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Knowledge Hubs of Jordan
The Way Forward

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CONTENTS

Background

In the 1980s, communal access points to new technologies were built in many localities around the world. They came to be known as telecentres, community technology centres, multipurpose community centres or points of presence (PoP), knowledge stations, etc. Some centres evolved into cybercafés, a place for the local community to get on the Internet or socialize. Some succeeded in improving the lot of the communities they served by creating new opportunities for socioeconomic development. While most centres, private or public, focused on providing Internet access and, sometimes, e-learning services, some acted as vehicles for empowering disadvantaged communities by facilitating knowledge sharing. The most common services currently delivered in access points are based on information and communications technology (ICT) applications. They include Internet access, informal ICT-based training and specific applications in areas such as e-health, e-business, e-government, and e-learning.

The advent of the mobile, a simple device that has made the Internet and related applications easier to reach and use, has made single purpose access points obsolete. However, the significant investments that went into the opening, furnishing, maintenance and management of access points must not be considered as having been wasted. New uses for these points can ensure their continued usefulness and sustainability. They can be re-designed gradually while continuing to operate as sustainable and autonomous entities. Their transformation will involve extending their current model to include new services, such as e-services in one-stop shops.

With the exception of some Gulf Cooperation Council (GCC) members, Arab countries still need to bridge the digital divide in order to benefit more from information, communications and broadband technologies. The situation may have improved since the first World Summit on the Information Society (WSIS) in 2003, but significant work remains to be done. The nature of the digital divide has changed. The most common issues are the following:

- Low availability of broadband connectivity to the Internet, specifically speeds ranging from 2 Mbits/s to more than 25 Mbits/s;
- Information gap between those who have access to useful high-quality content, effective electronic services and social and economic benefits through ICTs, and those who still use technology solely for recreational or communication purposes;
- Regional digital divide between GCC countries and less affluent ones;
- The digital divide within the same country between urban and rural areas, made evident by the difficulty of access of rural citizens to the Internet in general and e-services in particular;
- A digital divide that hampers the access of people with special needs to appropriate applications and equipment.

Adding to the previously mentioned inequalities and gaps is the fact that several countries are facing political upheavals that have shattered many economies and have had a negative impact on the lives and livelihood of citizens. One could add to the above-mentioned gaps, those that separate stable countries with rich economies, relatively stable countries with middle economies and crisis-ridden countries with dysfunctional economies.

In Jordan, access to technology is still not universal. Having invested significantly in the creation of close to 200 centres, the country finds itself at a crossroads. Its centres, currently known as knowledge stations, are facing significant challenges that are not uncommon in the milieu, but which are not necessarily consistent across all stations. A recent survey undertaken by the National Information Technology Centre (NITC), the central authority responsible for running knowledge stations in Jordan, has underlined the following main challenges:

- Lack of a clear vision and a comprehensible station structure;
- Weak or no marketing for their services;

- Old or unfit-for-purpose electronic and office equipment;
- Low or insufficient income due to services being free or low cost;
- Geographical proximity and proliferation of stations in some locations;
- Short opening hours, rendering access to stations difficult;
- Lack of interest of partners to keep stations functional;
- Flight of skilled workers and dearth of replacements;
- Competition from the private sector, which takes advantage of the aforementioned weaknesses;
- Scarcity of new ideas and solutions for the weaknesses of the existing knowledge station concept.

This document reviews regional and global experiences that are of significance to the context of Jordan, in order to offer solutions to maximize the return on investment that went into the creation and operation of the country's knowledge stations.

I. KNOWLEDGE STATION MODELS

Knowledge stations can operate as stand-alone entities or be part of a franchise. They can be managed by government agencies, financed by an international organization, sponsored by a non-governmental organization (NGO), or be a combination of these elements, in order to create community centres that meet the specific needs of a community and ensure sustainability. A management model can be successful on one site and unfit for another. Common models are listed below and three of them are examined in detail.

- Stations sponsored by international organizations;
- Stations sponsored by NGOs;
- Government-sponsored stations;
- Private enterprise stations;
- Franchise stations;
- School-based stations;
- Management committee stations;
- Cooperative stations;
- Religious centre stations;
- Hybrid stations;
- Mobile information centres.

A. STATIONS SPONSORED BY INTERNATIONAL ORGANIZATIONS

In this model, an international organization manages all stations in a region. A project management office located in the country's capital city usually supervises operations for the whole network. The office also carries out reporting, offers support to centre managers and coordinates activities.

