

# THE ROLE OF CRITICAL SUCCESS FACTORS OF KNOWLEDGE STATIONS IN THE DEVELOPMENT OF LOCAL COMMUNITIES IN JORDAN: A MANAGERIAL PERSPECTIVE

Zaid Ibrahim Al-Shqairat, Al-Hussein Bin Talal University  
Ata E. M. AL Shra`ah, The Hashemite University  
Ayman Abu-Rumman, Al-Ahliyya Amman University

## ABSTRACT

*Knowledge Stations (KSs) have emerged as one of the Information and Communication Technology (ICT) key initiatives designed to enhance the quality of life of those living in remote and local communities through improving their digital information literacy to enhance their educational and vocational wellbeing. This study aimed to fill a research gap by exploring KSs' critical success factors (CSFs) that are vital for KSs to achieve their mission by answering the following two questions: what are KSs' CSFs?, and how can these factors enhance KSs' role in the knowledge-based development of local communities (K-B DLC)? The findings suggested significant support for thirty-five CSFs divided into four groups related to KSs departments, KSs themselves, LCs, and Hosting Organizations (HOs). The findings also suggested significant support for ways that CSFs can enhance the services provided by knowledge stations as demonstrated via the study's theoretical model. In addition, KSs as an ICT initiative, are integral in developing the knowledge society in Jordan, but face a range of inhibitors such as insufficient funds, the absence of trainers' incentives, and a lack of cooperation with higher education institutions such as universities.*

**Keywords:** Knowledge Stations; Management Information; Managerial Development, Jordan.

## INTRODUCTION

Information and Communication Technology (ICT) tools have become important globally in the recent years for countries, societies and individuals, as these tools affect every part of life including, social interactions, economics, politics, health, wellbeing, and comprehensive development as a whole. ICT tools are enabling, considering a practical knowledge application in the information and communications areas (Hosman & Fife, 2008).

Ashton and Thorns (2007) argued that community engagement development through ICT tools has become a popular theme, particularly in developed countries, over the last twenty years. The progress in ICT has caused many structural changes in global economics. The dramatic development in ICT tools enforces all countries to implement and apply specific policies and procedures to facilitate ICT usage for enhancing their economic growth (Farhadi et al., 2012).

Moreover, ICT is a fundamental requirement to integrate mega and intelligent communities for social, human, and economic wellbeing as the key driver for supporting sustainable economic development at global, regional and local levels (Passerini & Wu, 2008). ICT benefits include

overcoming professional and social isolation in living and working in rural and remote areas, offering new dialogue and participation opportunities for citizens, supporting national economies, supporting public service provisions, supporting democracy, and revealing resources, processes, and relationships (Bassanini, 2002; Ciborra, 2005; Ferlie et al., 2005; Taylor & Lee, 2005). ICT significantly enhances and supports rural development, as information and knowledge are key strategic resources for social and economic development. It provides people with the ability to expand their choices in their communities and hence contributes to development, competitiveness, and productivity (Al-Madi et al., 2013; Pade et al., 2011; 2014). There is a positive ICT impact on economies, businesses, poor communities and individuals through lowering poverty, increasing employment opportunities, and the establishment of small businesses in ICT and other related sectors (Caregnato & Moura, 2004; UNCTAD, 2011).

### **ICT Initiatives and Local Communities**

ICT is a key common denominator of communities' initiatives as an essential vehicle for initiating and facilitating international, regional and local collaborations and creating a sustainable path to equitable human, social and economic development (Passerini & Wu, 2008). Interest and investment levels in ICT projects in developing countries have skyrocketed with high expectations for such projects in terms of improving quality of life, increasing empowerment and promoting economic development for target communities (Hosman & Fife, 2008). Developed and developing countries seek to enhance life for local people through ICT tools using different ways, approaches and tools to minimize the development gap between cities and rural communities. The Public-Private Partnership (PPP) approach has helped to create a suitable local environment and an effective and innovative strategy to develop local ICT infrastructure.

ICT is an efficient way to acquire technological experience and expertise to bridge the digital divide between information-rich and information-poor communities, and between those who have access to use high-quality content, socio-economic benefits through ICTs, and those who still use technology solely for recreational or communication purposes (Ashton & Thorns, 2007; Hosman & Fife, 2008; Al-Shqairat et al., 2014; Al-Shqairat, et al., 2015; ESCWA, 2017).

Creative and intensive use of ICTs is a key strategy for achieving local communities' continual regeneration within a rapid change context. New forms of ICTs are creating opportunities for new forms of social connectivity (Ashton & Thorns, 2007). , and there are several potential benefits for rural ICT projects, including the improvement of key performance indicators in all aspects such as efficiency, financial resources, human capital, technology, market access, and technical expertise (Hosman & Fife, 2008). However, different barriers have threatened the success of ICT projects' sustainability, including access to infrastructure, limited formal education, insufficient training and capacity building, financial and political constraints, and social and cultural challenges. Therefore, sustainability plans need to develop ways reducing the impact of the challenges associated with ICTs usage in rural areas (Pade et al., 2011; 2014).

### **Critical Success Factors (CSFs) for ICT Local Projects**

Critical success factors (CSFs) have been defined as “limited several areas results ensuring successful competitive performance for an organization” (Rockart, 1979). They are a few key areas where “things must go right” for businesses to flourish with a sufficient outcome. CSFs influencing the adoption of ICT include many areas such as business and information strategies, human

resources, information technology, and processes in organizations (Antlova, 2010; Al-Madi et al. 2013). Success factors for ICT projects also include taking advantage of involved parties' common interests, treating local people as stakeholders at all project stages, and having more flexibility for changing conditions, so that large returns come from low-cost projects (Dougherty, 2010).

