



# THE SYSTEM OF ACTION FOR PREPARING THE FUTURE GENERATIONS TO ACCESS THE KNOWLEDGE SOCIETY

In this concluding chapter we shall build on the findings reached in the preceding chapters in monitoring and analysing the knowledge reality, enabling environments and the readiness of the youth to meet knowledge requirements in the Arab region, as well as the findings reached by the four case studies in the previous chapter concerning skills.

This chapter proposes pathways, mechanisms, and a paradigm for action, which we hope will help maximise the possibility of stimulating a renaissance and preparing new generations to access the knowledge society.

## QUATERNARY OF ACTION

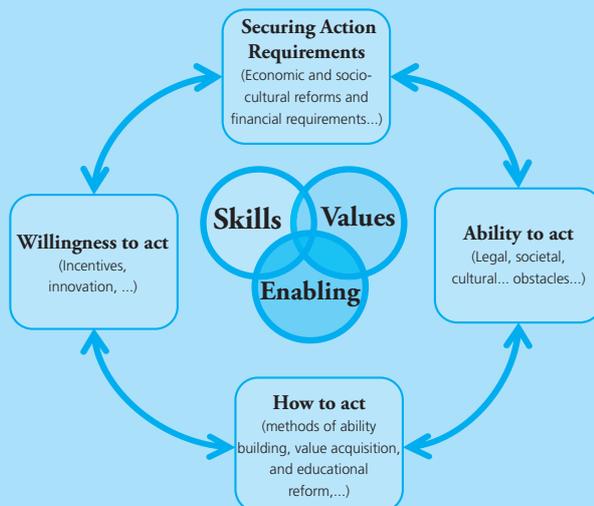
The vision proposed here is based on a dynamic system of four main axes

intersecting with each other. The first axis involves ‘the willingness to act’ and to accept change and development, or rather, encouraging and supporting change and creating the will and determination to achieve it. The identification of shortcomings and limitations and the provision of construction mechanisms will not be enough unless there is a real willingness for change and construction stemming from different segments of society, including the individual, family, developmental decision-maker, and even the policymaker. This may involve systems of incentives and encouraging creativity in addition to instilling and developing some values and practices, or perhaps changing them. The willingness to act is not restricted to young people alone, but includes the willingness of society in general to move positively towards building

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FIGURE 6-1

### Quaternary of action for preparing future generations to access the knowledge society



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the desired knowledge society, which results in changes in beliefs and practices relating to societal, cultural and political structures. In addition, it is necessary to tackle other related issues, such as the role of religion in building society and issues of gender equality, as well as economic development choices; turning from stagnant practices into productive societies and economies, open to the world, sponsoring creativity and promoting the qualification of future generations for the knowledge society.

The second axis is 'the ability to act,' which identifies the constraints and limitations that could inhibit the efforts of Arab societies and their ability to rehabilitate and prepare the young for the knowledge society, as well as those that could inhibit young people from moving to acquire the needed skills and values.

The third axis deals with the issue of 'how to act,' which covers the methods of building skills, how to implant values, and enabling people to deal with available possibilities and opportunities.

The circle is completed with the fourth element which deals with ensuring the availability of the prerequisites for direct and sustainable action, including identification of the nature, type, and specifications of the institutional, regulatory, legislative, administrative and material requirements for positive action towards building future generations and preparing them for the knowledge society.

## **THE WILLINGNESS TO ACT**

Willingness alone is not an achievement, but it indicates that there is a will to move towards change and progress. Following on from the points presented in the previous chapters and in the four case studies, the report stresses that the Arab region is not lacking in the willingness to make a qualitative change towards preparing future generations for accessing the knowledge society. It seems that Arab countries, at least through their declared policies, have become aware of the

weakness of the cognitive conditions and enabling environments, as well as the need for reforming them. In the context of the four case studies covered by the report, the experts and advisors participating in workshops stressed the importance of providing students with the required skills, especially cognitive skills (e.g. skills of searching for information and solving problems), values (e.g. love of knowledge, scientific ambition, the spirit of creativity and teamwork), and enabling needed to prepare young people for the knowledge society. All of these constitute the most important elements of preparing the Arab youth. Many Arab countries, such as Jordan, Morocco, the UAE, Egypt and Yemen, have set the establishment of a knowledge economy and society as a strategic objective in their declared policies.

The willingness of Arab countries is emphasised in several indicators, such as high rates of spending on education which are close to those of some of the Organisation of Economic Cooperation and Development countries,<sup>32</sup> improved enrolment rates in primary, preparatory and secondary education, and reduction of the gender gap, with disparities in achievement from one country to another (see Chapter 2 of the General Report). As part of initiatives for developing education, the cornerstone in the preparation of young people for the knowledge society, many Arab countries have witnessed initiatives in the development of curricula to keep up with rapid, global developments. We also observe several initiatives with respect to the requalification of teachers and reform of the enabling environment to promote the teaching profession. Moreover, mechanisms have been set in the context of implementing official and semi-official projects relating to developing the means of access to the knowledge society, such as 'The Plan for the Development of Education in the Arab World' (ALECSO, 2008) and 'Guiding Framework of Performance Standards for Arab Teachers' (League of Arab States, 2010). Additionally,

Arab regional institutions have been established, such as the Arab Council for Childhood and Development in Cairo which focuses on early childhood care and the protection of child rights in the Arab region. A number of Arab countries have launched national strategic plans for the development of pre-university education. The second chapter of the report showed that Arab legislation and laws support, albeit in varying degrees, the rights of citizens to free and compulsory education with equal opportunities.

