked to indicate whether they have access to the Internet from home, 81.5% (n=233) answered "Yes", and 18.5% (N=53) answered "No". The use of networked information for social life and communication is almost universally adopted at KSs in Jordan, with 98.6% (n=281) of the respondents indicating that they use such services, and only four respondents indicating no use at all. These four respondents who indicated they make no use of networked information, when were asked to mention their reasons for their non-use of networked information, all referred to their lack of electronic literacy and one also referred to the lack of appropriate training. All of these four respondents indicated that they will not resist the

change and they are keen to use this technology in the near future if they obtain appropriate training and support from the managers of Knowledge Stations. It was observed that there is a clear focus by the knowledge stations on three services are: training, Internet and office services.

The users were also asked to describe the level of their skills in using ICTs (Table 5)

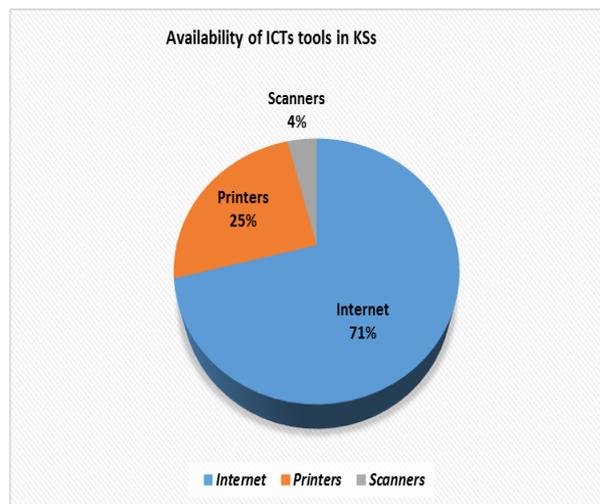
**Table 5**  
**Skills of use ICTs**

Valid	Values	Frequency	Valid percent	Mean
	Beginner	11	3.9	<b>2.3</b>
	Intermediate	163	57.8	
	Advanced	108	38.3	
	<b>Total</b>	<b>282</b>	<b>100</b>	

**Table (6)**  
**Importance of using information services of KSs.**

Valid	Values	Frequency	Valid percent	Mean
	Extremely important	203	71.4	<b>1.3</b>
	Important	76	26.8	
	Not very important	5	1.8	
	Not important at all	0	0.0	
	<b>Total</b>	<b>284</b>	<b>100</b>	

Existing levels of skill in using ICTs is likely to be a determining factor in how frequently and proficiently users use information services for social life and communication. More than half of the users indicated that their skills can be described as "Intermediate" (57.8%, N=163); while 38% (n=108) were "Advanced", and only 3.9% believed themselves to be at the "Beginner" stage. The mean score calculated for this response was 2.3. This information agreed with the annual report for the year 2010.



**Figure 1. Availability of ICTs tools in KSs-Jordan**

The questionnaire asked respondents to describe the level of importance they placed on being proficient in the use of networked information.

The majority of the respondents reported that they value the importance of being proficient in using information services of KSs as it is illustrated in Table 6. Almost 71.4% (N=203) indicated that it is "extremely important" for them to be proficient in using and applying services for their improving social life and communication with other communities or friends. In addition, 26.8% pointed out that it is "Important", while only 1.8% (N=5) indicated that it is "Not very important". The idea of Knowledge Stations was derived from the vision of His Majesty King Abdullah II Ibn Al Hussein, focusing on rural and remote communities, in order to bridge the digital divide between the provinces of the Kingdom, and to develop and teach manpower The skills of the modern economy to increase their competitiveness in getting jobs and upgradation process, in order to integrate efforts to contribute to the achievement of economic and social development on global level populations reflected a direct impact on the life's and welfare of the citizens.