CSFs play an important role in promoting sustainability of ICT project development and a 'culture of use' needs to be considered in the implementation and management of rural ICT projects through social, cultural, institutional, economic, political, and technological factors. It also indicates that effective implementation of ICT projects in rural areas relies mostly on human/user (community-oriented) factors related to social, political, cultural and economic influences, as social capital is generally higher in the rural communities. Subsequently local ICT initiatives become more successful and sustainable (Gaved & Ben, 2006; Pade et al., 2014; Hosman & Fife, 2014).

Some ICT projects fail as they are not adequately and sensitively formed to the local context. This is in addition to the limited attempts to link ICTs to local perspective meaningful development aims (Moensa et al., 2010). Thus, ICT projects for local communities in developing countries need two fundamental requirements: firstly, the long-term sustainability of projects through focusing on wants, needs, and characteristics of such communities, and to consider people as project stakeholders; secondly, founding partnerships to carry out projects (Hosman & Fife, 2008).

### **ICT Initiatives in Jordan**

In Jordan, the Telecommunications Regulatory Commission (TRC) has the legal responsibility to manage initiatives instigated in cooperation with other Government and trade bodies with direct action by the Ministry of Information & Communications Technology (MOICT) to make sure the initiatives are feasible and practicable, and not in conflict with National interest or security considerations. The MOICT accordingly has broad powers of oversight and action within ICT sectors as drivers and enablers of economic and social growth. It seeks to create a clear and stable environment policy within which ICT initiatives, investment, and necessary sector regulation can proceed with confidence.

Accordingly, the Government in Jordan has implemented and supported many initiatives since 2000 aimed at achieving its policy towards increasing digital inclusion and education, promoting private sector investment, enhancing public sector agencies capabilities in ICT field, and stimulating demand in the internet sub-sector, and within ICT sectors as a whole (Al-Madi et al. 2013; MOICT, 2016 & 2017a; Abu-Rumman, 2019). ICT initiatives and organizations in Jordan involved the following:

- Information and Communications Technology Association of Jordan (int@j), founded in 2000 to maximize ICT sector contribution to provide the tools required to ensure continued growth and expansion in the ICT sector (Int@j, 2017).
- E-Village project, founded in 2006 to transfer some Jordanian villages into vibrant communities and aimed to establish economically independent rural communities where ICT deployed to achieve better quality for local communities' life (Al-Shqairat, 2009).
- REACH initiative, launched in 2010 as a series of initiatives seek to facilitate the development of information tools and products to enhance the community's human resources decision-making and planning capacity (REACH Initiative, 2017).

- REACH 2025 is a new initiative that seeks to accelerate growth, creating 150,000 new digital jobs through 5,000 to 7,000 businesses in the digital economy by 2025. It is a partnership between the public and private sector includes different themes such as; human resources development to fulfil local market needs; entrepreneurial and emerging companies' development; and smart infrastructure developing to provide a solid base for services and products (MOICT, 2016 & MOICT, 2017b).

### **Knowledge Stations` initiatives in Jordan**

With the beginning of 21<sup>st</sup> century, the Hashemite Kingdom of Jordan started establishing different ICT initiatives for rural and remote area communities who would not be able to access ICT easily, particularly marginalized populations such as women, the underprivileged and underserved children, laborers, farmers, and those who were illiterate (Abu-Rumman, 2018; Al-Madi et al. 2013). One of the ICT initiatives launched in 2001, named 'Information Technology and Community Service Center's (renamed later as 'Knowledge Stations'), was a project aiming to implement ICT in local communities in remote areas in preparation for e-government process. The National Information Technology Center (NITC) was mandated with the execution of the project (Knowledge stations, 2017a). KSs were therefore established to achieve the following objectives (Knowledge stations, 2017b):

- Bridging the digital divide.
- Introducing ICT to different localities in Jordan.
- Encouraging use of the National Information System.
- Enhancing internet usage for socio-economic development.
- Enhancing local community skills through ICT training.
- Enhancing competition amongst citizens by increasing their knowledge of ICT.
- Preparing local communities to get involved in the e-government project.

The KSs network today includes (196) stations established over the past nine years and distributed across Jordan governorates; (148) of them are active, while (48) are not, as listed in Table (1).

Thirty local, national, and private organizations and individuals support KSs activities. In addition, Hosting Organizations (HOs) include a myriad of public, private, and civil society organizations (Knowledge stations, 2017e & f). The following conditions apply:

- Selection of the HOs is subjected to specific consideration including experience in community service.
- Establishing KSs within the premises of HOs to facilitate management and community ownership.
- Guaranteeing sustainability and recognizing KSs services by HOs.
- Providing suitable space by HOs convenient which are easily accessible to community members.

KSs provided integrated and comprehensive ICT services for all local communities' citizens and acted as central points for all ICT initiatives relating to access and other programs aiming to provide services for individuals and communities. They also provided Jordanian communities with advanced linkages for sharing knowledge and expertise in order to achieve sustainable growth and development (Knowledge stations, 2017d).

In adopting a tailored approach, KSs classified their activities under different interlinked categories, including; ICT capacity building, such as International Computer Driving License

(ICDL) and other customized courses address community's needs, community development and awareness services such as women's empowerment, and E-learning activities (Obeidat, 2017; Knowledge stations, 2017c). KSs participated in leveraging ICT tools as means for enhancing communities' social and economic stature, community development, and awareness services to familiarize local communities with innovation and knowledgeable avenues for ICT integration. Also, the KSs were providing them with the opportunity of information exchange and experience sharing in various areas such as health, education, environment, and livelihood (Knowledge stations, 2017c).

