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# THE ASSETS OF KNOWLEDGE SOCIETY IN OMAN: PEOPLE AND ICT

**Samia Al Hadi**
Corresponding Author: Modern College of Business and Science, Sultanate of Oman.
Email: ssalhadi@hotmail.com

**Sulaiman Al Rawahi**
Telecommunications Regulatory Authority, Sultanate of Oman. Email: dare2visualize@gmail.com

**Abstract**

The technological progress has been considered as driver of overall development in the world and a lot of countries have adopted a diversified economic growth model such as Oman. Oman is a Middle Eastern country with an economy that relies heavily on Oil. As part of its 2020 vision aiming at sustaining social and economic growth and development, Oman has been seeking to develop a Knowledge Society (KS). This paper focuses on people and ICT as important and vital assets and resources to successfully develop a KS. The main objectives of this paper are the following:

- To investigate the role of people and ICT in developing the Knowledge Society in Oman
- To propose a framework on how to involve people in developing KS in Oman
- To identify how to align the development of the Knowledge Society with the human resource development in Oman

The main research method used in this paper is interview. Also, secondary sources such as books and online journals are utilized to get the maximum understanding of the topic of the research. The results of this project are expected to show how Oman KS project affects the development of human resources, their life and their work. Moreover, the finding of this project shows that for Oman to develop KS, there are certain areas that have to be considered such as ICT infrastructure and training of human resources. The development of human capacity is essential in developing the KS in Oman. The main concern is to focus on the development of education as it is the key investment in humans. This paper seeks to develop a framework for involving people in KS development and aligning KS development to go along with human resources development.

**Keywords:** Oman, Knowledge Society, Development, Human Resources, ICT

## 1. Introduction

"A successful modern economy is founded on a strong scientific base that has the ability to convert scientific research and knowledge into products and services, which bring social and economic benefits" (Breithaupt, 2000, p.460); a statement that sums up the thrust for countries to strive to build KS. The beginning of the millennium witnessed a lot of efforts to promote the importance of

knowledge in social and economic development. The UN adopted the Millennium Development Program that included the support for the creation of knowledge in societies. Also, the UN published the Arab Human Development Report in 2003; the main focus of the report was building the KS in the Arab counties. This paper aims to add value to society as it contributes in raising awareness of the necessity to develop KS in Oman. In addition, in light of the purpose of Oman's Vision 2020 being the diversification of the national economy, developing a KS is one direction towards economic diversification. The objectives of this paper are to investigate the role of people and ICT in developing KS in Oman and to propose framework on how to involve people in developing KS in Oman. Also the objective of this paper is to identify how to align the development of the KS with the human resource development in Oman.

The paper is organized as follows; literature review of the previous researches which have been carried in similar field; an overview of KS in Oman; a brief explanation of the research methodology that was adopted in this research; analysis of the interview questions and presentation of the main findings; the proposed framework on how to involve people in the development of KS and how to align the development of Knowledge Society with the human resources development. Finally, the paper ends with conclusion, provides recommendations and outlines the limitations of the research.

## 2. Literature Review

The KS is not about information that is shared; it is rather about the members of the society who are willing to communicate and share knowledge (Burch, 2006). "The knowledge society is a human structured organization based on contemporary developed knowledge and representing new quality of life support systems. It implies the need to fully understand distribution of knowledge, access to information and capability to transfer information into knowledge" (Afgan and Carvalho, 2010, p.31). Nicolae (2009) considered KS as a new concept for developed countries and as a challenge for developing countries as they feel the need to become knowledge-based in their society and their economy. However, learning from the experience of developed countries and some developing countries helps other developing countries overcome some of the challenges they may face in their pursuit to develop a KS.

KS is a wider concept compared to information society, although the emergence of KS depends on the information society in its infrastructure as the basic foundation for knowledge is information. KS can be formed in light of new technologies and evolving ICT features. Also, it builds on the important features of new economies as shaped by multinational networks of corporations, which, by their very nature, will open society to global markets. All those could be achieved through the involvement of human expertise and capability. Consequently, there is a need to have proper approaches to education, research, and innovation as well as professional training for the workplace. At the same time, the major components of human activities such as social, cultural, economic, political, legal, and environmental, in addition to others, depend on developing and sharing knowledge and information.