**The Impact of Knowledge Stations Services in Jordan**

Respondents were asked in Table (7) to indicate from a list of reasons that might commonly be given for using

the KSs services and activities, and that are applied to them. They were invited to indicate as many responses as appropriate. A frequency scale was used to measure the respondents' use of each of these services. The scale used to measure these activities is: (1) Never used, (2) Rarely, (3) Occasionally, and (4) Frequently. The results in the above table (Table 7) indicate that users of KSs Use the Internet to browse and extract research, information, correspondence different and follow-up e-mail more than e-loans which include loan applications to provide Development and Employment Fund and the Postal Savings Fund. But, perhaps surprisingly, the users get free technical consultancy for citizens and institutions more than recruitment electronic involves providing job applications for citizens through their own websites providing recruitment services, and submitting resume to the institutions concerned. This response may indicate the maintenance of communication with managers and other decision makers. It may also be indicative of the still Jordan as a developing country in the technological infrastructure that hinders community from taking full advantage of the KSs information services potential within the region. For example, the success stories from KSs in the territory of the North:

“Rima Al-Zubi – 20 years: I joined the printing session in Kharja Knowledge Station and became proficient in typing skills that enable her to work in the printing of research and theses for students at the universities in return for a sum of money”.

“Noor Smadi – 35 years: joined course in skills of ICDL computer and printing session in Arabic and English in the Jerash Knowledge Station, applied for a job as a secretary in a commercial enterprise”.

“Maryam Al-Afif – 27 years: joined the session skills of ICDL computer and print cycle in both Arabic and English in Jerash Knowledge Station, and then got a job as data entry / civil defense”.

Alaa' Al- Otoum – 25 years: joined the session skills of ICDL computer and print cycle in both Arabic and

English station in Jerash Knowledge Station, then I got a job in the Association of Women's Jerash charity ([http://www.ks.jo/North\\_SS\\_AR.htm](http://www.ks.jo/North_SS_AR.htm)).

### **Role of Knowledge Stations in human development and bridging technology divide**

Knowledge Stations potentially play a major role in bridging the technology divide by selecting and providing access to a range of ICTs tools, and by supporting access to these tools by building the capacity and potential of ICTs and enhancement skills. Meanwhile, they are working on development of awareness and understanding of local communities, especially in rural areas. Additionally, Knowledge Stations also play a major role in improving users' technology skills by providing training in the use of newly implemented ICTs and information services. Managers and information professionals in Knowledge Station in developing countries play major role in bridging the digital divide by effectively managing information services and developing the technology systems and infrastructure that are critical to delivering information to local communities. All segments of society also depend on the Knowledge Station to provide necessary technological infrastructure, and also to put in place the policies and that encourage adoption and use of Knowledge Station services and information technologies.

The questionnaire; therefore, included a section designed to give the respondents the opportunity to express their opinions regarding the role played by the Knowledge Station in human development in Jordan. Respondents were asked in Table (8) to choose from a list of reasons that might commonly be given for using the KSs services and activities and which are applied to them. They were invited to indicate as many responses as appropriate. A frequency scale was used to measure the respondents' use of each of these services. The scale used to measure these activities is: (1) Never used, (2) Rarely, (3) Occasionally, and (4) Frequently.

**Table (7)**

**Services used by users of KSs in the field of information technology**

Reasons of using KSs		1	2	3	4	Total	Mean
1.	1. Use the Internet to browse and extract research, information, correspondence different, and follow-up e-mail.	15 5.3%	24 8.5%	89 31.4%	155 54.8%	283 100%	3.35
2.	2. Get free technical consultancy for citizens and institutions.	32 11.3%	52 18.4%	94 33.3%	104 36.8%	282 100%	2.95
3.	3. e-loans: loan applications to provide Development and Employment Fund and the Postal Savings Fund.	55 19.5%	90 31.9%	100 35.5%	37 13.1%	282 100%	2.42
4.	4. Recruitment electronic: providing job applications for citizens through their own websites providing recruitment services, and submit resume to the institutions concerned.	66 23.4%	74 26.2%	104 36.9%	38 13.5%	282 100%	2.40