<b>KSs number</b>	<b>Governorate</b>
Irbid	26
Al-Balqa	16
Al-Zarqa	16
Al-Tafeelah	6
Amman	39
Al-aqabah	9
Al-Karak	21
Almafraq	21
Jarash	12
Ajloun	8
Ma'daba	6
Maan	16
Total	196

(Source: Knowledge Stations, 2019, Amman)

Al-Shqairat (2009) argued KSs succeeded in achieving the objectives associated with their role through: the creation of job opportunities for unemployed people in LCs; establishing special websites for some LCs; and participation in LCs general events. Nevertheless, to continue to undertake their role successfully, KSs require; sufficient trainers; public and private sector volunteers; the creation of suitable ways to promote KSs activities; variation of KSs programs; and enabling them to enhance their quality of services. Despite the success of KSs, they still face different challenges (Al-Shqairat & Altarawneh, 2011; ESCWA, 2017) including:

- The weakness of revenue activities
- Coordinating weakness between KSs and LCs
- Supervision duplication between NITC and HOS
- Retention of trainers
- HOs revenue consumption
- LCs support for KSs activities
- The difficulties of clarifying ICT and the importance of LCs change
- Directing KSs activities to serve HOs objectives
- KSs communication weakness
- LCs database absence
- Lack of marketing
- The geographical proximity of stations in some areas
- Private-sector competition

## MATERIAL AND METHODS

This research adopted a triangulation methodology through a combination of qualitative and quantitative approaches. This methodology enables the use of two different research methods for data collection to support and verify each other (Silverman, 2000). Data collection for the current research used survey questionnaires, and semi-structured interviews respectively. The data collected using a questionnaire survey gave a general view regarding KSs CSFs; whilst the interviews were employed to validate the quantitative results and to interpret them in more depth.

### Questionnaire Structure

The main approach for collecting data was a survey through a questionnaire, while the interviews were used to further understand the results of the statistical analysis. The questionnaire included two parts: firstly, demographic factors consisted of four questions: informants' (respondents) gender, age, qualifications, and experience; secondly, the information about KSs, which consisted of five variables:

- The success factors related to the general administration of KSs (GA of KSs)
- The success factors related to field knowledge stations (FKS)
- The success factors related to local communities (LC)
- The success factors related to hosting organizations (HOs)
- The knowledge-based development of local communities (K-B DLC)

In order to design and validate the questionnaire, a pilot study was achieved through trainers' feedback regarding the CSFs of KSs. Respondents were requested to indicate their experience in training and supervising KSs regarding each item based on a four-point Likert scale from 1 scoring disagree to 4 scoring strongly agree. The reason for using four-point Likert scale

rather than five was to avoid neutral response-which does not make sense practically and does not give benefit due to the nature of the (Darby, 2008; Carr et al., 1996).

The study population included all (145) trainers and coordinators for KSs in Jordan, but at the same time, some of them also work as a coordinator for many KSs. The information regarding the population was obtained from the KSs' department in NIC, linking to MOICT. The survey included all people in the target population, so an online questionnaire was sent to them via e-mail on period between 1st and 30th December 2020. From (145) distributed questionnaires, a total of 114 out of 145 were returned with a response rate of 79%.