In the same context, the fourth chapter referred to development efforts that led to a relative improvement in many of the relevant indicators, such as the reduction of poverty rates from 20% in the last decade of the last century to 17.1% at the beginning of this century (UNDP and the Arab League, 2010), a decrease in child mortality and maternal mortality, increased life expectancy at birth, and the apparent interest in the importance of science and technology in the knowledge society. Furthermore, many centres and initiatives were launched to prepare enabling environments and young people, including, but not limited to, the Princess Basma Youth Resource Centre in Jordan, founded in 2004, and known regionally for its creative and enabling approaches. In the UAE, the Mohammed bin Rashid Al Maktoum Foundation was established in 2007 to develop knowledge and human resource capacities and form a new generation of leaders qualified to support overall development in the Arab region.

The 'Qatar Foundation' was established to prepare young people for the challenges of a rapidly changing world. It sponsors programmes in science and research, and supports a group of educational institutions known for their well-developed programmes in various learning phases. In 2008, the Arab Science and Technology Foundation in Egypt signed a cooperation agreement with the Egyptian Science and Technology Development Fund to sponsor Arab inventors, to create an appropriate

environment for them, and invest their research results for development in Arab societies. The Kuwait Science Club held the first International Invention Fair in the Middle East. The Club sponsors Kuwaiti inventors and helps them register and protect their patents. This is in addition to a number of other initiatives and efforts made by a number of Arab countries, as the case in Tunisia and Morocco, who cared to support initiatives for scientific research and excellence. In spite of this, we are still in the early stages as the number of patents in all Arab countries is low, the highest number reaching an average of 18.4 in Saudi Arabia from 2003-2007.<sup>33</sup>

While these efforts are important, most of them represent partial reforms and non-integrated actions, and they do not build a general context for systemic reform, even within the same sector at the national level. An example of this can be seen in a report by the World Bank, substantiated by research in our report, which indicates that reforms in the education sector in Arab countries have focused most of their efforts on structural and quantitative aspects, and not on the development of incentives, accountability and participation systems. Consequently, the results of reforms were weak. Also, the reform efforts were not linked by sector; that is, what was achieved in the education sector did not complement or correlate with what was taking place in the media, family development and women's liberation, or the reform of political life and quality of social life of the Arab people (World Bank, 2008). When reforms come individually without a conscious vision, a key element is missed; the 'synergy' which springs from the process of interaction and integration resulting in an additional impact and thus making the whole greater than the sum of its parts. Such partial reforms were accurately described by a researcher who said, "It is simply unrealistic to expect that introducing reforms one by one, even major ones, in a situation which is basically not organised to engage in change will do

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anything but give reform a bad name.” (Fullan, 1993).

## THE ABILITY TO ACT

If there are positive trends indicating the Arab region’s willingness as well as awareness of the importance of moving towards preparing new generations to access the knowledge society, the question then is: Is there an ability to achieve this willingness? What are the limits and determinants of this ability? To answer this, reference studies of this report indicate that there are three key factors influencing the ability of Arab States to act.

### HISTORICAL STAGE FACTOR

By this we mean current historical circumstances such as the revolution of knowledge and information and communications technology spreading across the world and surpassing time and space, and thanks to which information, knowledge and cooperation mechanisms (Chapter 1) flow abundantly. They are available in different ways. This historical situation is a decisive external influencing factor - perhaps for the first time in history - in determining the paths of knowledge acquisition and production for the benefit of the Arab region, if properly exploited. It seems that Arab region countries in general are moving in this direction; available indicators show that Arabic is the fastest growing language on internet websites (2,000% over the last decade), and the number of internet subscribers in Arab countries has grown to 520 per thousand in the UAE, and 200 per thousand in Jordan, and 140 per thousand in Egypt. However, these figures should not obscure the urgent need to accelerate progress in this area, which is still slow and partial in many cases. Hence, the current generation must be one of intelligence industries and innovation, and be able to transform knowledge into wealth. There is serious thought today

among intellectuals regarding the renewal of the cognitive abilities of young people versus the expected contraction of material resources, starting with water and ending with oil. Considering knowledge can generate wealth and work through innovation, it is expected that third generation knowledge will increase with respect to creativity, such as the existing relation between interest in the environment and biotechnology, which seems to be in its early stages in most Arab countries (Abdel Wahhab Bin Hafeez, background paper for the report).

### COUNTRY SITUATIONAL VARIATIONS FACTOR

Arab capabilities have clearly emerged in the development of enabling environments supporting the preparation of young people for the knowledge society. However, these capabilities may vary from one Arab country to another. The Human Development Report (2010) showed that five Arab countries came among the top ten with the fastest progress in the Human Development Index compared to their previous status in 1970. Oman occupied the first place, followed by Saudi Arabia in the fifth place, Tunisia in the seventh, Algeria in the ninth, and Morocco in tenth. The UAE ranked first among Arab States in the Human Development Report (2010), and 32nd place at the world level among 169 countries (UNDP, 2010). These indicators do not deny the existence of significant disparities between Arab States; Yemen, Djibouti and Sudan ranked low on the world level in the same Index (133, 147 and 145, respectively).

Previous indicators show that many countries of the region possess the foundations for this desired development. Some have made significant strides towards building the foundations of the knowledge society,<sup>34</sup> while others are still lagging behind the Arab march, let alone the world’s. Perhaps creative Arab cooperation in several fields, such as information and

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communications technology, industrial and agricultural production, scientific research, and joint programmes in education and preparation of young people, would bring about the desired positive change. In this era of globalisation based on massive clusters and entities, we are required more than ever before - for reasons relating to our presence on the knowledge map and achievement of knowledge and development security - to intensify joint efforts, share experiences, and encourage cooperation projects for the benefit of Arab society as a whole. The establishment of a knowledge society in the expansive Arab region and the preparation of its young people necessitate economic and social development. Also, the establishment of this society will inevitably contribute to achieving sustainable development, kindling a comprehensive Arab renaissance.