**Table (8)**

**Activities and development programs provided by KSs in Jordan.**

		1	2	3	4	Total	Mean
1.	Availability the Information Technology Services by the public and private sector institutions in residential areas	11 3.8%	28 9.9%	95 33.6%	149 52.7%	283 100%	3.34
2.	Provide and develop educational curriculum and training required for sessions and training at all levels	14 4.9%	40 14.0%	112 39.4%	118 41.5%	284 100%	3.17
3.	Desire, enthusiasm, and initiative among the participating institutions to work in order to ensure the sustainability and success of the stations.	17 6.0%	42 14.9	105 37.4%	117 41.7%	281 100%	3.14
4.	Exempting some trainees in many Knowledge Stations different percentages from paying course fees	18 6.4%	40 14.2%	112 39.7	112 39.7	282 100%	3.12
5.	Training courses can modified and developed according desires of local communities to meet the direct needs.	21 7.4%	59 20.9%	111 39.4	91 32.3%	282 100%	2.96
6.	The exemptions are available for citizens people with special needs	31 10.9%	50 17.6%	112 39.4%	91 32.1%	284 100%	2.92
7.	As a result of the above that the different contributions to the Knowledge Stations in various fields, without a doubt they contribute to the creation of a multi-faceted development in local communities; now or in the future.	59 21.0%	73 26.0%	86 30.6%	63 22.4%	281 100%	2.54

As indicated in Table 8, the most commonly activities and development programs provided by KSs in Jordan is to "Availability the Information Technology Services by the public and private sector institutions in residential areas" with 86.3% of respondents agreed with this either "Occasionally" or "Frequently". Five of the other six

nominated research related Activities and development programs had a response of over 70% for the combined responses of "Occasionally" or "Frequently". As a result of the different contributions of the Knowledge Stations in various fields, without a doubt, they contributed to the creation of a multi-faceted development in local

communities". Was the least common cause about role of Knowledge Station, with only 53% of responses indicating occasional or frequent the contributions of Knowledge Station may play this role in the future.

Based on these results, it can be concluded that with regard to the effectiveness of ICTs as a mean to promote social and economic conditions of the communities have been consolidated "Community Development Services and Social Development" in the programs of Knowledge Stations. In order to define the communities with means and the ways of new creative and to provide knowledge for the integration of ICTs which can be employed towards the promotion and development acts of individuals and their abilities. In addition, to get good information about health care and to participate actively

in the e-government initiative and to expand their knowledge and understanding in the field of general and different social things, and most importantly, to get entrepreneurial skills and creative development.

#### **Training and services provided**

Services offered by the Knowledge Stations in the field of information technology: Organizing and conducting various training programs (CISCO, ICDL, Cambridge, Software Office, courses IT-Essential (trainees- local community), printing, courses comprehensive and advanced topics of information technology, office automation, programming, design, maintenance, networks.

**Table (9)**

**Role of Knowledge Stations in the training field since the beginning of its inception until the end of the year 2010.**

<b>Year</b>	<b>Number of trainees</b>	<b>Male</b>	<b>Female</b>
2001-2000	13829	%44	%56
2002	8626	%43	%57
2003	14045	%43	%57
2004	21280	%46	%54
2005	15207	%48	%52
2006	9463	%45	%55
2007	8832	%44	%56
2008	10699	%40	%60
2009	19403	%39	%61
2010	21476	%36	%64
<b>Total</b>	<b>142860</b>	<b>%43</b>	<b>%57</b>

\* [http://www.ks.jo/training\\_AR.htm](http://www.ks.jo/training_AR.htm)