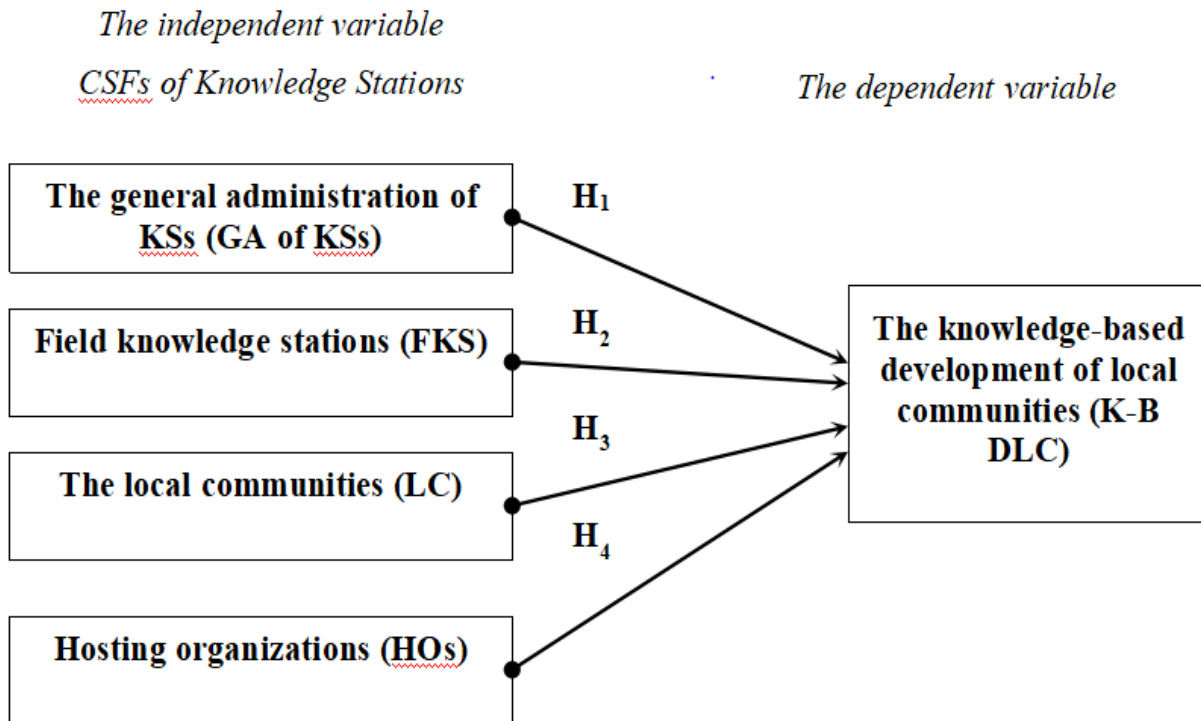
### Qualitative Method/The Interviews

Ten interviews were conducted with informants who consented to be interviewed. The interviews were semi-structured and conducted using a topic guide with the main questions covering the five variables associated with KSs used in the survey. The interviews were not recorded to make it more culturally acceptable to participants who were mainly female. The informants' features are listed in Table (2). The notes from the interviews were analyzed through a process of thematic manual coding to identify key themes and concepts.

<b>Trainer code</b>	<b>KS Name</b>	<b>Degree</b>	<b>Career experience</b>	<b>Gender</b>	<b>Age</b>	<b>Duration\minutes</b>
1	Irbid	Bachelor	11	Female	37	34
2	Dair Yousif	Bachelor	11	Female	37	34
3	Al-Dafyaneh	Bachelor	11	Male	35	34
4	Mu'tah	Bachelor	9	Female	31	33
5	Um Al-quttain	Bachelor	12	Male	37	30
6	Talal	Master	10	Female	33	37
7	Al-Karak	Bachelor	10	Male	34	28
8	Sweileh	Postgraduate Diploma	8	Female	34	30
9	Najl	Master	9	Female	31	24
10	Aqabah	Diploma	15	Female	37	33
Mean	-	-	10.6	-	34.6	31.7

### The research Model

A research model (Figure 1) was developed to demonstrate the role of CSFs of KSs on the knowledge-based development of local communities (K-B DLCs). The independent variables included: the general administration of KSs; field knowledge stations (FKS); the local communities (LC); and the host organizations (HO). The dependent variable was the knowledge-based development of local communities (K-B DLC).



**FIGURE 1**

## RESEARCH MODEL

### DATA ANALYSIS/CALCULATION

In order to analyse the data, SPSS 21.00 and the Structural Equation Modelling (SEM) were employed, with the use of the “analysis of moment structure” 21 software (AMOS) which was used to test the hypotheses. The correlation of observed variables and reliability scores (Cronbach’s alpha) and descriptive analysis were calculated using SPSS. This study aimed to determine the cause-effect relationships among the variables hypothesized in the model.

The questionnaire was developed and adapted from the findings of previous studies identifying the independent variables highlighted in the research model. According to the research conceptual framework hypotheses were developed to test the casual relationship between Critical Success Factors of Knowledge Stations (KSs, FKS, LC, and HOs) and the knowledge-based development of local communities (K-B DLC):

*H1: There is a significant effect of KSs on K-B DLC*



*H2: There is a significant effect of FKS on K-B DLC*

*H3: There is a significant effect of LC on K-B DLC*

*H4: There is a significant effect of HOs on K-B DLC.*

## RESULTS

### Respondents Profile

114 out of 145 individuals replied to the survey giving a response rate of 79%. Table (3) displays the demographic breakdown of respondents. The majority of respondents were females with the per cent value of 64.9% which suggests that the Jordanian society prefers to recruit females in such jobs. Most respondents were with the age range of 31-35 years old. Also, 92.1 per cent of respondents had a bachelor degree or higher, which indicates the respondents were well qualified academically. The majority of respondents had been in their current roles for 7 years or more with per cent value of 81.6, suggesting that the study population had good awareness of their work.

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
<b>Gender</b>	Male	40	35.1	35.1	35.1
	Female	74	64.9	64.9	100.0
<b>Age</b>	less than 25 years	1	0.9	0.9	0.9
	from 25-30 years	18	15.8	15.8	16.7
	from 31-35 years	60	52.6	52.6	69.3
	more than 35 years	35	30.7	30.7	100.0
<b>Qualifications</b>	Diploma and less	9	7.9	7.9	7.9
	Bachelor	88	77.2	77.2	85.1
	Master	16	14.0	14.0	99.1
	PHD	1	0.9	0.9	100.0
<b>Experience</b>	from 5-7 years	21	18.4	18.4	18.4
	more than 7 years	93	81.6	81.6	100.0

## Structural Equation Modeling

According to Hair, (2013) and Awang (2015) all items have factor loading less than 0.60 should be deleted to get a fit model to test research hypothesis. Table (4) presents factor loading for the questioner items after confirmatory factor analysis. All the items shown have factor loading higher than 0.60 and achieve the required level. All Composite Reliability for model constructs achieve the required level (0.60), and all AVE higher than 0.50 (achieve required level).