"Knowledge societies are arguably to be a source of human development and empowerment in that access to knowledge will ipso facto contribute an element of power" (UNESCO, 2005, p.27; as cited by Nayar, 2008, p.4). In addition, the reason for the differences in economic growth of countries and their productivity is more linked with quality of their human resources and capabilities and less linked with natural resources endowment (Nicolae, 2009). Therefore, it is important to realize that human capital is a main requirement to build the KS and skilled people are the foundation for innovation. In this case, the learning programs and potential services obtained from these programs should be transferred into human capital as it is one of the main efficient factors of production.

The KS has broad aims: "to create a more open state, to link and make available to all the available knowledge, to promote internet usage in education, and to support and develop digital technologies usage by firms" (Conceicao *et al.* 2003, p.585), where digital technologies has role on changing the way human and firms interact and work. Also, it is obvious that the primary resource for creating wealth and well-being for people in KS is knowledge. Therefore, the investment in social capital has to be the most important asset but wealth is being measured more on the development in technology and the capabilities of learning in society. A KS is related to a society that is characterized by information processing, knowledge generation and information technologies, which are enabled by the technological revolution (Burch, 2006).

Pavitt study shows that technological knowledge is not just "applied science" but a capacity to solve complex problems including a strong component of tacit knowledge (Pavitt, 1996 cited by Conceicao *et al.* 2003, p.611). In addition, many literatures such as Sein and Harindranath (2004) argued that ICTs play an important role in the development of developing countries. A process of development is defined as "improving the capacity and well-being of citizens by providing equitable access to information and building their ability to assess and interpret this information to harness resources" (Prakash, 2005, p.47). This definition indicates that ICTs facilitate the development of different areas such as education, environment, health, and democracy, and can proceed as an enabler of development by helping in exchanging the information faster and more efficiently.

Nayar (2008) considers that computers and the internet are the backbone of KS as they are essential factors that lead to change in human behaviour and social relationships and the results of that are not hard to be noticed.However, there is little evidence that shows the new information technologies has positive productivity impact after unsatisfactory performance of high technology companies following the new economy (OECD 2001 as cited by Conceicao *et al.* 2003). ICT is subject of debate as some authors have optimistic view that ICT can lead to the development of countries, others have pessimistic view that ICT cannot lead to the development unless it companied by social changes (Avgerou, 1998; Morales-Gomez and Melesse, 1998). It is obvious that ICT itself is not enough; there is a need to develop the know-how skills, which are related to knowledge. That basically means that knowledge development is required, not only having information and communication technologies. Yet, such technologies are important enablers of the development of knowledge.

Literatures show that there is an interconnection between technology, economy and society. It has been agreed by development specialists that ICT investment has important role in facilitating a range of social and development impact (Narasimhan, 1984). The use of ICT in national development can be classified in four categories: "ICT as commodity, ICT supporting development activities, ICT as driver of the economy and ICT directed at specific development activities" (Sein and Harindranath, 2004, p.17). It is common to discuss transmission of knowledge and knowledge itself as driving force for economy with use of ICTs (Castells, 2001 as cited by Conceicao *et al.* 2003). This view is supported by OECD statement: ICT is considered as "a powerful agent for economic development through products and service industries generated directly and indirectly and through transformations permitted nationally at the firm, industry and branch level and internationally through the changing pattern of comparative cost structures and trade flows" (OECD, 1989, p.11).

The question that is raised here is how can ICTs help in creating and sharing knowledge? Hendriks (1999) discussed the influence of ICT on enhancing knowledge sharing in different settings. He mentioned that knowledge sharing is related to the communication and also related to information circulation. Prakash (2005) links that to KS which contains knowledge workers employed at creating knowledge, and impenetrable network to aid transfer of knowledge. This shows that to develop a KS, there is a need to share knowledge with others and that requires supporting tools. ICTs could help as tool in sharing and building the KS. The internet is considered as most famous tool of ICT for supporting knowledge sharing (Hendriks, 1999). "ICT, particularly the internet, breaks down barriers of time and space and enables faster, deeper and cheaper

information exchange" (Prakash, 2005, p.51). Focusing on the importance of the internet, it is important to work on increasing internet penetration among citizens.