1. *Financial support*

The international organization is the primary financial sponsor of the knowledge stations, sometimes in coordination with government agencies, NGOs and/or local entities. The organization covers launching costs and operating expenses. Community members contribute to a station's revenues by purchasing or utilizing services. Knowledge stations form a network and the subsidization is usually temporary. Subsidies continue until a station becomes financially independent.

2. *Advantages*

Funding by a sponsor allows stations to keep prices low and expand service access to underprivileged clients, who may not be able to afford them otherwise. This model allows stations to invest in the community they serve. This investment can be relatively modest in nature. Stations can offer local government and local business owners free training or free Internet services, which promotes stations and creates more business for them. The exchange of services ensures that lessons learned by one station are beneficial across the network.

3. *Disadvantages*

The main drawback of this model is that sponsorships are usually offered for a relatively short period that may be too short to ensure sustainability.

4. *Success factors*

Chances of success can be increased if the envisaged sponsorship period is extended and if there is a smooth transition of management from the central office to local station managers. Those managers should receive training during a preparatory phase; they should also be supported by the central office in an initial period or when they face unfamiliar situations.

B. STATIONS SPONSORED BY NGOS

In this model, an NGO manages all stations in a region, typically through a central project management office located in the country's capital city. The central office supervises stations, offers support to local managers, and proposes and coordinates activities.

1. *Financial support*

The NGO manages and funds stations, usually through grants from the public or private sector. It subsidizes launching costs and initial operating expenses. Community members contribute to a station's revenues by purchasing or utilizing services. Knowledge stations form a network and the subsidization is temporary. Subsidies continue until a station or the network becomes financially independent.

2. *Advantages*

Donor funding allows stations to lower prices and expand service access to underprivileged clients, who would not be able to afford them otherwise. Support from central office and mutual support among the network of managers are a great benefit. NGOs also have the capacity to garner support from the community they serve by forming local partnerships.

3. *Disadvantages*

The main disadvantage is that NGOs are usually unable to sustain funding for long periods and that many stations cannot survive an interruption of funding. Sometimes, NGOs may also lack the needed managerial capacity. Distance between the central management office and stations can render monitoring and support difficult or inefficient.

4. *Success factors*

As in the previous model, chances of success can be increased if the envisaged sponsorship period is long enough, and with a smooth transition of management from the central office to trained local managers.

C. GOVERNMENT-SPONSORED STATIONS

When a central government agency manages knowledge stations, it usually forms a project management team that oversees operations and provides ongoing support to local station managers.

1. *Financial support*

In this model, a central government agency is the main provider of funds for knowledge stations. It can share costs with other donors, who can be international organizations, NGOs, actors from the private sector and/or the local community. The government and/or partners subsidize launching costs and operating expenses. Community members also contribute to revenues by purchasing and utilizing services.

2. *Advantages*

Support from the government allows stations to lower prices and provide free or low-priced services to underprivileged clients who would be unable to afford them otherwise. Support from central office and mutual support among the network of managers are a great benefit. Moreover, government institutions are usually considered safe and stations that are set up in government buildings attract a larger number of community members than those that are not.

3. *Disadvantages*

Government bureaucracies are complex. Red tape hinders or prevents fast action and decision-making can become unusually cumbersome. Some government agencies lack ICT experience and do not have the capacity to effectively run ICT-based projects. While an advantage in most instances, central management of the station may lack flexibility. Some stations may suffer from central decisions that are not custom-tailored. Expectations of free services are also high when the government is the provider, which may render pricing of services unrealistic or impossible.

4. *Success factors*

Partnerships between the government and experienced international organizations increase chances of success and capacity to set realistic prices for services, which frees the government from the expectation of citizens. Project management teams must be given the ability to cut through red tape, and to make and implement financial and managerial decisions in a relatively short time frame.

II. KNOWLEDGE STATIONS IN SELECTED COUNTRIES

A. ARAB COUNTRIES

1. *Egypt*

(a) *The IT Clubs project*

The IT Clubs project was launched in 2000 by the Ministry of Communications and Information technology (MCIT) of Egypt with the aim of developing IT awareness and skills among Egyptian children and youth, and reducing the digital divide by ensuring ICT availability throughout the Egyptian society, with a focus on the underprivileged. It is a public private partnership that provides affordable Internet access throughout the country to those who cannot afford to own a personal computer (PC).

IT clubs are located throughout Egypt, from Aswan to Alexandria. The Government has also adapted mobile trucks to bring the service to isolated communities. Clubs are usually hosted by associations, schools, libraries, youth centres, universities, unions and municipalities. The MCIT provides PCs, software licenses, and free Internet connections and training for the club staff and salaries in the first year. The hosting agency provides a renovated and furnished location to host the club.