<b>Construct</b>	<b>Items</b>	<b>Factor loading</b>	<b>Composite Reliability</b>	<b>AVE</b>
KSs	Ks1	0.817	0.843	0.643
	Ks2	0.871		
	Ks3	0.856		
	Ks4	0.782		
	Ks9	0.795		
FKS	Fk5	0.783	0.859	0.671
	Fk6	0.839		
	Fk9	0.828		
	Fk10	0.802		
LC	L1	0.860	0.874	0.547
	L2	0.835		
	L3	0.846		
	L4	0.872		
	L6	0.751		
HOs	Ho1	0.921	0.942	0.764
	Ho2	0.865		
	Ho4	0.816		
	Ho5	0.934		
	Ho6	0.895		

K-B DLC	D1	0.843	0.862	0.631
	D3	0.863		
	D4	0.887		
	D5	0.847		
	D6	0.916		
	D7	0.880		
	D10	0.770		

After factor loading value achieved the model fit checked by structural model and the model was fit to proceed for test research hypothesis. And the fitness indexes value presented in figure 2:  $P$ -value 0.000,  $RMSEA$   $0.078 < 0.080$ ,  $CFI$   $0.931 > 0.90$ .  $TLI$   $0.923 > 0.90$ , and  $ChiSq/df$   $1.643 < 3$ .

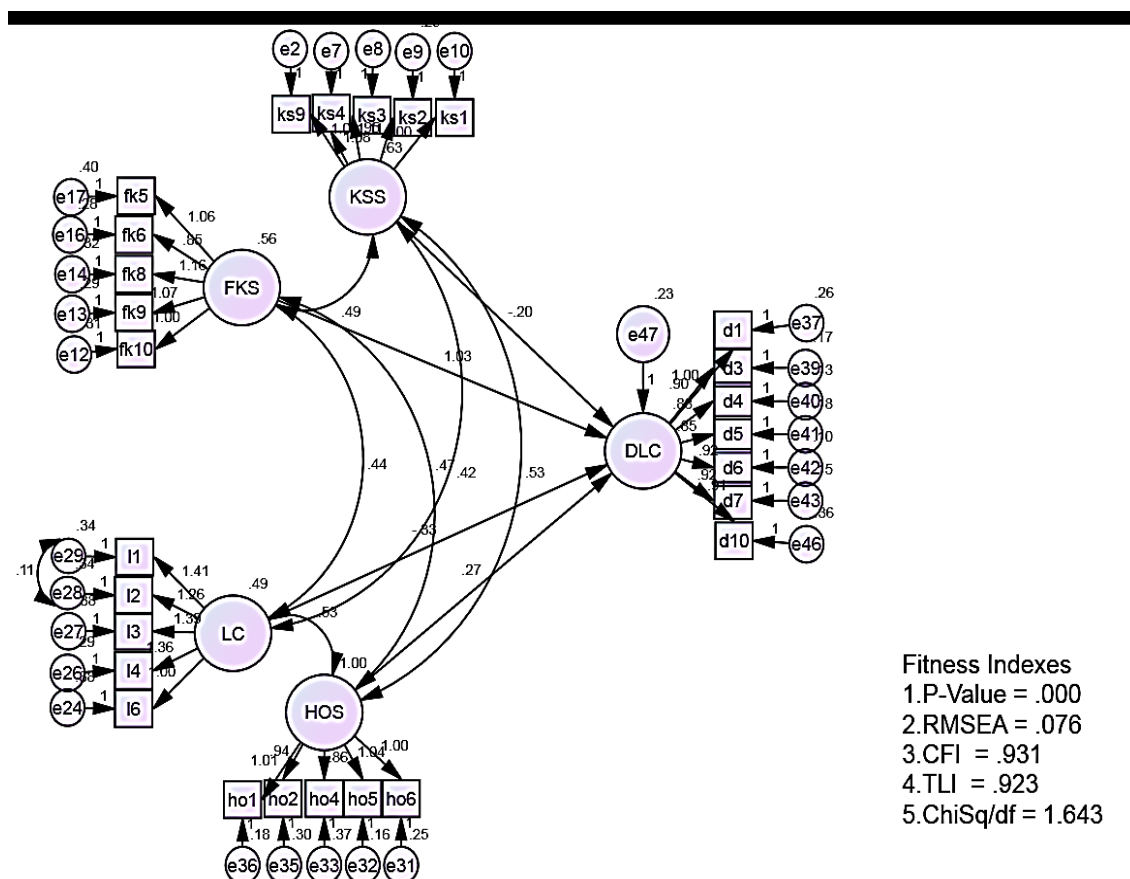


FIGURE 2

STRUCTURAL MODEL

As mentioned by Zainuddin (2014a, 2014b), discriminant validity is achieved when the values are higher than the values in the same row and column. Table 5 shows that all values in bold (discriminant validity) achieve the required level.

	<b>KSSs</b>	<b>FKS</b>	<b>LC</b>	<b>HOs</b>	<b>K-B DLC</b>
<b>KSSs</b>	<b>0.874</b>				
<b>FKS</b>	0.706	<b>0.740</b>			
<b>LC</b>	0.624	0.596	<b>0.806</b>		
<b>Hos</b>	0.684	0.609	0.802	<b>0.819</b>	
<b>K-B DLC</b>	0.678	0.719	0.782	0.796	<b>0.801</b>

## DISCUSSION AND HYPOTHESIS TESTING

According to Table 6 and Figure 2 all hypotheses are significant and supported, indicating that is a direct casual effect of Critical Success Factors of Knowledge Stations (KSSs, FKS, LC, and HOs) and the knowledge-based development of local communities (K-B DLC), where the P-values for H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub> are less than 0.05.