### *CHALLENGES FACING THE ARAB REGION FACTOR*

While indexes show a willingness and capacity, albeit relative and disparate, to move the Arab youth towards accessing the knowledge society, the Arab region still faces a number of challenges that hinder its ability to move towards this objective. Throughout the previous chapters, the report has discussed many of the challenges that constrain efforts to prepare and equip young generations to bring about a renaissance and establish the desired knowledge society. The most important of these challenges include illiteracy, which reached 13% among Arab youth, while poverty ranged from 4% to 17.1% in Arab countries, and reached up to 36.4% in the least developed countries (UNDP and the Arab League, 2010), as well as the challenges of rapid population growth, and unemployment which reached 50% among young Arabs (previous reference). These challenges hamper human abilities to act and show initiative. They kill creativity and disable interaction and contribution to a renaissance. Moreover, these challenges include the marginalisation of Arab women,

the gender gap, the absence of social justice, the weakness of political freedoms, including freedom of expression, and the weakness of good governance in the institutions of most Arab countries. In other words, the slight improvement in economic freedoms in some Arab countries has not seen an improvement in political and intellectual freedoms and practices or in the management of governance institutions. This is in addition to the poor investment climate and underdeveloped technology, albeit with significant variations in Arab States in this arena. Another hindrance is the lack of an institutionalised view of knowledge and its requirements, especially in the field of legislation and laws, at the top of which is the issue of intellectual property. The Arab region suffers from the absence of a clear vision and a regulatory strategy for the knowledge society. This has been confirmed by the results of the four case studies that have shown weak preparation and readiness of new generations to meet with the requirements of the knowledge society as well as poor enabling environments. The results of the field studies call on us to reconsider the educational systems, enabling environments, and governing legislation if we really want to move towards preparing new generations to access the knowledge society.

Perhaps the biggest challenge is within the cultural dimension because it reaches beyond the formulation of laws or improving the economy to involve the process of changing mentalities and ways of thinking that have become deeply rooted over time. The report addressed this issue in the first chapter (Problematic Issue of Cultural Development) and in the third chapter, where it described the strengths of upbringing in Arab countries for various historical, economic, social, political and cultural reasons. Most Arab families do not provide an appropriate social environment to mobilise the creative capabilities of the young. When adding to that the weakness and fragility of

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the Arab media as an enabling and active environment in upbringing and preparing young people for the knowledge society (despite the growing role of modern means through the computer and the internet), we find ourselves facing major challenges that hinders efforts to rehabilitate young people for the desired knowledge society and which must be dealt with seriously and as soon as possible.

## HOW TO ACT

Previous analyses showed that most Arab states possess the willingness to act, with relative awareness of its importance. However, this is faced with a variety of challenges that lie mostly in the enabling environments. In this regard, a question remains: How to move towards preparing young people for the desired knowledge society and establishing the Arab Renaissance?

The preparation of the Arab youth and young generations, which represents 62.9% of the total population (43.8% of Arabs are 19 years of age or under, and 19.1% are between 20 to 24 years), and equipping them with the skills and values of the knowledge society, will provide a competitive advantage for the Arab region,

support its progress, and create a critical mass of youth able to actively participate in a genuine, strong march of advancement. This will promote productivity, support the transfer and indigenisation of knowledge, and maximise opportunities for creativity, invention and innovation.

The report shows that these capacities, skills and values should be linked to their respective enabling environments. That is, there is a strong interactive reciprocal relationship between the required pattern of resources capable of work and production in the knowledge society, and the composition and structure of this new society with its social, political and cultural dimensions. Therefore, the failure of many Arab countries to prepare workforces with the experience and ability to transform imagination into creativity, renewal and invention can be attributed to the fact that the acquisition of this type of experience (skills and values) is constricted in the present Arab cultural reality, despite the large number and diversity of projects. This stems from several reasons attributable to the core of the cultural, political and social structure (Ibrahim Badran, 1985).

The triad of cognitive upbringing (i.e. skills, values, and enabling environments), adopted by the Arab Knowledge Report

BOX 6-1

### Youth characteristics required for the Arab knowledge society

This report has elaborated a theoretical triad of skills, values, and enabling environments, and generally defined them in order to systematically address prerequisites for the knowledge society. Identifying the desired characteristics of the young Arab generation (in terms of acquiring the necessary skills, values, and enabling) has been a key objective on the road towards preparing new generations to reach the desired goal. The most important of these skills and values are flexibility, a sense of responsibility, self-esteem, development of critical thinking, creativity, and ability to assume responsibility, all of which are key attributes that support individuals in developing the values and skills of survival, activity and participation in the knowledge society. These skills, including the ability to engage in lifelong self-learning, independent

pursuit of career development, and flexibility in working in different areas, are all features that empower young people to contribute positively and actively to economic life in the knowledge society, pursue lifelong self-learning, deal with the developments of digital knowledge, integrate into work teams, and show flexibility of transferring through changing jobs. Furthermore, these attributes provide workers with a strong base enabling them to deal with the variables of work structure and cognitive and behavioural requirements, and thus the quality of life. The abilities of citizens to apply critical thinking and rational behaviour, deal with cultural diversity, dialogue with others, show tolerance, and promote social sensitivity, all reflect on the work environment, innovation and creativity, and unleash human creativity.

Source: Report Methodological Framework

2010/2011, are interactive and correlated factors. In light of the previous analyses that showed the social, political, and cultural weaknesses of the enabling environments, the step of 'how to act' should be taken by way of a comprehensive and integrated process towards equipping Arab youth with the required skills and values. This should be done as part of comprehensive radical reforms of the sponsoring enabling environments with and through which the youth are equipped with new attributes in skills and values. Simply speaking, this movement is a comprehensive social, political and cultural process demanding significant steps to build the edifice of renaissance that enables the establishment of the knowledge society.