An IT club is considered an independent unit living on its income, but there are exceptions. Usually a third of the club's income is set aside for the upgrading of equipment, while the rest is spent on Internet subscription fees and staff salaries. The workforce consists of one or two technicians and a manager, who must live near the club to be familiar with the needs and interests of the local community. IT clubs generally contain 12 networked PCs and a printer. They offer training on basic ICT applications and Internet access. Use of PCs to access e-government services is free of charge. User fees for other types of services are set by the MCIT and are symbolic. Some IT clubs are used as advanced capacity-building centres that attract professionals in the field of ICT who use advanced ICT tools, and develop, repair and create tools and applications.

Egyptian ICT clubs have adopted the community management model that brings together the public sector and NGOs. The Government provides central planning and sponsoring, while the NGOs are in charge of day-to-day operations. This mixed model provides the flexibility that would not be available had the clubs been run exclusively by the public sector.

(b) *Other projects in Egypt*

In partnership with the United Nations Development Programme (UNDP)-Egypt and the Ministry of Foreign Affairs/Cooperazione Italiana programme, the MCIT conceived and implemented the Mobile Information Technology Clubs project. Caravans and buses outfitted with PCs travel across the country to provide remote areas, such as El Minya, Giza or Al-Ubor, with Internet connectivity through a satellite link and other IT services. Trainings on computer basics, Internet, multimedia, languages and Web design are organized in remote communities. Caravans can accommodate 20 users and buses can cater to 10 persons simultaneously. Each has a driver, a coordinator, a supervisor, instructors, a data projector, a power generator, air conditioning, a printer and scanner, and Web cameras. Caravans also offer a five-week course providing in-depth exposure to computer hardware and operating systems, and help students to prepare for the A+ certification.

2. *Lebanon*

(a) *Stations of the Professional Computer Association*

Several international organizations and NGOs have established a number of stations and networks in Lebanon. The network initiated in 2002 by the Professional Computer Association (PCA) is the largest. It was part of the Internet Point of Presence Initiative, which consisted in providing equipment and Internet access to 10 villages across Lebanon. Stations were located in municipalities or community centres of small towns and villages. Approximately 50 were opened in the first years of the network, in partnership with national and international partners from the private and the public sector, including Automation & Computer Technologies, Best Buy, Business Software Alliance, Computer Information Systems, ESCWA, Microsoft, UNDP, USAID and others. They were thus devised along the international organization and NGO models. The public's response was outstanding, with many villages rushing to lobby for their own centres. Cultural characteristics were taken into consideration to encourage participation by all segments of society.

In September 2006, PCA also launched the Information and Communication Technology Academy (PICTA), which organized free workshops to all segments of society, particularly those that face harsh economic and social conditions. PICTA aimed at strengthening local capacities and empowering people to benefit from available employment opportunities and improve their living conditions. The first PICTA was established in Nabatiyeh, followed by Baalbeck, Bint Jbeil and Marjeyoun. Civil society organizations and NGOs managed these academies as part of a process that was meant to ultimately lead to the transfer of ownership and management to a local partner. Today, however, many centres are closed and the network is barely functional due to a lack of funds. Currently operating centres are those that have managed to become sustainable without help from the PCA. The PCA continues to receive requests from villages and towns interested in opening their own centres: there is thus still interest in the approach, but the project is out of funds.

(b) *Multipurpose technology community centres*

In 2003, multipurpose technology community centres were established in the Akkar region, in the northern area of Lebanon, which is one of the most impoverished. ESCWA, the Fares Foundation, Safadi Foundation, Microsoft and local municipalities partnered to establish these centres in the towns of Bebnine, Muqaybleh and Tal-Abbas. The town municipalities donated physical space, electrical supply, telephone lines and Internet connections. ESCWA provided training for two persons per centre to manage it and deliver training to the local community. Courses were given in basic IT skills involving word processing, spreadsheet operations, databases and Internet browsing. Each centre was equipped with 10 networked PCs, one laser printer and an Internet connection. Training and Internet access were available free of charge in all centres.

As common in similar setups, as soon as financial backing dried out, the centres stopped offering services and closed down five to six years after they were opened.

(c) *Community centres of the Ministry of Social Affairs*

The Ministry of Social Affairs established more than 65 community centres across the country, mostly in underprivileged areas, known as development service centres. Their mission is to assist the local population in achieving development goals. The centers offer literacy courses, health-care services including maternal and paediatric clinics and dental care, professional training, and social and developmental services. Most are equipped with PCs used for basic IT training. The Ministry provides the premises, furniture and management. Most of these centres are still operational.