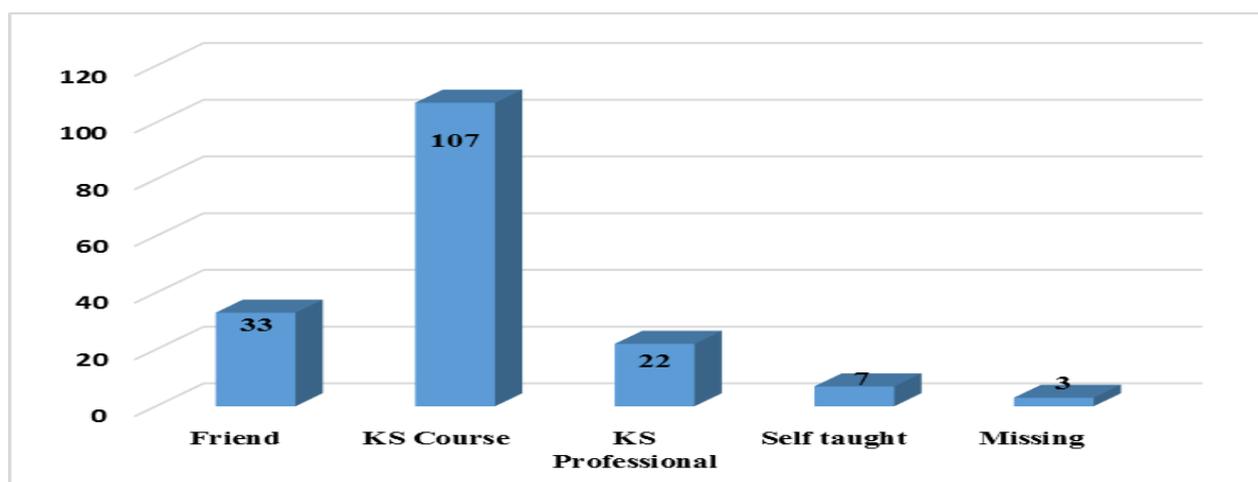


Figure (2)

Methods of learning the use of ICTs in KSs.

Table (10)

Barriers to Using the Knowledge Stations Services.

Statements	N	% of responses	Number of cases
1.lack sufficient computer skills and knowledge to search the Knowledge Stations services	64	15.2	27.5
2. There is a lack of access to the Internet at Knowledge Stations	115	27.3	49.4
3.I don't have the time to use the Knowledge Stations	35	8.3	15.0
4.I lack the desire to use the Knowledge Stations	37	8.8	15.9
5. There is a lack of support for using the Internet at Knowledge Stations	61	14.5	26.2
6.I don't have equipment's and facilities to use the Knowledge Stations services	47	11.1	20.2
7. Access to the Internet is interrupted by system errors or equipment failure	40	9.4	17.1
8. Complexity of using the technology	23	5.4	9.9
<b>Total</b>	<b>422</b>	<b>100%</b>	<b>181</b>

Knowledge Stations implemented training courses for some government institutions within the plan of these institutions in the development of its staff. Moreover, they organize these courses in coordination with the management of the program and departments of the various parties to meet the needs of employees in those agencies incubator so as to complete the developmental role of stations and to activate its role in improving the skills of the staff of government departments and to be in line with the national strategy.

Training programs which are available in all or some Knowledge Station are classified in five main groups. The questionnaire also asked respondents to indicate the purpose of their activities and development programs provided by KSs in Jordan using the scale of (1) Never used, (2) Rarely, (3) Occasionally, and (4) Frequently, to describe their frequency with which they undertake seven types of communication.

The majority of the respondents in this study (62.2%, n=107) indicated that they were largely Knowledge

Stations courses. Guidance from a friend (19.1%) was reported as a method that was used more frequently than receiving assistance from Knowledge Station professional (12.8%) or self-taught (4 %). Certainly, it would appear that the knowledge stations programs, who might be expected, would be the best equipped to provide such training, are underutilized.

### Barriers of using the Knowledge Stations Services

Respondents were asked to indicate the degree of impediment provided by a range of 'barriers' that might hamper access to, and use of the Knowledge Stations. Respondents were provided with statements describing possible barriers to Knowledge Stations' use, and they were asked to indicate their level of agreement with these statements by using a five point Likert Scale.

As Table 10. Illustrates, "lack of access to the Internet at Knowledge Stations" was the most commonly recorded barrier, being reported by 27.3%, (n=115) of respondents. The related issue of "lack sufficient computer skills and knowledge to search the Knowledge Stations services" (15.2%, n=64) was the second most frequently indicated barrier, followed by "There is a lack of support for using the Internet at Knowledge Stations" (14.5%, n=61). "Complexity of using the technology" was the least indicated barrier (5.4%, n= 23). It can be inferred from these results that respondents are not daunted by the challenge of learning to use networked information, but that they feel poorly supported in their attempts to do so.