Some researchers state that the reason for the return of Asian societies to their heightened historical position among world civilisations was surprisingly not due to re-discovering some aspects of their power, but because they discovered the elements of the success of the West which enabled them to excel over other Asian communities over the past two centuries. The progress spread from America to Japan in the late 19th Century, wherein Singapore was influenced by the latter, and continued thereafter. We find Malaysia, which looked at the East, learned from Japan and South Korea. In the 1970s, China followed in the footsteps of Singapore, which was following Japan, which had adopted the methods and approaches of progress from America. Then India in the early 1990s adopted these same methods. Mahbubani, 2009, confirms that there are at least seven correlated and joint elements behind the success of Western countries, and Asian communities have achieved progress when endeavouring to implement these elements: A free market economy, science and technology, competence, a culture of peace, respect for the rule of law, education and pragmatism.

Some researchers have examined these seven elements in Western civilisation, which led to the advancement of Asian communities, but they often don't stress

three other elements: Freedom, democracy and human rights. However, we find another analyst (Amartya Sen, 2004) has emphasised the importance of these elements and established links between freedom and development. The Arab Knowledge Report 2009 and the present report focuses on the triad of 'knowledge, freedom and development'. Moreover, most intellectuals in the Arab region have declared their bias to democracy, freedom and human rights as the basis of Arab renaissance.

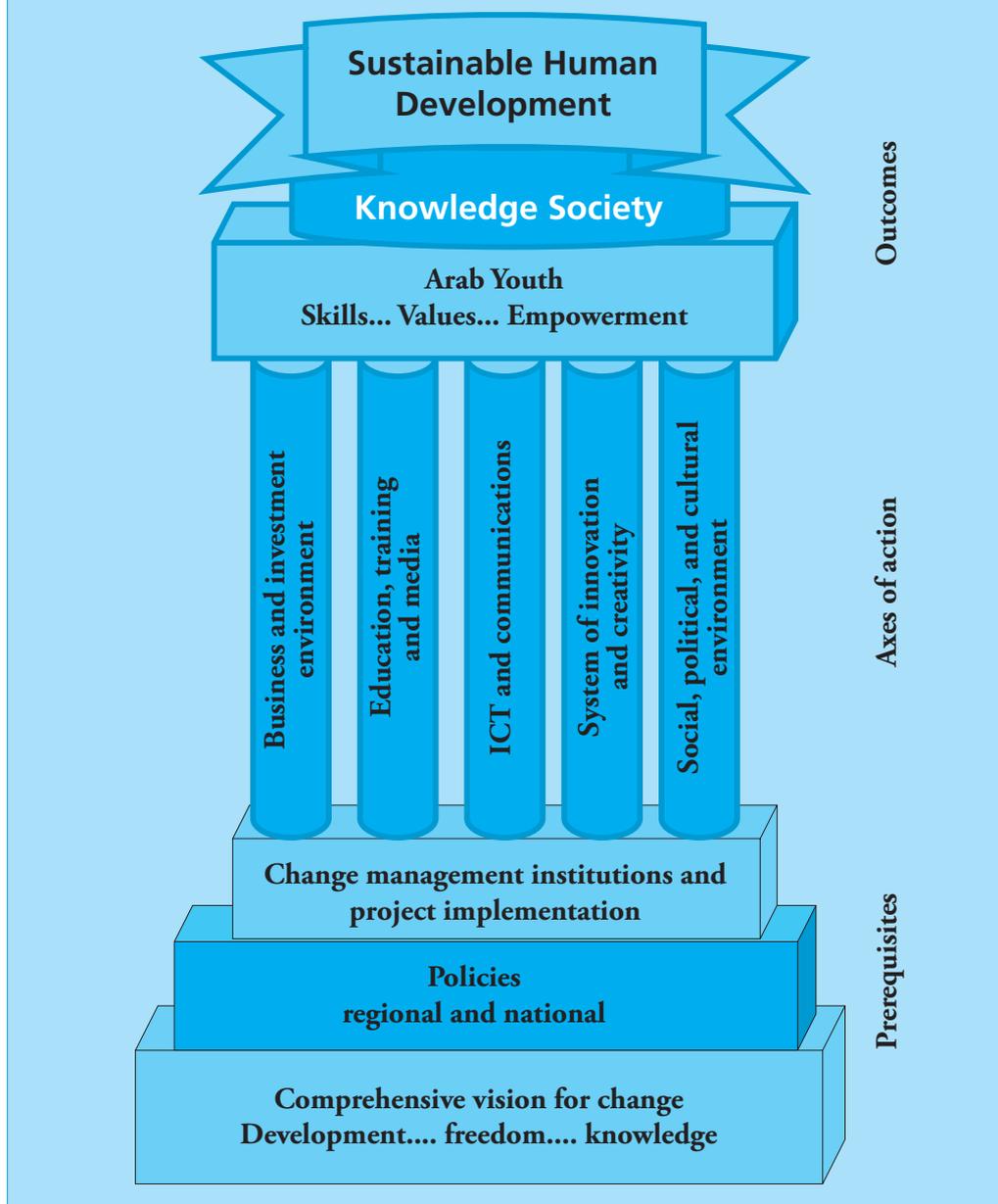
## ACTION STEPS

Action must be in accordance with specific clear steps. Figure 6-2 illustrates a guiding model proposing how to act within a comprehensive process to prepare the youth to create the renaissance. This model has three axes. The first constitutes four basic requirements within the broader framework of the Arab renaissance: A comprehensive long-term vision based on the triad of knowledge, freedom and development; policies in the Arab region as a whole, and national policies for each individual country separately; strategic plans and major development projects; and institutions to manage, change, and implement projects. The second axis denotes five columns of work towards building the knowledge society. Information and communication technology is the central column along with education, training and media as institutions for preparing and upbringing new generations; work and investment environments; invention and innovation systems and social, political and cultural environments. Finally, the third axis involves the output resulting from efforts towards preparing the Arab youth for the knowledge society, which include equipping them with the triad of 'skills, values and enabling environments'. This edifice is crowned by 'sustainable human development,' which represents the broader context covering all the processes of preparing the young for establishing the desired knowledge society.