ICT should be viewed as an enabling tool to reach the KS, but not an end in itself (UNESCO, 2005). "While knowledge management theory appears to revolve around a focus on people, its corporate practice remains firmly rooted in applications of information and communication technology" (Brown and Duguid, 2000, as cited in Velden, 2002). Generally, it is believed that ICT skills form the basis of the skills needed to build the KS. The reason why ICT skills are important is the fact that they are at the centre of each service and industry. They are at the heart of knowledge production. That has been fuelled by the huge advancement in software and hardware that made a lot of the work much easier and helped in the automation and quality control. Also, the rise of the cyberspace as a leading marketplace in which a lot of businesses found huge success that exceeded the success of a lot of traditional businesses. In addition to that, the internet has become an integral part of our daily lives. Our relationship with internet is a very sophisticated one; it has a lot of psychological, social and cultural aspects, the feeling of being connected and part of a network of people. It is the human network.

In much of the discussions on ICT and its future, it has been claimed that technology is driving force of social change. The adoption of ICTs is going to maintain industries, nations and region in world competition. Although technologies are important for social change, the result of productivity of the economy does not come automatically from the use of computers, on the contrary without using technologies in organization often leads to less productivity (Brynjolfsson, 1993; as cited by Tuomi, 2001). "Through the application of ICT, firms will become more competitive, new markets will be accessed and new employment opportunities will be created" (Harrington 2003, p145).

To sum up, the rise of the KS concept has been fuelled by the challenges imposed by the new millennium where intangible assets play a very important role in economic and social development. The promise of the KS is such an enchanting one. It is about excelling the development of human capital as they are the heart of achieving a sustainable development. Although countries are investing in bringing technologies to their own soil, it is not enough to just have technology. It is important to learn how to use such a technology and apply it locally to create solutions to the problems faced. It is also of importance not to only import such technologies, but to work on fostering innovation and investing in research. Thus, possessing ICT skills is considered of a great importance for people to be able to integrate in the KS.

## 3. Knowledge Society in Oman

The purpose of this overview is linked to the objective of studying KS in Oman in term of the development of ICTs and people. In the 1990s, Oman realized the importance of building a sustainable diversified economy and adopted Vision 2020 in 1995 for the purpose of diversifying the economy and transforming to an economy that does not merely depend on oil. Although the oil sector still dominates the economic scene in Oman, strategies were formed to widen the investment in other sectors too. As a result of that, the need to build a knowledge economy emerged placing a great focus on the ICT sector as an important tool that enables the creation of knowledge and intangible assets and products.

In 2002, the Cabinet of Ministers adopted the Digital Oman strategy. This strategy, also known as e.Oman for short, is the nation's IT strategy and sets goals for the creation of a KS and a road map to implement it (ITA, 2010). In 2006, the Information Technology Authority (ITA) was established by Royal Decree No. 52/2006. ITA is responsible for the implementation of e.Oman.

In his address to Oman Council in November 2008, His Majesty Sultan Qaboos stated that "Information technology and communications have now become the main elements that move forward the development process in this third millennium; therefore, we have accorded our attention to finding a national strategy to develop the skills and abilities of citizens in this domain with the aim

of further developing e-government services. We are closely following the important steps that we have made in this regard. We call upon on all government institutions to speedily enhance their performance, and to facilitate their services, by applying digital technology in order to usher the Sultanate into the constantly evolving spheres for applying knowledge" (Ministry of Information, 2008). That shows how strongly the KS is supported by the leadership in Oman. It also shows how Oman has put an emphasis on the development of its human capital and that is mainly through knowledge that is enabled by ICT.