<b>Hypothesis</b>	<b>Regression weights from</b>	<b>To</b>	<b>Estimate</b>	<b>SE</b>	<b>CR</b>	<b>P</b>	<b>Result</b>
H <sub>1</sub>	GA-KSSs	DLC	0.198	0.074	1.746	0.031	<i>Significant</i>
H <sub>2</sub>	KFS	DLC	1.030	0.090	3.008	0.003	<i>Significant</i>
H <sub>3</sub>	LC	DLC	0.332	0.621	8.978	***	<i>Significant</i>
H <sub>4</sub>	HOs	DLC	0.265	0.091	7.210	0.009	<i>Significant</i>

Based on the Table (6), the first hypothesis (H<sub>1</sub>: There is a significant effect of KSSs on KB DLC) was accepted with *p*-value of 0.031, the regression between KSSs and DLC is positive with estimation value of 0.198. The literature declared other DLC requirements, such as; recruiting sufficient number of trainers, and enabling KSSs to enhance their services quality (Al-Shqairat, 2015). KSSs' projects are success if these projects have more flexibility for changing conditions to get low-cost projects numerous returns (Dougherty, 2010). KSSs usually adopted long-term projects

to develop local communities, but in Jordan these projects do not cover 25 per cent of local communities. Hosman and Fife (2008) emphasized that KSs projects' sustainability need to focus on wants, needs, and local communities' as whole. According to KSs administration (2017c), NITC proposed a training course for trainer, in order to fulfil the main aims of the training services offered by KSs such as community service development, lessening the digital share between the city and the rural communities, empowering the rural communities with IT know-how, and increasing the usage of the internet and its facilities.

The interviewed trainers explained some of the issues related to a knowledge society by saying:

*“As trainers we are not specialized in anything such as networks, and we do not fulfil our need for training and workshops. It must be developed in advanced courses, reflecting on the expansion of the work of the stations and not scaled down, and must allow the stations to make agreements with local and international agencies as well as agreements with ministries to activate the stations as a gateway to e-government, and move towards broader objectives of training with flexibility in work”.*

According to Table (6), the second hypothesis was accepted ( $H_2$ : There is a significant effect of FKS on K-B DLC) with a  $p$ -value of 0.003, the estimation value between FKS and DLC is positive with value of 1.03. This hypothesis explored the effect and cooperation of KSs in the field. KSs are practicing cooperation with a group of institutions from the local community, e.g. local Security Council, Greater Amman Municipality. KSs launched through the generations' competition, where the new generation debated with the older generation about the integration of technology.

Friends of these stations identified KSs as volunteers and some of them came four days a week. Moreover, KSs were working to complete a database to benefit from the experiences of community members in activities. Also, KSs had a partnership with the Drug Enforcement Department and were a member of the Environmental Committee and a member of the Local Security Council. However, there was a lack of support to encourage the friends of KSs through diversification of activities and programs. Al-Shqairat and Altarawneh (2011) stressed that KSs can be successful through integration between KSs' capabilities and LCs' requirements and needs. Obeidat (2017; 2017c) argue that KSs activities should be categorized into different groups such as: ICT capacity building and skill enhancement by tailoring training courses that directly address community's needs; community development and awareness services such as women's empowerment; and E-learning activities. The interviews indicated that stations have cooperation with a group of institutions from the local community, e.g. Local Security Council, Greater Amman Municipality, and Drug Enforcement Directorate. The KSs go to private and public schools, and cooperate with them about the stations' activities such as developing Facebook pages, and e-learning programs.

As shown in Table 6, the third hypothesis was also accepted ( $H_3$ ): There is a significant effect of LC on K-B DLC) with a  $p$ -value of 0.000, the estimation value between FKS and DLC is positive with value of 0.332. The local communities helped promote KSs' activities through brochures prepared at stations and by the KSs department and trainees themselves assisting in their distribution. There are people who support training programs and pay the fees of participants such as children's programs and reinforcement classes. Moreover, there are a lot of people and organizations associated with the support of training programs. The factors related to LC lead to the KSs success in the advancement in the performance of their services according to the literature included treating the local people as stakeholders at all stages of the project (Dougherty, 2010).

The interviews illustrated examples of social activities such as the Jordan Engineers Association which conducted courses on Women's empowerment, a cyber-crime program for children in cooperation with the local community institutions, and a beauty session with the support of the members of the governorate council. However, Al-Shqairat and Altarawneh (2011) indicated that there are some obstacles for KSs related to the LCs such as a lack of LCs support because of poverty and low levels of income, and the absence of data bases about LCs. The literature demonstrates some of ways that CSFs can enhance ICT projects services success including promoting the ICT projects development sustainability, developing a beneficial 'culture of use', and ensuring successful competitive performance of such projects.

Table 6 shows that, the fourth hypothesis was accepted ( $H_4$ ): There is a significant effect of HOs on K-B DLC) with a p -value of 0.009. The estimation value between FKS and DLC was positive with value of 0.265. The literature mentions that taking advantage of common interests by involved parties in ICTs projects is one of CSFs related to HOs and lead to success and advancement of KSs services' performance (Dougherty, 2010). HOs support and try to promote stations work and integrate them. For example, the Jordanian Hashemite Fund supported a training project for the Syrian refugees, and such projects achieved revenues for KSs. Al-Shqairat (2015) stressed that KSs should invest a part of HOs payments to improve their services and social activities. HOs such as municipalities contribute in electricity and water bills, and sharing in advertisements and transportation. The cooperation between KSs and HOs enhance stations' services and increase geographical spread.

All interviewed trainers emphasized that HOs support and try to promote stations' work and integrate them, Jordanian Hashemite Fund supported a training project for the Syrian refugees, and such projects achieved revenue for stations. Moreover, all interviewed trainers emphasized that HOs associate KSs in supporting of a knowledge society with good quality e-services, keeping up with knowledge development, providing training programs and workshops, and attracting people in local communities as KSs' friends.