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FIGURE 6-2

Moving towards preparing the youth for the knowledge society



*REQUIREMENTS OF PREPARING THE FUTURE GENERATION FOR THE KNOWLEDGE SOCIETY*

**Formulating a comprehensive vision for change**

To prepare the young Arab generation for the knowledge society, there must be a comprehensive vision for the future, based

on a long-term commitment to change and the knowledge-freedom-development triad, covering a period of ten to twenty years depending on the local circumstances in each country in the Arab region. It must be a comprehensive vision that includes all dimensions of the required change, starting from perceptions of how to prepare the Arab youth, and Arab people in general, who are capable of meeting the requirements of the knowledge society,

to the perceptions of how to reform enabling environments which serve as the structural conditions with and through which the process of preparing young people is achieved. This vision requires a strong political leadership and a conscious societal will to turn it into policies, plans, and both small and large enterprises.

### Clear policies paving the way to the future

The preparation of young Arab generations and equipping them with knowledge, skills and values requires translating the comprehensive future vision into clear policies that outline steps for the future and set the basic working guidelines to build the Arab Renaissance and establish the knowledge society. The following are the most basic guidelines that must be included in any policy in order to establish the processes and environments for preparing young people for the knowledge society:

**Building a critical mass of young people equipped with knowledge and skills to deal with the requirements of the knowledge society:** There is a significant competitive advantage in all Arab countries, which is the presence of a large mass of young people. Emphasis must be made on two main points relating to the building of critical mass. The first relates to infrastructure. The Arab world lacks infrastructure for information technology similar to the Multimedia Super Corridor (MSC) in Malaysia, a country rapidly ascending in this arena. Although there are limited initiatives in some Gulf countries, we still lack scientific and technological cities able to employ human resources specialising in knowledge-intensive productions. Therefore, officials must take the initiative to fill this gap and work to establish intelligent environs to produce, instil and disseminate knowledge. The second point, which takes into account the

magnitude of the tasks at hand for passage to the knowledge society, relates to several inherent problematic issues: Does engagement in the knowledge society need only a 'critical mass of youth' or 'quantitative mass,' or does it need to build a 'historical mass,' i.e., a coalition of all social classes and strata convinced of the importance of this historical action, striving to overcome the problems in accessing the world of modernity, democracy and development? Further, the building of critical mass should be perceived in an interactive three-sided system. The first involves the educated and cultured young generation mastering the keys of information and communication technology. The second includes the category of intellectuals, innovators, researchers, experts and all those working in the field of knowledge and culture. The third one involves rehabilitation and training institutions, universities, research and literary, scientific and technological centres, and their respective budget allocations, in addition to the oases of knowledge that provide models for knowledge-based societies and cities.

The idea of critical mass is decisive but it will be insufficient if reduced to a single segment, i.e. the young, because it needs a supportive base that guides and provides it with strength and perseverance to overcome the Arab's lack of modernity, knowledge, democracy and development. None but the so-called 'historical and cultural mass' can undertake these roles. This mass should be organised in the Arab world (Abdullah Al Khayari, Member of the Readers Committee).

### Participation and decentralisation:

The preparation of youth for the knowledge society involves a comprehensive process of mobilisation. The experience of countries that have made progress in this area show that

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### India's experience in accessing the knowledge society

Since the beginning, India's vision has been to become a superpower in knowledge. It has set all plans and implementation mechanisms to turn this vision into a reality. The credibility gained by India in this field has depended on establishing and protecting intellectual property rights.

India launched its plans from the following vantage points. First, India enjoys a political system based on democracy, open society and liberalism. Second, it possesses a human capital considered the best source in the world, as India has focused on protecting and sponsoring excellence and outstanding professionals in the industry of communications technology and creating programmes to develop cadres capable of excellence and competition, and worked from the beginning to build a large human capital possessing good learning skills based on mathematics. Third, India has focused on improving English language skills among its people everywhere. The English language, which has become a universal language thanks to the internet, has been an important factor used successfully in India's experience.

Source: World Bank 2000, Ragan 2003.

There are now about twenty thousand Indians working in 'Silicon Valley' in the United States of America. Major international companies in the information industry are now seeking trained staff with PhDs in information from India. Fourth, India has made quantum progress in scientific research and experimentation in agriculture, biology, and applied and engineering biology. It established outstanding research centres similar to those in the West. India also founded the Indian Institute of Technology (IIT), which ranks among the most important centres of excellence.

Information technology has led India to be one of the world's economies in knowledge. Its progress in this field has allowed it to establish bridges of cooperation with many developed countries in Europe, America, China and Japan. The IT infrastructure, web/internet, well-trained labour, scientific research, and English language have become essential components strongly interacting with each other to turn India into a regional power in Asia based on the knowledge economy, and a destination for work and investments from everywhere in the world.

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development policies require joint action including the upper levels of government in various sectors, as well as private businessmen, trainers, scientific researchers, political forces, corporations, and non-governmental organisations. Everyone takes part in developing plans and executive policies in order to create a sense of ownership among all. In this context, the partnership between the public and the private sectors has become one of the main features in the economics of knowledge. The approach towards decentralisation is the other side to achieving societal participation and securing people's right to manage their own life affairs in a free democratic society.

#### **Achieving balance between the policies of free market, economic growth and social reform:**

Granting each individual the freedom to work or invest would strongly boost the economy, but emphasis must be placed on the need for social reform programmes to achieve social justice, combat poverty and ensure a basic decent life guaranteeing individual freedom and dignity, as well as the need to support

the marginalised, care for children, liberate women and enable them socially, politically and culturally. In this respect political reform must not just tolerate but rather complement with both economic reform and social reform.