The e.Oman vision is to transform the society in Oman into a sustainable KS by enhancing government services, enriching businesses and empowering individuals through Information and Communication Technologies (ITA, 2014a). The e.Oman strategy focuses on the following main areas:

- "Streamlining Government services to citizens and businesses
- Creating and nurturing knowledge-based industries
- Developing a local ICT sector
- Supporting a more competitive environment
- Providing employment for Omani youth
- Enabling better healthcare
- Improving educational opportunities
- Supporting tourism sector
- Enhancing social development using IT
- Making Oman a more attractive destination for foreign investment and conducive for businesses" (ITA, 2007, p.18)

The areas above show a great focus on three main areas: enhancing government services, developing human resources in the country through improving education, health, employment opportunities and IT skills, and the economic growth through supporting competitiveness and facilitating foreign investment. Also, there is an emphasis on ICT, which highlights its important role in the KS.

### 3.1. The Strategic Direction

The strategic direction of e.Oman, as illustrated in Figure 1, focuses on IT industry development, enabling society and individuals, and e-government and e-services (ITA, 2014a). Again, the strategic direction sets ICT at the foundation on which the knowledge economy is built, so having a strong and solid IT industry forms a cornerstone in building the KS. Another focus of the direction is the society. It is important to develop the IT literacy among citizens and increase their awareness of the availability of technologies and how to use them for their benefit. As the government can drive the building of the KS, an emphasis is placed on improving the efficiency and effectiveness of government services and making them available online.

The strategic direction seems to give more focus and importance to government e-services. While developing e-services are vital, the society and individuals should be the core of the development of the KS. People can play a great role by enabling them with ICT skills, raising their awareness of the importance and role of ICT and knowledge in the social and economic development, and encouraging them to acquire knowledge, produce it, and share it. The growth of the ICT industry and its applications in different sectors and industries needs human capital, professionals with the right set of skills and practical knowledge and unless the environment is available and people themselves realize how important ICT is, it will take long time to have those professionals available to the market.

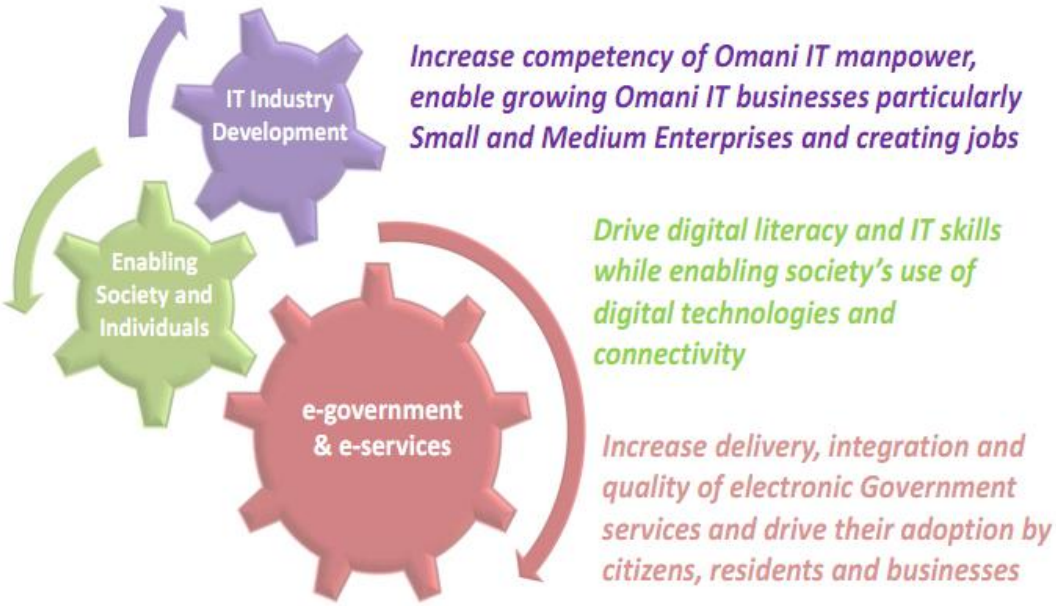


**Figure 1. Areas of focus of the e.Oman strategy (ITA, 2014a)**

### 3.2. The Pillars of the Strategy

To achieve the goals of the e.Oman strategy and build a KS, six strategic pillars have been identified as illustrated in Figure 2. Those pillars are:

- Society and human capital development
- E-government and e-services enhancement
- ICT industry development
- Governance, standards and regulations
- National infrastructure development
- Promotion and awareness

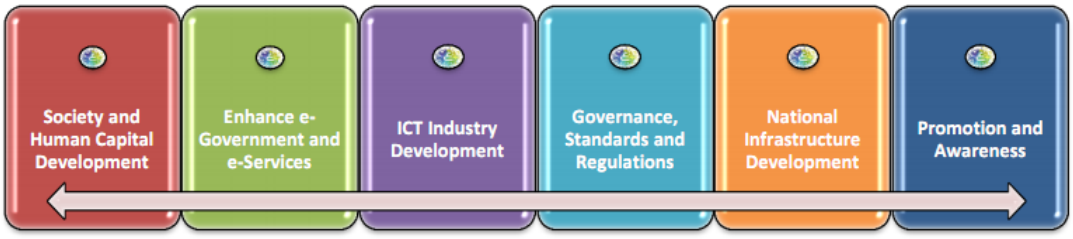


**Figure 2. Pillars of the e.Oman strategy, (ITA, 2014a)**

The pillars above emphasize on education and training, especially ICT skills as they provide important tools for knowledge acquisition, creation, sharing and dissemination. It is also obvious that a great focus is put on government services with an effort to make them available online and streamline them. Another important part is the enabling environment in the form of governance,

standards and regulations. Such areas form the framework through which the e.Oman strategy can be achieved and set the environment for the development of the KS. The development of the ICT infrastructure helps in the widespread of adoption of new technologies as the new generations are really tech-savvy. That will also attract investments in ICT industries or industries that require a strong ICT infrastructure. However, the ICT infrastructure does not seem to be developing at the right speed. It needs a lot of attention. It is interesting to see that promotion and awareness is considered a pillar of the strategy as raising awareness is vital to success in developing the KS.

### 3.3. Access to and Use of Information and Communications Technology (ICT) by Households and Individualism Oman

Statistics are very important indicators of development over time. They also help in planning for future development and give us an indication of the trends in the market and society. The ITA has carried out a survey on the "Access to and Use of Information and Communications Technology (ICT) by Households and Individuals" in 2013. The results of this survey help in understanding the growth in the ICT sector, which is a very important aspect of KS. The results show that more than 90% of households have at least one mobile or smart phone, 80% of households have at least one computer (desktop, laptop or tablet). The survey shows that high cost is the main reason for not owning a computer as indicated by people who have no computer. Looking at individual indicators, the results show that highest use of computer is by students (92%), which illustrates the positive result of the ICT development within education sector. Regards to the internet use by individuals, there is three in four individuals who have access to the internet in daily basis (ITA, 2014b). Those results are very crucial in indicating that people are relying more on technology in their daily lives and reflect the increase in the awareness of the importance of ICT.

## 4. Research Methodology

A qualitative method is used in this research with interpretive and deductive approach. Structured and semi-structured interviews with specialists from different sectors are chosen to be main method of primary data collection in this research. The research requires more qualitative, descriptive analysis that is specific to a certain domain (such as use of ICT, human development, research and innovation, etc.) across different sectors such as financial, investment, law, telecom and education sectors. In addition, varieties of secondary sources are used in this research for the purpose of collecting good quality information such as books, internet links, journal databases and government literature and statistics.

## 5. Assets of Knowledge Society: People and Technology (ICT)

### 5.1. Skills and Competences in Oman for Human Development

The first question looks at the skills and competences that need special focus in Oman as part of the human development. Five of ten respondents mentioned ICT awareness and skills. They argue that ICT skills are essential in today's life. They are important for self-development and also they are required by employers. They help in the knowledge acquisition, structuring, production and sharing. Interestingly, Mr. Al Mukhaini argued that ICT skills do not need special focus as they are already acquired by people themselves naturally because they have become a requirement of life. The respondents also mentioned research skills, which enable people to find the right information they are searching for. That helps them construct their knowledge more effectively. Mr. Al Mawaly also thinks that people need to know how to produce research reports. Another skill that was mentioned a lot is critical thinking. Many respondents think that people should develop such a skill and that they should not take anything for granted. Also, work ethics was mentioned as an

important skill that needs focus and development among people. Other skills that were mentioned are related to net etiquette, which is about dealing with the information available online. Some soft skills such as communication, teamwork and problem solving were also mentioned.