A number of respondents provided comments that express their views about the obstacles that inhibit effective use of the Knowledge Stations activities. Responses were again grouped according to their key themes and ranked accordingly:

- Difficulty in reading foreign (non-Arabic) languages (73).
- Internet content is not suitable due to religious or socio-cultural reasons (59).
- Too much information, or information unrelated to the topic is retrieved (36).

- Lack of skill in using the Internet (28).
- Lack of supporting infrastructure (27).
- Lack of quality translating (23).

The most common response indicated by respondents was that Arabic language is insufficiently represented in the Internet. While as described above some respondents use the internet to learn other languages, for others the lack of Arabic and the prevalence of information in other languages is a major barrier faces using knowledge station. Some of the responses to the open-ended questions included:

- Lack of Arabic information on the Internet.
- Limited of access to Arabic online services.
- Lack of interest from the public to use Arabic.
- Lack of support from policy makers in providing information or services in Arabic.
- The use of western languages depends on the level of education.

A number of respondents (28) pointed to their own lack of skill in using the Internet as a major barrier to its use. As the following sample of these responses indicates, some of these participants linked their skill's shortage to the lack of suitable training opportunities.

- Lack of training is the most important barrier.
- I have lack of knowledge how to use it [Knowledge Stations] in the correct way.
- There are insufficient workshops to teach people in the region.

Others believe that the Internet has benefits but the 'barriers' arise because the large amount of information that is retrieved can be a disincentive to use.

- When using Google or Yahoo engine research, I find an enormous number of items and most of them not related with my topic.
- With the amount of information on the Internet you need to spend a long time to find what you want.

Respondents also reported the commonly frustrating problem of information being lost or deleted from the Internet.

- You will lose the information after a period if

you don't save it the first time.

There were also comments that expressed the Internet users' frustration who find that some websites are blocked due to Internet filtering resulting from government sensitivities regarding inappropriate content and websites.

- The social life and attitudes [of Jordan] is a big issue. The people still are not allowed to connect with some of the Internet.

- Slowing down of Internet traffic due to government filtering.

It was clear from the answers of participants at academic environment that the most significant barriers related to training, lack of Arabic information, and overall amount of information. However, many respondents referred to the major problems with infrastructure as follows:

- The Internet services in general.
- Slow Internet speed.
- Lack of connection to the Internet.
- Lack of Internet Service Providers.
- Lack of reliable access.
- Poor hardware and software at Yarmouk University.

- Lack of funding from the government to develop the use of the Internet,

In addition to these various 'barriers', a number of respondents (n=66) used this open-ended question to indicate that they did not experience any particular barriers or problems in using the services at Knowledge Station in Jordan. Responses included:

- In the academic environment there are no barriers.

- I can read English and Arabic then I have no barriers.

- I am studying at the university so I can use the Internet without any problems.

### **Conclusions and Implications of the Study**

The questionnaires' responses provided an essential

information to fulfil the research question and objectives.

As indicated in the previously in the discussion of the results, data collected from the questionnaire included elements that were apparently ambivalent and even contradictory, and about which results could only be drawn in a tentative manner. This is possibly a reflection to the different discipline backgrounds of respondents. It is also a possible, reflection of different personal experiences coupled with issues relating to the limits of quantitative data collection.

The results provided important information regarding the use of knowledge stations information and services in social life in an Arabic environment. It is clear that the Jordanian community is provided with almost universal access to the Internet and associated knowledge stations services, and that it is given at least a basic level of training and support from the ICT Ministry in terms of training and relevant infrastructure.

Moreover, the results indicated a high degree of awareness of knowledge stations services as an important part of their life related to retrieval, health, economy, education, production, and bridging the digital divide, or the gap between the regions and governorates of the Kingdom. The results of the survey also indicated possibility of taking advantage of the national information system through the opportunity for citizens to gain access to national and global information via internet. It is apparent that the Internet is an important communication tool that initializes communities to integrate e-government project and provides various electronic services for local communities.