#### **Integration of economic policies among Arab countries, and integration into the global economy:**

Arab integration into various fields of development has become a necessity more than ever, especially since the factors of integration and cooperation are guaranteed on the Arab scene that should be exploited through visions, policies, plans and projects that form enabling environments to prepare young people for the knowledge society, while seeking to achieve the common interests of the entire Arab region. However, Arab regional integration must be complemented by integration into the global economy, to ensure global investment opportunities, particularly in the areas of advanced scientific and technological domains. Such openness to the world requires establishing partnerships for the transfer of knowledge, hiring highly skilled and trained cadres, and exchanging specialists and professors from major universities; all these are considered

important policies and strategies to develop and support the spread of technology and develop information systems, education, productive institutions, and innovation and renewal systems.

### **Multiple means and approaches to building the knowledge capacities of young people:**

Perhaps the most important process of capacity-building for the younger generations lies in knowledge management policies, including the policies of scientific research and development to serve the objectives of sustainable human development and building the knowledge society. In this regard, the initiatives to develop and support the capacity of young people in Arab countries are almost restricted to government agencies and organisations, with an obvious weakness in the roles of non-governmental institutions and agencies. Also, knowledge management and capacity building must be open to initiatives and ideas which may be political, artistic, cultural, religious or intellectual, and the door must be open to competition in cognitive creativity and innovation (Bin Hafeez, Abdul Wahhab, Background Paper for the report). With a focus on applications to reduce the gap between knowledge, work and development in production and industry, there must also be an interest in social and human dimensions of knowledge, similar to what is happening now in Japan and Europe (Alain-Marc Rieu, 2006).

### **Strategic and executive action plans:**

There is a need to translate visions and policies, according to specific directions, into long to medium and short-term strategic plans. These plans, whether comprehensive or in sections, national or regional, help direct efforts according to performance indicators specific in time and place. Experiences described in this report show the importance of planning and turning policies and trends into plans that determine actions, responsibilities, cost, performance

indicators, and evaluation and follow-up systems. Plans act as social contracts that provide responsibility, accountability and transparency, and facilitate the building of sound governance for project management. Such plans should have clear time frames (short, medium or long term) that are determined according to the nature and priorities of targets, while clearly identifying responsibilities and executive bodies, and allocating the material and human resources required to ensure success.

### **Institutions for change management and project implementation:**

To achieve the required change in the processes of preparing young people, government should play an important role in establishing institutions for change management and project implementation according to strategic plans and directing policies. Such institutions can be found through full partnership with the private sector according to the Public/Private Partnerships (PPP) model. Arab states should develop and improve the systems of these institutions to ensure effective management and good governance, which guarantees achieving a qualitative quantum leap in society, at the behavioural and cultural levels, and reflects the form of participation, democracy, accountability, rule of law, and transparency. It is essential that such institutions are run by leaders enjoying a high level of knowledge using the methodology followed by major international institutions. They must also have a strategic vision, trained human cadres, management systems based on participation in decision-making away from authoritarianism, scientific research and development, work-supportive values, and freedom systems associated with the strategies, plans and overall vision (Sabry Al-Shabrawi, 2010).

It is not implausible. For example, Malaysia, which is close in many cultural aspects to the Arab states, has experienced multiple programmes of 'organisational change', labour development, individual's

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enabling, and cadre building.<sup>35</sup> This has been done in industry, education and services. Malaysia has also established strong institutions to manage change, such as the National Productivity Corporation to support productivity and quality assurance, and provide standards, indicators and information systems.

#### *WORK AXES FOR BUILDING THE RENAISSANCE AND KNOWLEDGE SOCIETY*

Comparing international experiences, such as those of Malaysia, India, Japan, Turkey, the EU and others, the previous analyses covered by the report, which include the knowledge-freedom-development triad and the four problematic issues raised in the theoretical framework (Chapter 1) we can identify five axes for preparing the young Arab generation for the knowledge society:

#### **Information and Communications Technology (ICT)**

ICT is a major component in the processes of preparing young generations for the knowledge society. It represents the vehicle of progress for development and renewal in education, knowledge production, government works, civil society, and the business sector. The OECD's Policy Document (2000) stated that scientific progress and technological development were vehicles of economic development, which enhanced creativity and innovation and investment in and dissemination of knowledge. ICT has also become a major source for competitive advantage, generating wealth, and improving the quality of life. Some of the key features of the transformations occurring in the knowledge society are seen in the rapid growth in the use of scientific progress in new products and processes; the high rates of renewal and inventions, the major shift to industries and services based on knowledge and the increasing need for skills (World Bank, 2004).

To ensure optimal use of ICT in the preparation of the young, the following points must be considered:

- Reviewing management institutions and their readiness to use and absorb technology, particularly in the field of education and training.
- Emphasising intellectual property rights and reviewing the legislation and laws governing the use of technology in a way that achieves its deployment and supports the freedom of using it.
- Training on quality systems and enabling individuals to use technology efficiently.
- Encouraging foreign investment to achieve a quantum leap, especially in the areas needing highly-qualified cadres.
- Developing major projects to create a critical mass to deploy, employ and produce technology in schools, universities, homes, productive institutions, government, and public life in all areas.

#### **Systems of innovation and renovation**

The essence of the knowledge economy and society lies in the system of creativity, innovation and invention. The ability of innovation and renovation are measured using multiple indicators, most notably work productivity, value-added workers, scientific research and development, and rates of workers in research (experts and scientists). The activation of this axis in the process of building the Arab renaissance and preparing generations for the knowledge society requires the establishment of institutions to manage innovation, technology transfer, research and development management, and long and short-term strategic plans. It also requires building and creating a climate supporting innovation, including the following:

- Structuring incentive systems and encouraging innovation and renovation
- Seizing the opportunities of foreign investments to support scientific capability.
- Supporting research and development

by building supportive institutions, providing the necessary funding, developing trained cadres of scientific research, and encouraging exchange of international expertise.