(d) *Multipurpose community learning centres*

Multipurpose community learning centres are local centres that provide citizens living in underprivileged areas with learning opportunities. They are planned and implemented by community members, in the framework of a project by the United Nations Educational, Scientific and Cultural Organization (UNESCO) targeting out-of-school children, youth and deprived women.

The centres are established in partnership between UNESCO and a local actor. The Organization provides equipment and expertise, and has regular meetings with centre staff, while the local partner provides the premises and covers the cost of day-to-day management and employee training. Each centre is equipped with 8 to 10 networked PCs, a scanner, a printer and an Internet connection. It offers IT training in addition to various learning activities.

3. *Syrian Arab Republic*

(a) *The Rural Knowledge Network (Reefnet)*

Reefnet is a knowledge network for local communities in rural and remote areas of the Syrian Arab Republic. It was established in 2004 by the Ministry of Communications and Technology (MoCT) and UNDP. The network uses IT to contribute to socioeconomic development. It provides medical, legal and educational information and facilitates local government procedures and transactions. By the end of 2012, Reefnet included 96 websites, each providing specific information on the area it covers, ranging from history and geography to economic activities and services. In early 2012, the management of Reefnet was completely transferred to the MoCT. An agreement was signed in May 2012 with the Ministry of Local Administration on support and follow-up for local community websites.

The main portal provides information on agriculture, health, education, heritage and law. It includes bulletins on agricultural guidance, the agriculture calendar and an agricultural forum. Syrian laws are presented in detail and a legal e-forum enables citizens to raise queries concerning legal issues. Educational content comes in the form of special books and a forum monitored and operated by volunteer teachers. Medical content consists of a variety of articles on diseases and prevention, and an increasingly successful medical forum in which more than 60 volunteer medical doctors participate. Multimedia information on heritage includes a gallery of old pictures and articles on the Syrian countryside, traditional costumes, local foods, proverbs and songs, and a virtual souk of artisanal products. A digital library features over 2,000 books and 4,000 articles and studies, mainly in text form, but an audio library was launched with 60 lectures on the ancient history of the region. Expansion is currently halted due to a lack of funds.

(b) *Access centres*

The telecentres or access centres project was established in partnership with UNDP and operates under an agreement between the MoCT, the Syrian Computer Society and the Syria Trust for Development. It is aimed at operating telecentres that use ICTs for socioeconomic development.

By 2010, 35 fixed centres and 5 mobile ones had been created. The Syrian Computer Society had increased their number to 59, but since the beginning of the conflict, 20 centres have ceased all activity, 4 have been ransacked and 10 could no longer be equipped properly due to inaccessibility. During the past two years, activities have included training courses in areas such as IT, advanced IT, International Computer Driving License (ICDL), foreign languages, nursing, children care and agriculture. The Society is still planning to establish 25 new telecentres within the coming three years.

(c) *The IT Plaza*

The IT Plaza is a community access point with advanced ICT capabilities, which was established in Damascus in 2008 and is still functioning. Its main focus is the empowerment of children and young persons aged between 5 and 25 years through ICT capacity-building and general knowledge acquisition. The IT Plaza provides a fully equipped training room that can accommodate 20 trainees, a digital library, an Internet café and a virtual reality room. A large number of activities are carried out yearly, including training courses in project management and statistical data collection. School visits, Korean language courses, and movie showing and other entertainment activities are also frequent.

B. NON-ARAB COUNTRIES

1. *Chile*

The Chile Community Information Network, a pioneer community project in the country, was launched in 1997 to offer better connectivity to rural citizens. More than 32 telecentres were established in the Araucania region to connect it with other parts of Chile and the world. The centres offer several types of services, including Internet connectivity, training and support. They also facilitate access to information, such as fishing information for local anglers. Online content is developed in the local language (Mapuche). Telemedicine services are also available at the centres to raise awareness and provide medical advice on common health issues.

The Network faces several challenges. The adoption of new technologies by locals required a large effort on the part of the telecentres' staff. An awareness-raising campaign was undertaken to ease people's concerns and convince them of the advantages of technology. The sustainability of these centres depends on the revenue derived from their activities, and on whether it is enough to cover salaries and maintenance costs.

2. *Ghana*

Telecentres in Ghana aim to boost economic growth by improving livelihoods, creating job opportunities for local communities and providing new ways to deliver services remotely. The *Busy Internet* café in the capital city, Accra, is a good example of such telecentres. It regularly hosts seminars and events, and provides technology training to students and government officials. It includes a business incubator to coach young people on how to establish their own businesses.