### 5.2. The Role of Omani People in Building KS

The involvement of the people in developing the KS is very important as human resources are the center of any development. Ms. Al Busaidi said that there are a lot of professionals in different fields and domains of knowledge. Their knowledge should be shared with others and that is how they contribute to the development of the KS. She added that people should be encouraged to share their knowledge by giving lectures, by participating in social groups and networking sites, and by writing and publishing articles. The advancements of the ICT and the spread of the internet made it easy for people to share their knowledge and made it easy for others to seek knowledge. “People need to realize the importance of knowledge and that it is sought, not given”, commented Mr. Al Mawaly. Mr. Al Mukhaini thinks that some people are reluctant to share knowledge and they should realize that knowledge is like a garden and you need to take care of it. Mr. Al Mukhaini added that some people seek value in return and they need incentive to share their knowledge. People in Oman need to change their perception of ICT. Mr. Al Mukhaini believes that ICT is two-way communication, people are given the perception that ICT is here for the government to deliver the service, not for the people to create knowledge. Ms. Al Busaidi thinks that people should play an active role as the KS needs more personal and social initiatives from the public. Mrs. Al Sabti thinks that the government cannot do everything on its own and people should share their comments and feedback about an e-service and how to make it better.

### 5.3. Education Helps in Building KS in Oman

As it has been considered the most important factor and one of the biggest challenges, education is looked at as one of the solutions to overcome the challenges. “Education is one of the pillars of the Knowledge Society”, said Dr. Al Ruzaiqi. “Education is an investment for the future”, argued Ms. Al Busaidi. Education is very vital in developing the KS. Every strategy must take the educational system into account. The schools are the right place to initiate and start raising awareness about the KS. Interestingly, Dr. Al Musawi thinks that education is the objective of KS rather being a developing and enabling tool of it.

### 5.4. The Status of Education Development in Oman

There were variations in answers to the question about education development and if it has been developed right in terms of speed and quality. Few respondents said that it has been developing fast, but not with the right quality and that it needs improvements. Two respondents said no directly. Others witnessed a lot of improvements. Dr. Al Musawi thinks that planning and changing the curriculum is fast, but the implementation is not right. He also thinks that the teachers should be ready for the implementation to succeed. Four respondents agreed with this view and stated that the education system should involve teachers more in the development process. They also believe that focusing on developing the teachers and equipping them with the right skills is vital in the education development process. Mr. Al Mukhaini believes that parents also should be involved in the development process as learning is not exclusive to schools.

### 5.5. Utilizing ICT in Building KS in Oman in Different Aspects

#### 5.5.1. Education

How ICT is utilized in developing the KS in Oman is important as ICT is a very important enabling tool of knowledge creation and sharing. ICT can make education a richer experience for students, which helps make the learning process faster and more enjoyable. "We should understand what suits the students with the current technology as ICT has a great impact on the new generations", said Ali Al Musawi. ICT must be utilized in education. "Children nowadays are not used to the words; they are used to interactive ways such as videos and graphics. They want something that is colorful, active and interesting. They are good at visualization", commented Mr. Al Mukhaini. ICT also enables e-learning, b-learning (blended learning), and m-learning (mobile learning), which gives easy access to learning materials. That helps in self-development and excels the knowledge acquisition.

#### 5.5.2. Human Resources

Using ICT by professionals in the work environment brings a lot of advantages. The ICT skills make dealing with routine and tedious work easier. By using ICT at work, employees develop their skills and that makes them able to utilize ICT for seeking knowledge, reproducing it, and sharing it. Also, using applications can help the employees accelerate their learning and learn ICT skills and it can make few simple decisions for us. However, it cannot think for us or make good decisions. Mrs. Al Sabti believes that IT employees should have specialized trainings in IT so they can get certified and that makes IT services better.