- Linking the triad of scientific research, universities, the labour market and production.
- Promoting Arab collaboration networks in scientific research, and linking them to international networks of innovation and scientific ideas.
- Encouraging the study of science, engineering and technology, starting from secondary education, and expanding it in universities and other institutes in order to build a critical mass of scientists, engineers, technicians and makers of knowledge in Arab countries.
- Developing humanities and enhancing research centres in order to make a quantum leap and shape the efforts of establishing the knowledge society within the ultimate goal of achieving sustainable human development.
- Developing methods of publishing and distribution and announcing the results of scientific research and incorporating them into the public culture through education institutions and the media.
- Focusing on building clear systems in legislation and licences, and the accreditation of patents and property rights.

### Education and preparation of human labour

Transformations in the work structure of the knowledge society have had major effects that necessitate developing education and systems of preparing the Arab youth workforce in order to enhance the triad of skills, values and enabling environment. Unfortunately, world reports confirm that the progress made by Arab countries since the adoption of the principle of 'Education for All' (Dakar, 2000) was less than that achieved in other parts of the world, such as South and West Asia. The findings of

the case studies conducted in the four Arab countries also confirm the weakness of learning outcomes and the non-readiness of the Arab youth to acquire the cognitive, behavioural and conative characteristics needed to access the knowledge society. These facts require action and great effort in the education and preparation of labour. Based on the quaternary model for the development of education, introduced in Chapter 2 of this report, and the explanations and approaches for an integrated vision for reforming and directing education to play a pivotal role in preparing young people for the knowledge society, the efforts devoted to preparing Arab human capital should focus on the following procedural aspects in comprehensive plans and programmes targeting development:

- **Elimination of illiteracy;** as no country can access the knowledge society without eliminating all types of illiteracy.
- **Dissemination and instilling of ICT;** to enable young people to master the skills of ICT in schools and production and service institutions.
- **Investment and early childhood care;** there must be an emphasis on early intervention in schools and institutions and childhood care in poor neighbourhoods, as well as on supporting the culturally and socially disadvantaged.
- **Enabling of Arabic language;** Mastering the correct Arabic language is vital to identity development, social and political integration, and stressing the values of enlightened citizenship. The linking of the Arabic language to scientific and technological progress helps support the development of an enlightened, progress-supportive Arab culture. This should be linked to language reform and the need to develop technologies that provide the Arabic language with capabilities close to those enjoyed by other languages (especially languages of Latin origin) with respect to advantages in the

*The linking of the Arabic language to scientific and technological progress helps support the development of an enlightened, progress-supportive Arab culture*

*Emphasis should be placed on the importance of the work done by the present report, through the field studies in Jordan, the UAE, Morocco and Yemen with respect to building tools to measure and evaluate education outcomes in the skills, values and enabling environments of young people*

- coming internet generations and search engines.
- **Focus on learning the most widespread world languages (especially English);** Global experience has shown that mastering foreign languages represents a driving force towards the knowledge society and guarantees access to a wealth of information on the internet, not to mention the ability to communicate with the world in the era of globalisation, as happened in East Asia.
  - **Development of teaching and learning methods, and student and curricula assessment;** Emphasis on the integration of the elements of educational process in classrooms to form an environment supporting thinking, creativity, criticism, discovery and innovation in a new system which helps them acquire the skills and values needed to prepare new generations for the knowledge society.
  - **Adoption of individual and collective initiatives;** by focusing on enabling the student, teacher and school to access learning resources in a democratic learning climate that stimulates and adopts individual and collective creative initiatives.
  - **Expansion and enhancement of secondary education;** to create a large critical mass of youth mastering science, mathematics and information technology.
  - **Building national qualification frameworks;** The experiences of EU countries and Turkey confirm that among the basic tasks for the integration of labour into the global knowledge economy is to build national qualification frameworks to connect the levels and various programmes of education on one side, and the level of skills required in the labour market in the production and service institutions on the other side, according to international standards in the knowledge economy.
  - **Re-structuring educational institutions;** to achieve good governance and democratic

management based on decentralisation and social participation and partnerships with business persons in the private sector, in addition to creating international links and networks to communicate with every new and innovated educational method.

- **Positive interaction with the international assessment;** It is necessary to expand the participation in international standardised tests, such as TIMSS, PISA and others, to provide international standardised rules to measure the success of education outcomes and student's performance according to what is going on in the world, and investing it in formulating policies for developing education.

In this regard, emphasis should be placed on the importance of the work done by the present report, through the field studies in Jordan, the UAE, Morocco and Yemen with respect to building tools to measure and evaluate education outcomes in the skills, values and enabling environments of young people. It is worth mentioning that expansion in using these tools will provide Arab countries with standardised measurements and reference criteria for evaluation. This will meet an urgent need in the region for such tools along with international tests. The total sum of such steps would light-up the way for the planner and decision-maker to reach the most effective ways to deal with gaps and maximise achievements to be able to reform educational systems and put them on the right track.

### **Business environment and investment climate**

A great part of the motivation and positive incentives for preparing young people and providing them with the necessary skills, values and enabling relates to the existence of supportive environments. By this we mean modern labour markets that enable the youth to practice the skills and characteristics they have acquired and to gain self-esteem through creativity and innovation,

### The five pillars of building the knowledge society in Turkey

Turkey has realised that there are five main correlated, interactive and adaptive pillars in the framework of comprehensive action strategies required to move to a knowledge society, namely: (I) building a national system for innovation and creativity (e.g. policies, institutions, incentives, development, internal and external trade); (II) developing human resources, especially the development of the educational system, to produce specialists in the industry of knowledge and technology; (III) deploying ICT; (IV) establishing a work environment supporting the growth of knowledge economies; and (V) allocating a proportion of national income to support scientific research and development.

Turkey made its leap while relying on a competitive advantage represented in the low cost of labour, enabling Turkey to challenge competition from Eastern Europe and Asia. That labour has helped to enrich industries, such as textiles manufacturing which needs intensive labour, thus achieving a degree of social stability.