## CONCLUSIONS

The research was developed to demonstrate the role of CSFs of Knowledge Stations on the knowledge-based development of local communities (K-BDLCs). The Critical Success Factors (CSFs) of KSs play an important role in promoting development and sustainability projects of local communities in all issues related to social, cultural, institutional, economic, political, and technological disciplines.

The general administration of KSs (GA of KSs) was established to achieve several objectives through their Field knowledge stations (FKSs) with cooperation of thirty local, national and private organizations. In addition, Hosting Organizations (HOs) supported the enhancing of internet usage for socio-economic development and improving local community skills through ICT training via involvement in the e-government project.

KSs have succeeded in achieving their objectives, but depend on key factors such as having: sufficient trainers; public and private sectors volunteers; creating suitable ways to promote KSs activities; and the variation of KSs programs and enabling them to enhance their quality of services. Moreover, there is a lack for continuous development programs, development of trainers and motivation and promotion of a career path. KSs department should enhance the reputation of

KSSs for local communities through the strengthening of accreditation certificates by searching for accredited bodies for specific programs and partnership with them for the accreditation.

KSSs should emphasize job social security through contracts with the civil service bylaw and ensure continuity. The trainers should be involved in advanced courses, reflecting on the expansion of the work of the stations and not scaled down, and must allow the stations to make agreements with local and international agencies as well as agreements with ministries to activate the stations as a gateway to e-government. Furthermore there needs to be a move towards broader objectives of training with flexibility in work, and to enhance the idea of station friends using the volunteering concept especially with regard to young males and females.

## FUTURE RESEARCH

The researchers recommend developing an additional research instrument that can be applied to other public and private sectors ICT projects in Jordan such as E-Government related projects. Also, there is a research gap about ICT initiatives in other developing countries; particularly those countries which have the same characteristics of Jordan.

## REFERENCES

- Abu-Rumman, A. (2019). Challenging tradition: Exploring the transition towards university entrepreneurialism. *Academy of Entrepreneurship Journal*, 25(2), 1-15.
- Abu-Rumman, A. (2018). Gaining competitive advantage through intellectual capital and knowledge management: an exploration of inhibitors and enablers in Jordanian Universities. *Problems and Perspectives in Management*, 16(3), 259-268.
- Al-Madi, F. N., Ata, E. M. AL Shra'ah, Mohammed, A. A. R., Lama, T. K. (2013). Knowledge management and strategic decision making in the Jordanian public sector. *Journal of Economics and Engineering*, 4(1), 43-55.
- Al-Shqairat, Z. (2009). *Understanding the role of public private partnership (PPP) in e-government implementation in developing countries: Case study of Jordan. Doctoral dissertation*, Leeds Metropolitan University, UK.
- Al-Shqairat, Z., Al-rawad, M., Al-Kilani, M. & AL Shra'ah, A. (2015). Towards Practical model of Public Private Partnership (PPP) Implementation in E-Government in Jordan: Field Assessment. *European Journal of Business and Management*, 7(32), 110-119.
- Al-Shqairat, Z., AL Shra'ah, A., Al-rawad, M. & Al-Kilani, M. (2014). Assessing the Planning of Public Private Partnership (PPP) in E-Government Implementation Experience in Jordan. *International Journal of Business and Management*, 9(2), 124-134.
- Al-Shqairat, Z. & Altarawneh, I. (2011). The Role of partnership in E-Government Readiness: The Knowledge Stations (KSSs) Initiative in Jordan. *International Journal of Technology and Human Interaction*, 7(3), 16-34.
- Antlova, K. (2010, January). Critical Success Factors for the Implementation of ICT Projects. *Proceedings of Communications in Computer and Information Science conference, Vilamoura, Portugal*.
- Ashton, H. & Thorns, D. (2007). The Role of Information Communications Technology in Retrieving Local Community. *City & Community*, 6(3), 211-229.
- Awang, Z., Afthanorhan, A., & Asri, M. A. M. (2015). Parametric and Non Parametric Approach in Structural Equation Modeling (SEM): The Application of Bootstrapping. *Modern Applied Science*, 9(9), 58-67.
- Bassanini, F. (2002). Delivering Services and Public-Private Partnership in EGovernment; with a Final Warning about Digital Divide, Digital Opportunity and the Danger of a New Colonialism. *Proceedings of 3<sup>rd</sup> high level forum on City Information in the Asian-Pacific Region (CIAPR III)*, Shanghai.
- Caregnato, S. & de Moura, A. (2004). Community Telecentres in Brazil: The Porto Alegre Experience: Toward Digital and Social Inclusion. *Bulletin of the American Society for Information Science and Technology*, 30(4), 16-30.
- Carr, S. C., Powell, Vanessa, Knezovic, Maria, Munro, Don, & Malcolm, MacLachlan. (1996). Measuring motivational gravity: Likert or scenario scaling? *Journal of Managerial Psychology*, 11(5), 43-47.