#### 5.5.3. ICT Infrastructure

All the respondents agreed that the ICT infrastructure in Oman needs a lot of improvement and that services should be accessible to all at affordable prices. Mr. Al Mawaly gave an example of Youtube.com; it has a lot of beneficial clips, but it needs high-speed connection. Dr. Al Ruzaiqi believes that more investment should be put on ICT and its industry as that will help in job creation and making the infrastructure better. Mr. Al Mukhaini said that the infrastructure is about speed and download. He believes that the penetration is high, but the bandwidth is small.

## 6. The Strategic Framework: Involving People in KS Development in Oman

The ultimate objective of this research paper is to propose a framework that helps in involving people in the development of KS in Oman. In addition to that, the framework also proposes how to align the development of KS with the human resources development in Oman. This framework is based on the literature review that supports the argument that KS development supports sustainable social development which is reflected in the daily lives of people. It is also important to emphasize on the fact that KS also implies economic development because it supports all sectors of economy and it also means that people become equipped with valuable skills and capabilities enabling them to take part in the structured social system of knowledge creation and sharing.

Since KS is about the society and how its members collaborate and share knowledge, the proposed framework revolves around the knowledge citizen, who by definition, is knowledgeable through seeking knowledge in the area of their domain and interest, aware of the value they give to the society through the creation of knowledge in a transferable format, aware of their role in development through knowledge codification and sharing. There are three dimensions to this framework: the individual being knowledgeable, the individual being aware of the value they can contribute to the KS development, and the individual being aware of their role to contribute to the

development which is the actual contribution. The first dimension is about the tools that enable learning and knowledge acquisition, the second dimension is about the tools that enable the materialization of one's knowledge enabling the creation and codification of knowledge, and the third dimension is about the tools and skills that enable the individual to share the knowledge they created. It is also about the environment in which the individual shares knowledge and collaborates with other fellow citizens, teaching them, and learning from them.

To be able to achieve this, each individual citizen should develop their own knowledge management system, seek knowledge and develop their skills set. Each individual becomes a knowledge citizen as the value of knowledge becomes higher. That is nurtured by the positive way the society and culture perceive learning and knowledge seeking. The idea of knowledge management should start from home, when the child is being raised, then the foundation of lifelong learning should be strengthened at school, then at the university and at the work environment. The knowledge citizen should learn how to identify and manage their knowledge. They also should have sufficient awareness of the enabling tools that help them produce knowledge, and document it. The tools include ICT skills and literacy, the internet, online services, online content, research skills and, critical and creative thinking. As the knowledge citizen also acts as teacher to other citizens, it is important for them to learn how to share the knowledge they created. They also should possess soft and interpersonal skills such as communication and teamwork. The knowledge citizen should be aware of the importance of those skills and consistently seeks training and development that are enabled by the environment.

### 6.1. The Knowledge Sharing Environment

In the knowledge sharing environment, the knowledge citizens interact, integrate and collaborate. They challenge the knowledge of each other and they learn from each other. The environment facilitates learning as well as teaching. It nurtures knowledge generation, validation, development, diffusion and utilization.

The environment is so fertile and has elements that complement each other to create a better knowledge sharing and learning environment. The elements of the environment also create a network of knowledge through collaboration, linking and integration. The most important elements of the environment are:

- ICT infrastructure: the knowledge network relies on a fast and resilient ICT infrastructure. The infrastructure is the backbone of the telecommunication network that enables the delivery of basic services and added-value services. It also enables the knowledge citizens to create and share knowledge.
- Legal framework: the environment is enabled by a flexible legal framework and effective regulations that encourage investment and entrepreneurial activities.
- Collaborative organizations: the organizations in the knowledge sharing environment connect, link and collaborate. They also share information and knowledge with the public and involve them in the design of their services and put the satisfaction of the consumers at the centre of their attention.
- A culture of innovation: a culture where people have public initiatives to help each other excel in knowledge acquisition. They are initiatives that aim at creating a pool of collective knowledge.
- An excellent supportive education system: that is up-to-date with the global changes and is aware of the strategic importance of ICT and its role in the future of education. An education system that supports the teachers and trainers and equip them with up-to-date skills. Education also equips the students and children with the strong foundation to become knowledge citizens.