Another example is the *Patriensa* telecentre, which was established in a Ghanaian village to support economic development. This centre also became a training hub for young people from the region, aimed at developing their entrepreneurial skills in order to foster the creation of businesses. Sustainability remains one of the main challenges of these centres. To cover recurrent expenses, *Patriensa* has diversified its business. It has started refurbishing bicycles to make some profit and provide farmers with affordable transportation means, and has opened a guesthouse in a region that had very few of them.

3. *India*

In India, telecentres are mostly set up in partnership between the Government and the private sector. The *Gyandot* project is an example of such a hybrid model, with government leadership and private sector

intervention through entrepreneurs. Launched in 2000, the project seeks cost-effectiveness, replicability and sustainability. It offers ICT access to rural and poor areas through kiosks installed in village community buildings and local markets. It is flexible and adaptable to the specific needs of local communities. Telekiosks operate along one of two models:

- The *Panchayat* model, in which the village community invests to establish the kiosk, providing the physical space and hardware and other infrastructure equipment. The operator covers telephone and office supply fees. A percentage of the kiosk's earnings feeds back into the community budget;
- The *Entrepreneur* model, in which an entrepreneur is registered as kiosk owner and assumes all expenses, with the operator covering annual licensing fees.

III. ENSURING VIABILITY OF KNOWLEDGE STATIONS

A. COMMON PROBLEMS

Knowledge stations across the world face common obstacles that put their viability and sustainability at risk. This section consists of a brief review of these problems. Solutions are then proposed for the specific context of Jordan.

1. *Unsustainable funding*

Funding of knowledge stations is generally unsustainable and merely covers day-to-day costs. During early implementation phases, many stations receive money from the national government, international organizations, NGOs or the private sector, which provides for non-recurrent and recurrent costs during a limited period. A typical example is a one-time donation of equipment that satisfies hardware needs for three to five years, but does not extend to maintenance and replacement costs. More often than not, knowledge stations barely have the funds needed to be self-sufficient and cover labour, electricity, rent and other daily expenses. However, without the equipment upgrades needed to keep up with technological advances, knowledge stations become irrelevant and eventually fail.

2. *Unsustainable partnerships*

Partnerships sometimes suffer from shifts in priorities. The plans of international organizations and NGOs that support the creation of knowledge stations often include self-sufficiency as a parameter. For example, they may budget the cost of an expensive Internet broadband connection for two or three years. If the beneficiary knowledge station has not figured out a way to cover that cost after this period, the connection will become unsustainable. The same applies to staff salaries or any other type of expenses. The problem can be minimized through the choice of local partners that are more invested in the community.

3. *Unstable workforce*

Many knowledge stations are situated in remote or economically disadvantaged parts of a country, which do not usually attract a qualified workforce. It is often difficult to find experienced local staff. Salaries have to be pushed up or alternative solutions found to ensure that a station stays open as many days of the year as possible. Training locals can solve the problem, but it may only be a temporary solution. When junior operators become knowledgeable and experienced, they may choose to leave the station to live in a more attractive location. This is one of the most complex issues faced by remote stations.

4. *Duplication of services*

When an international donor or an NGO creates a good concept, other actors tend to follow suit. A decade ago, knowledge stations were very popular. Governments, the private sector, local and international organizations

opened a great number of them and many became redundant just because of their mutual proximity. Once the initial need was fulfilled, stations started competing for survival and some were forced to close.

5. *Lack of public exposure*

After an initial rush of publicity at the launch of a new knowledge station, public exposure can become minimal. The assumption that a knowledge station will survive just because it offers an essential service or because of word-of-mouth publicity is a common mistake that can lead to the marginalization of a station. Even the most successful brands of commercial products need to keep advertising their offerings in order to stay on the minds of potential customers.

6. *Same old services*

When first conceived and even before they were called knowledge stations, telecentres catered to customers who wanted to benefit from ICT services, such as capacity-building and access to the Internet. Those were genuine needs 10 to 15 years ago, but Jordan has changed since then. Access to the Internet is now more affordable and possible from home. An increasing number of adults have become ICT savvy and the younger generation receives digital education at school. This has led to a significant decline in the number of knowledge station clients. Adapting services to the evolving needs of the community can help to bring the clients back.