- Ciborra, C. (2005). E-Government and Development: Efficiency, Transparency or Governance at a Distance? *Information Technology and people*, 18(3), 260-279.
- Darby, J. A. (2008). Course evaluations: a tendency to respond “favorably” on scales? *Quality Assurance in Education*, 16(1), 7-18.
- Dougherty, A. (2010). Rural Peru’s Transition to Wireless Internet: A Case Study on the Challenges and Potentials of ICT Entrepreneurship in the Developing World. *The International Journal of Technology, Knowledge and Society*, 6(2), 119-124.
- Economic and Social Commission for Western Asia (ESCWA). (2017). *Knowledge Hubs of Jordan: The Way Forward*. Retrieved from <https://www.unescwa.org/sites/www.unescwa.org/files/publications/files/jordan-knowledge-hubs-english.pdf>.
- Farhadi M. I. R. & Fooladi, M. (2012). Information and Communication Technology Use and Economic Growth. *PLoS ONE*, 7(11), 1-7.
- Ferlie, E, Lynn. L & Pollitt, C. (2005). *The Oxford Handbook of Public Management*. Oxford/UK, Oxford University Press.
- Gaved, M. & Anderson, B. (2006). *The impact of local ICT initiatives on social capital and quality of life*. Chimera Working Paper 2006-6, Colchester: University of Essex.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M., (2013). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage, Thousand Oaks.
- Hosman, L. & Fife, E. (2008). Improving the prospects for sustainable ICT projects in the developing world, *International Journal of Media and Cultural Politics*, 4(1), 51-69.
- International Telecommunication Union. (2017a). *The ICT development index (IDI): conceptual framework and methodology*. Retrieved from <http://www.itu.int/en/itu-d/statistics/pages/publications/mis2015/methodology.aspx>
- Knowledge Stations. (2017). *KSs distributing across Jordan*. Amman/Jordan.
- Knowledge Stations. (2017a). *Together towards a digital economy & comprehensive development*. Retrieved from [http://www.ks.jo/default\\_EN.htm](http://www.ks.jo/default_EN.htm)
- Knowledge stations. (2017b). *Objectives*. Retrieved from [http://www.ks.jo/objectives\\_EN.htm](http://www.ks.jo/objectives_EN.htm)
- Knowledge Stations. (2017c). *Training offered services*. Retrieved from [http://www.ks.jo/training\\_EN.htm](http://www.ks.jo/training_EN.htm)
- Knowledge stations. (2017d). *A national network*. Retrieved from [http://www.ks.jo/KS\\_network\\_EN.htm](http://www.ks.jo/KS_network_EN.htm), visited at 25.9.2017
- Knowledge stations. (2017e). *Partnerships*. Retrieved from [http://www.ks.jo/partnerships\\_EN.htm](http://www.ks.jo/partnerships_EN.htm)
- Knowledge stations. (2017f). *Engaging the Local Community*. Retrieved from [http://www.ks.jo/KS\\_engage\\_EN.htm](http://www.ks.jo/KS_engage_EN.htm)
- Moensa, N., Broerse, J., Gastb, L. & Bundersa, J. (2010). A Constructive Technology Assessment Approach to ICT Planning in Developing Countries: Evaluating the First Phase, the Roundtable Workshop. *Information Technology for Development*, 16(1), 34-61.
- MOICT. (2016). *King attends 2016 MENA ICT Forum*, Retrieved from <https://jordan.gov.jo/wps/portal/Home/search/#/searchResults?q=ICT%20forum>
- MOICT. (2017a). *Shweikeh announces the drafting and formation of the "REACH 2025" initiative*, Retrieved from <https://jordan.gov.jo/wps/portal/Home/search/#/searchResults?q=REACH>
- MOICT. (2017b). *Statement of Government Policy on the Information and Communications Technology Sectors & Postal Sector-2003*, Retrieved from [http://www.trc.gov.jo/EchoBusV3.0/SystemAssets/PDF/AR/StrategiesandPolicies/Policies/ICT\\_Policy\\_2003.pdf](http://www.trc.gov.jo/EchoBusV3.0/SystemAssets/PDF/AR/StrategiesandPolicies/Policies/ICT_Policy_2003.pdf), visited on 16.9.2017
- Obeidat, O. (2017). The Role of Knowledge Stations in Bridging the Digital Information Literacy in Jordan”, *Dirasat; Educational Sciences*, 44(1), 339-358.
- Pade, C., Mallinson, B. & Sewry, D. (2011). Sustainable rural ICT project management practice for developing countries: investigating the Dwesa and RUMEP projects, *Information Technology for Development*, 17(3), 187-212.
- Pade, C., Mallinson, B. & Sewry, D. (2014). An Elaboration of Critical Success Factors for Rural ICT Project Sustainability in Developing Countries: Exploring the DWESA, *JITCAR*, 10(4), 32-55.
- Passerini, K. & Wu, D. (2008). The new dimensions of collaboration: mega and intelligent communities, ICT and wellbeing, *Journal of Knowledge Management*, 12(5), 79-90.
- Rao, S. (2004). Role of the ICTs in India’s rural community information systems, *Info*, 6(4), 261-269.
- REACH Initiative. (2017). About *Reach*. Retrieved from <http://www.reach-initiative.org/reach/about-reach>



- Rockart, J. F. (1979). Chief Executives define their own data needs. *Harvard Business Review*, 57, 81-92.
- Silverman, D. (2000). *Doing Qualitative Research, a Practical Hand book*. London, UK: Sage Publications.
- Taylor, R. & Lee, H. (2005). Occupational therapists' perception of usage of information and communication technology (ICT) in Western Australia and the association of availability of ICT on recruitment and retention of therapists working in rural areas, *Australian Occupational Therapy Journal*, 52(1), 51-56.
- United Nations Conference on Trade and Development (UNCTAD). (2011). *Measuring the Impacts of Information and Communication Technology for Development*. Retrieved from [http://unctad.org/en/Docs/dtlstict2011d1\\_en.pdf](http://unctad.org/en/Docs/dtlstict2011d1_en.pdf).
- Zainuddin, A. (2014a). *SEM-Modeling the structural model*. Structural Equation Modeling (SEM), 1-4.
- Zainuddin, A. (2014b). *Types of constructs in research the structural model : modeling the mediator*. Structural Equation Modeling (SEM).