It is also apparent that respondents were very positive in their attitudes to knowledge stations services and its potential impact on the quality of their life. It is noted that the optimism is significantly greater in those respondents concerning the eradication of information literacy by providing the opportunity for education and training in the field of information and communication technology.

It is hoped that this study has contributed to existing digital divide in significant regards, by emphasizing the

Knowledge stations longstanding interests in:

- The welfare of individuals and maximizing their potential to contribute to healthy, well-informed and literate societies;
- The recognition that equality both within and between societies is constituted of access to social and cultural capital as much as economic advantage; and
- The understanding of the value of knowledge

rather than information, and of content rather than the technologies that deliver it.

- Enhancement of the use of internet and the improvement of the knowledge stations services.

Cooperate with national and regional authorities to define and improve the information regulations and strategies for providing Arabic information.

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## دور محطات المعرفة في سد محو الأمية المعلوماتية الرقمية في الأردن

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### ملخص

تتناول هذه الدراسة دور محطات المعرفة في سد محو الأمية المعلوماتية الرقمية في الأردن ومدى إدراك المستخدمين من الوصول إلى المعلومات في أشكالها الإلكترونية. ويقوم على استعراض التكنولوجيا التي توفرها محطات المعرفة تحت مظلة وزارة الاتصالات وتكنولوجيا المعلومات في الأردن. وقد اتبعت الدراسة المنهج المسحي من خلال توزيع استبانة على (287) مستخدماً من جميع محطات المعرفة في الأردن خلال عام 2014. وركزت الدراسة من خلال الاسئلة لتوضيح الحالة الراهنة حول وصولهم إلى المعلومات على الإنترنت، كما ركزت على الحواجز والمعوقات وكيفية تجسير محو الأمية المعلوماتية الرقمية في المستقبل.

وأشارت النتائج إلى أن المستخدمين يدركون تأثير الإنترنت في الحصول على المعلومات في الأردن والدول العربية الأخرى، ورغم أن نتيجة هذه الدراسة كانت مصدراً للقلق والأمل في نفس الوقت لدور محطات المعرفة. حيث أشار المستخدمون إلى أنها وسيلة للتغلب على الفجوة الرقمية حالياً من خلال الوصول إلى المعلومات، وطريقة للحصول على المزيد من الموارد على الإنترنت سواء من الخارج والمحتوى المحلي بين المستخدمين من البلدان العربية، التي يمكن استخدامها لتحسين تراثهم وثقافتهم ثم تطوير قطاع المنتجات في جميع المدن والمناطق الحضرية.

أما الآثار العملية، فمن الواضح أن هناك تأثيراً إيجابياً لمحطات المعرفة وخلق وإيجاد فرص عمل جديدة. وكذلك، في مجال تكنولوجيا المعلومات فقد استفاد المستخدمون في المجتمعات المحلية، لا سيما تلك البعيدة والنائية، ومن ثم الإسهام في تسهيل عملية البحث عن الوظائف والتقدم لها إلكترونياً من خلال استخدام المعلومات الإنترنت. إضافة إلى الآثار الاجتماعية، حيث أشارت البيانات إلى أن قصص النجاح المتعلقة بمحافظات المنطقة الوسطى أن معظم المتدربين شدد على أن محطات المعرفة سهلت للإناث الحصول على عمل نتيجة لاكتساب المهارات في مجال تكنولوجيا المعلومات. وينطبق هذا أيضاً على أن محطات المعرفة في المنطقة الجنوبية، وغالبيتهم من الإناث حيث ساعدت في الحصول على فرص عمل للإناث في محافظات الجنوب كما هو موضح في المناقشة. وتعود أصالة وقيمة هذه الدراسة لمساعدة الحكومة في الأردن لتطوير خدمات محطات المعرفة لتصبح متقدمة عبر المشروع للحد من معدلات البطالة وتحسين نوعية الحياة لدى المجتمع الأردني.

**الكلمات الدالة:** محطات المعرفة، محو الأمية المعلوماتية، الفجوة الرقمية، تطوير المجتمعات، الإنترنت، الأردن.

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