7. *One-size-fits-all approach*

It is common for government institutions to come up with formulaic solutions that they then implement with no or very little customization. In a centralized model, such as the one adopted by the NITC, the tendency is to create templates regardless of the stations' locations, special needs and distinctive features. This approach can be expensive, wasteful and inefficient.

B. PROPOSED SOLUTIONS

The proposals presented in this section are definitely not the only feasible solutions. They are meant to serve as a basis for discussion with the NITC and experienced managers of knowledge stations from various parts of the country.

1. *Achieving financial sustainability*

Stations should become self-sufficient and rely on their own income to sustain their activities. In order to achieve that goal, they should be located in areas where there is little or no competition for their services, and they should diversify their activities to attract a large number of beneficiaries. Since they are perceived as a public service, their self-sufficiency is often deemed unrealistic, especially in remote, poor and underpopulated areas. Nevertheless, the ones that are able to achieve profitability should support the less fortunate. Since all stations report to a central authority, excess income or profit should go into a common till to cover the deficits of money losing stations, which should not be closed.

Knowledge stations should not function nor be perceived as unidimensional spaces offering a limited number of IT and learning services. The fact that they are spread across Jordan and are supported by the Government should be used to their advantage. Stations can become outreach locations for all ministries and government agencies, especially in remote areas where they can be used as one-stop locations for public services and activities, such as occasional trainings of officials or censuses. Costs of space rental or ownership and salaries are more justified when more services are offered. Station managers can have more functions and responsibilities; they can be fully fledged public sector employees extending a large range of services for the community.

2. *Choosing appropriate partners*

Since knowledge stations have already been established in most parts of the world, international organizations, NGOs and the private sector have become less enthusiastic about funding such projects. The Government of Jordan would be well advised to look inwards for partners that have a vested interest in keeping knowledge stations open. Partnering with local municipalities may prove to be the safest choice. Other local public entities, such as public libraries, may also be appropriate partners, especially if they do not have physical locations.

Partnerships do not have to be permanent or even long-term. International donor support could be kept for one-time purchases or renovation work. Short-term partnerships with the private sector could serve for upgrades. Such partnerships could also be envisaged with public sector entities, such as a government agency that needs to temporarily rent a space to train its employees, which would increase the relevance and viability of a station.

3. *Stabilizing the workforce*

Many see the workforce in knowledge stations as an extra financial burden on the Government, especially that station managers are still perceived as operators of IT training facilities. Diversifying the activities of knowledge stations would change the profile of station managers. The NITC could organize trainings for station operators and technicians on running small businesses and steering them towards profitability. Once trained, many managers may choose to leave the stations to create their own businesses. This risk can be minimized by turning station managers into business partners with incentives, or by allowing them to use the knowledge stations to offer small but essential services to the community. For example, station managers in remote areas can sell printer cartridges and peripherals to increase their income. This would enhance their motivation and, in this way, the Government would keep its well-trained workforce in place.

Another way to ensure that knowledge stations stay in business at minimum cost is to encourage volunteerism. When the services of a knowledge station become more diverse, a wider range of volunteers can be attracted, such as university professors and other educators who can give specialized courses in knowledge stations situated in refugee camps. Other examples include babysitting volunteers if a nursery function is added to a station. Volunteers can also keep the station open while managers are in training or absent for short periods.

4. *Avoiding redundancy*

The NITC can assess stations in terms of their location and offered services, in order to identify the ones that are redundant with similar facilities. Consolidating several stations into one would improve the chances of survival, effectiveness and reputation of stations.

5. *Enhancing public relations and exposure*

As some knowledge stations started becoming a financial burden, even less money was spent on exposure and minimal effort went into public relations. In such situations, grassroots efforts and the help of the local community may be the best option. Public exposure on the national level is indeed costly, but targeted campaigns that advertise the services of individual stations to the people most likely to use them are cheaper and more effective. Volunteers can undertake small efforts, such as designing a simple poster, printing it on the printer of a station, reproducing it on its photocopier and distributing it in local gathering points such as schools, prayer halls or supermarkets.

The role of the NITC is also important. Creating a portal for the network of stations would ensure online exposure. Posting activities on free social media platforms is also a cheap and effective option for large-scale advertisement.

6. *Diversifying services*

Many stations have suffered from the dearth of innovative ideas beyond basic IT services and training. A stereotype according to which knowledge stations are exclusively related to IT has proven difficult to break. This must change so that stations can survive. The below table presents options for new types of services. The list is by no means exhaustive. Creative managers and the NITC are best positioned to add to it, as they are familiar with the needs of the diverse communities they serve.