- Research and development: there is an increasing and consistent investment in research and development. Research and development are seen as tools of development and creating value for the society and the economy. They are also considered as tools of sustainable competitive advantage for the nation and for businesses.
- Learning organizations: organizations consider learning and development as part of their culture. Employees, as knowledge citizens, develop through learning at work by working in teams and by creating value for their organizations and the society.
- E-inclusion: the knowledge sharing environment provides the learning environment to learn and share for all society members. That includes children, young people, the elderly and people with special needs. Also, those who are not fluent in the language and illiterate people.

## 7. The Alignment of KS Development with HR Development in Oman

There is a continuous knowledge flow in the knowledge citizen framework. What is important is to codify such knowledge and share it. Knowledge is transformed into content and is shared through the internet and other platforms. There is also information and knowledge flow from other organizations such as the government, NGOs, and businesses. All of them have a role to play.

The knowledge citizens become proactive players, they coach others and they advise other citizens. They also act as teachers, trainers and mentors. Although the learning tools are available to every individual in the society, each knowledge citizen develops his/her own set of individualized tools that help them in knowledge management in their own domain of knowledge and interests.

### 7.1. The Stakeholders and their Roles in Alignment and Knowledge Sharing

The stakeholders in general have common roles that apply to all of them. Those roles include:

- Being aware of the strategy and work on implementing it
- Being aware of the importance of ICT and its implementation in operations
- Adopting a proactive approach to technology adoption and implementation
- Playing an important role in international forums to share the local experience and learn from the experience of others

There are also common roles for the organizations that are part of the learning environment:

- Creating policies for content development in Arabic and English
- Creating systematic channels for utilizing information in knowledge creation and sharing

The Government:

- Ensuring the development of an effective legal framework
- Working on re-engineering the public sector services
- Investing in research and development
- Developing an excellent strategic education system
- Increasing collaboration and partnerships with other organizations for the benefit of the society
- Provide their data/information to the citizens

Businesses:

- Focusing on technological innovation to create value for the society and the economy
- Investing in research and development
- Working on having continuous learning and knowledge seeking as an integral part of their culture

Non-Government Organizations:

- Focusing on becoming knowledge centers in their own domain of expertise
- Working more closely with public initiatives for excelling in learning and knowledge sharing

Individuals:

- Being responsible towards the societal and economic development
- Playing an active role in the knowledge flow
- Working on continuously developing their expertise and skills

## 8. Conclusion

The results of this paper show how Oman can utilize different opportunities offered by its people and ICT to develop a sustainable KS. Moreover, the findings of this project show that for Oman to be able to strategically involve people in development, there are certain areas that have to be considered such as education, human resources development and training, and ICT infrastructure. The cornerstone of building a capacity for sustainable development is to focus on building the human capabilities and to provide the right environment for them to learn, create knowledge and share it.

Limitations:

1. Change in any country is continuously happening; therefore the suggested framework may need adaptations based on the different changes
2. Although primary data in this project was collected from interviews with experts from different sectors in Oman, findings still cannot be generalized to the whole country. In addition, the risk of having subjective data and thoughts from interviewees are possible when the data is collected from small number of people

## 9. Recommendations

This research has put together some recommendations to help involve the Omani people and utilize ICT to help create a sustainable KS.

1. Build on Assets through :
    a. Education: increase teachers' job satisfaction by providing more room for creative teaching, ensure that basic education is available to all, use technology to enhance the quality of education at all stages, and give more attention to higher education and its institutions
    b. Human resources development: improve people skills in ICT in addition to other skills such as technical, management, administrative, communication and teamwork
    c. ICT adoption: enhancing the use of new approaches, mechanisms and ICT tools to assist the creation and sharing of knowledge and development of the economy
2. Create initiatives to involve people in KS development and empower them to innovate, produce knowledge and share. People need to feel that they are free to create and innovate
3. Encourage transparency and collaboration among government organizations. This is important for the organizations to understand the citizen's needs. It is also important for organizations to collaborate and share their wealth of knowledge with other organizations and the public.

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