7. *Customizing stations*

Most knowledge stations were built with a set number of electronic pieces of equipment, a rigid profile for station managers and a formulaic way of delivering services. This rigidity has led to irrelevance and has largely contributed to the failure of some stations. To continue serving communities as effectively as when they opened their doors more than a decade ago, stations have to customize their offer.

The table below suggests services that can be easily adapted to stations anywhere in Jordan. It lists requirements in hardware and software for a knowledge station to remain functional in the traditional sense, while ensuring that it can also offer new services if new resources, mostly human in nature, are made available. New staff would not be hired permanently nor for a set number of hours in advance. The needs of the community should act as the main drivers. If the service is not permanent in nature, a coach/trainer/provider can be hired – or can volunteer – solely for service delivery. The service can also be priced in accordance with the costs indicated by the trainer. Knowledge stations would thus act as facilitators by delivering the required logistics. Station managers can undertake longer-term activities.

In order to make it easier for the community to identify its needs, the NITC can create a repository of services and place it on the proposed portal. This publicly available information can be used by any member of the community to approach a station manager with a request. The repository would include not only the title and description of available services, but it will also keep track of approximate costs and requirements, and would feature a database of the persons who can deliver them. This repository should be periodically updated with new priorities and suggestions

Knowledge Stations in Jordan: Services and Requirements			
Category	**Requirement/Service**	**Description**	**Frequency**
Hardware available at station (minimum requirements for knowledge stations)	Computers	Used for training and administration (number of PCs in accordance with size of community).	Purchased once every five years
	Networking equipment	Used to connect computer equipment (switches, modems, etc.).	Purchased once Replaced when obsolete
	Phone	At least one phone line that could be used for voice and DSL/Internet connection.	Purchased once Replaced when obsolete
	Fax	At least one fax machine that can be used for the station and center users (paid service).	Purchased once Replaced when obsolete
	Photocopier	At least one machine that is capable of photocopying, a multifunction scanner/printer/fax/copier for small stations.	Purchased once Replaced when obsolete
	Printer	At least one printer, a multifunction scanner/printer/fax/copier for small stations.	Purchased once Replaced when obsolete
	Scanner	At least one scanner, a multifunction scanner/printer/fax/copier for small stations.	Purchased once Replaced when obsolete
	Digital photography	At least one digital camera, preferably an entry-level DSLR that can be used to document the activities of the centre and of the community.	Purchased once Replaced when obsolete
	Television set	Other than regular uses, the television set can be used for small scale projections.	Purchased once Replaced when obsolete
	Video camera	At least one video camera. In small stations, the DSLR camera can be used to record videos.	Purchased once Replaced when obsolete
	DVD	In small stations, the DVD can be part of the computer equipment (no need for a separate DVD player).	Purchased once Replaced when obsolete
	Projector	In small stations, the TV may be used for small scale projections.	Purchased once Replaced when obsolete

Knowledge Stations in Jordan: Services and Requirements			
Category	**Requirement/Service**	**Description**	**Frequency**
	Generator	In remote areas where electricity may be a problem, a power generator is essential for the continuous functioning of the station.	Purchased once. Replaced when obsolete. An allowance for fuel must be budgeted yearly.
Software licenses (minimum requirements)	Word processing	Software licenses for the centres are acquired legally through "academic agreements" with large software developers such as Microsoft (word processing, spreadsheets, email, presentations) and Adobe (graphic design, photo editing). Software licenses are cheaper when purchased for educational purposes and large companies tend to offer services for free when academic licensing is purchased. Negotiating a big number of licenses with providers can also yield benefits.	Academic agreements can be purchased for a year, two or longer. Longer agreements tend to be more advantageous as they are cheaper. They also come with a bigger basket of benefits such as free support and training for a number of staff members. Everything in an academic agreement is open for negotiations.
	Spreadsheets		
	Internet browsing		
	email		
	Graphic design		
	Photo editing		
	Presentations		
Proposed services: IT training	Website development	Courses to teach basic website development.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Web hosting	This service could be offered by the central office in Amman. It allows stations to advertise their services and the achievements of their communities.	Permanent. To be offered by central office in Amman.
	Analysis and programming	Basic analysis and programming lessons.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Hardware support and maintenance (A+)	How to fix hardware problems and install and maintain basic networks.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Network management	How to set up, manage and maintain a local area network + basic wide area network knowledge.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.

Knowledge Stations in Jordan: Services and Requirements			
Category	**Requirement/Service**	**Description**	**Frequency**
	Basic ICT skills	How to use a PC, Word and Excel.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Software configuration for PCs and Servers	How to install or reinstall operating systems, desktop applications and networking software.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
Proposed Services: Training/Coaching/Continuing Education	Videography	How to shoot and edit basic video films.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Photography	Manual photography skills that go beyond point-and-shoot.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Child nursery and education	Provide nursery services for working parents.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	School programme	Help children with their school programmes.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Research for school projects	Help children with research for their school projects.	Offered by station managers and/or volunteers when available.
	Continuing education	Providing space and trainers in a variety of subjects that are of interest to residents served by the station.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Foreign language courses	English (or other , if there is interest) language courses.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Basic financial education and business accounting	How to manage personal finances and basic accounting for small businesses.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.

Knowledge Stations in Jordan: Services and Requirements			
Category	**Requirement/Service**	**Description**	**Frequency**
	Entrepreneurship programme	Be an entrepreneur and start your own business.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Business management course	Ensure the sustainability of the small business that you started without experience. Learn how to manage it to ensure its sustainability.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Public relations and marketing	Learn how to market your products and how to maintain good relations with your retailers.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Project management	Project management courses based on the most common methodologies.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Knowledge station management	Ensuring the sustainability of knowledge stations by training a cadre.	Permanent. To be offered by central office in Amman.
	Agricultural programme	Offered in regions where agriculture is one of the main income sources for residents.	Offered periodically, in partnership with the Ministry of Agriculture and other government institutions that are specialized in agriculture, but may not have the needed space.
	Fishing programme	Offered in regions where fishing is one of the main income sources for residents.	Offered periodically, in partnership with the Ministry of Agriculture and other government institutions that are specialized in agriculture, but may not have the needed space.
	Environment education	Raising the awareness of the general population with regard to the importance of keeping a sustainable environment.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
	Nutrition and health Education	Raising the awareness of the general population with regard to the importance of nutrition and health.	Offered periodically, in partnership with the Ministry of Health and other government institutions that are specialized in health, but may not have the needed space.

Knowledge Stations in Jordan: Services and Requirements			
Category	**Requirement/Service**	**Description**	**Frequency**
	Employment-related courses	How to write a CV, how to sit for a job interview, etc.	Offered periodically. If volunteer trainers are not available, paid professionals can be hired to carry out training.
Proposed services: job centre	Employment information	Act as a regional job centre, especially in areas where such a service is not available through another agency.	Station managers to be trained to handle basic chores related to these functions. Volunteers are encouraged to participate in the process.
	Job search		
	Insertion in the work market		
	Education about employment		
Proposed services: e-government	Information	Provide listed e-government services, and other services when they become available, to a population that may not be computer savvy.	Station managers to be trained to handle basic chores related to these functions. Volunteers are encouraged to participate in the process.
	Help with online forms		
	Help with applications		
	Open government		
	Communications		
	Population census		
	Complaints		
Proposed services: agriculture guidance	General information	Act as a field office for the Ministry of Agriculture and other government agencies working in agriculture. The Ministry of Agriculture is offered as an example. Other services could be provided for other government agencies that need citizen outreach programmes but do not have the needed space necessary. Since knowledge stations are spread out across the country, their physical space can be used for a host of public services.	Offered periodically, in partnership with the Ministry of Agriculture, and other government institutions that are specialized in agriculture, but may not have the needed space. Same is applicable for other government institutions that need regional centers for their services. Knowledge stations will provide the necessary space and services at a nominal charge.
	Agricultural training		
	Marketing your own products		
	Packaging your products		
	Information on global and domestic prices		

Knowledge Stations in Jordan: Services and Requirements			
Category	**Requirement/Service**	**Description**	**Frequency**
Other proposed services	Space to sell computer media and other products	A few essentials can be offered in stations that are situated geographically in areas where finding a printer cartridge or similar products can be a challenge.	These are services that are of interest to the communities and may not be applicable to or realistic for all stations. The geographical location of the station, its size and resources will determine feasibility. These services will provide extra cash. Managers can be offered a percentage of profit made for enticement.
	Counseling	Counselors may come in once a week or on appointment and use the space against a small financial stipend.	
	Advocacy	A space can be offered to advocate for community-driven initiatives, especially for youth, women and underprivileged groups.	
	Exchange programs	Stations visit each other and provide services that they have that may be missing from the station that they are visiting. This service can be offered only if there is a central repository of the services that are available at all stations. Station managers can check the list and coordinate exchange programs with other station managers from a different physical location.	
	Matrimonial match	This and other similar services can be offered if there is a need and acceptance of the idea by local communities.	
	Gaming	A space where local youths could play community games, electronic or otherwise.	