Through business networks, including small and major companies, and scientific research networks which have helped

Source: World Bank, 2004.

it integrate into the European economy, Turkey has succeeded in attracting much foreign investment as a source of new technology and knowledge. For Turkey, it has become important to transfer technology from foreign business and industry centres to business and industry centres within Turkey. Moreover, Turkey has worked to support the governing legislative and legal framework, especially in the field of intellectual property rights and technology licensing.

In developing education through work, Turkey has focused on three elements: (a) developing a comprehensive system to determine occupational standards and the National Qualification Framework; (b) reforming secondary education, including secondary vocational education, and improving linkages with higher vocational schools; and (c) increasing participation in international assessments and benchmarking programmes (e.g. PISA, TIMSS, etc.) in order to develop standardised references to measure human resources development and capacity compared to other countries. Such reforms have enabled Turkey to achieve integration of labour market and manpower in the developed European and world economies.

to benefit them and society as a whole through achieving greater well-being and development. Hence, developing business and investment environments as well as rigid business relations to allow flexibility within production and service institutions, rejuvenating workers, and encouraging innovation and creative initiatives are all important factors motivating young people and harnessing their potential to engage positively in the processes of accessing the knowledge society. This requires developing good governance, reforming incentive systems, preparing the overall work climate, adapting the climate so that relations are based on democracy and promoting creativity, using advanced communication means related to the internet, and developing self-management, which are of the most important principles for running business in the era of knowledge.

Procedurally, the development of the business environment and investment climate requires focusing on the following aspects:

- Encouraging balanced international investment and partnerships with the private sector interacting positively with general development and social demands.
- Building a critical mass of entrepreneurs

to lead development processes and establish projects in industry, agriculture and services.

- Supporting scientific and technical capacities of the workforce, education and continuous life-long training.
- Building a national qualification framework to link work and production skill levels with educational programmes.
- Restructuring institutions to build strong enabling environments that sponsor production and service projects, in addition to research and development networks and universities to enhance the motivation of the Arab youth to work, be creative, and produce knowledge.
- The establishment of decentralised systems in governance and institutions management and development of endogenous capacity of localities, and to enable them to achieve democracy, transparency and the rule of law.

#### Social, political and cultural environments

The rapid changes in science and technology and the explosion of knowledge inevitably mean changes in the social structure encompassing values and culture. The willingness of new generations of young

*The rapid changes in science and technology and the explosion of knowledge inevitably mean changes in the social structure encompassing values and culture*

Arabs to respond to such changes is a condition of their scientific and vocational qualification if they are to contribute with their occupational, mental and physical potentials to the ultimate degree. Since social, cultural, and political structures have a great impact on the preparation of new cadres required for the knowledge industry, setting a dividing line between what is professional, social, cultural, or political becomes unacceptable when preparing these generations to develop their skills and values to contribute to building the knowledge society.

In light of the analyses presented by this report with respect to the status of social, cultural, and political enabling environments in the Arab region, and their relation to the preparation of young people for the knowledge society, we see a need to focus on reforms in the following areas:

- Setting clear social policies, plans and programmes to establish social justice, eliminate unemployment especially among young people, and combat poverty.
- Promoting political freedoms and democracy which have become a mainstay for reinforcing development and cultivating a culture of relationships rooted in the concepts of relativity, differences, acceptance of others, equality, justice, equity, political participation, and self-determination for individuals.
- Empowerment of women and family support, taking an interest in women at the cognitive, scientific and cultural levels, and launching programmes for development and family and parental education.
- Letting media undertake its responsibility to enlighten society. The state must play a crucial role in this area in order to create an atmosphere of responsible freedom towards enlightening and developing society, and promoting a cultural climate that nurtures new generations, increases the love of science and rational thinking, and encourages creativity and critical thinking.
- Fostering enlightened religious trends

that support the spread of a democratic climate based on work, tolerance, acceptance of others, and protection of citizenship rights.

- Supporting a climate of cultural freedom to encourage cultural ties and communities, and building incentive systems for arts, literature and humanities.

### *ACTION EXPECTED OUTCOMES*

Arab countries can prepare new generations who are able to build the renaissance and establish the knowledge society, by using the following proposed paradigm pivoting from the five axes detailed above. The goal is to achieve the outcomes sought by the Second Arab Knowledge Report in terms of the triad of skills-values-enabling environments described in the previous chapters of the report.

The field research of the four case studies combined a plethora of results that revealed potential weaknesses in skills, values and environments among emerging generations. The low readiness in cognitive skills, for example, calls for the necessity to work to strengthen such skills in upbringing and educational curricula, and the relative readiness in values refers to a factor that can be confirmed, deepened and expanded in the preparation of young people, as required, to access the knowledge society and reap the benefits.

### **SECURING ACTION REQUIREMENTS**

After tackling the willingness to act, determining the extent of ability to move in terms of opportunities and challenges, then developing perceptions in a paradigm of how to act towards preparing young people to establish the Arab renaissance and access the knowledge society, we come to the fourth element, namely the 'quaternary of action'. This fourth element is represented in the conditions that must be met to proceed with and monitor the integrity of development and change,

### Malaysian experience in accessing the knowledge society

Mahathir Mohamed's vision is to transform Malaysia into a developed country by the year 2020, relying on ICT as the engine of development and progress within a comprehensive vision. According to the Strategic Plan (1996-2000), the Multimedia Super Corridor (MSC) was established on an area of 15 × 40 km to enable Malaysia to access the age of information and achieve the development goals stated in 'Vision 2020'. This project provided a strong infrastructure, incentives, educated and highly-trained workforces skilled in technical works, and research and development. Within five years of well-planned, diligent work and accurate visions, Malaysia was able to change from a state dependent on rubber and palm oil production in the 1980s to a knowledge-based society by the year 2000. Possessing the power of knowledge enabled Malaysia to achieve comprehensive development and economic and social progress. It took Malaysia 20 years to transform itself from an agrarian economy to a knowledge economy, compared with the 150 years it took England. Globalism was a key element in building 'Malaysia's Vision 2020'.

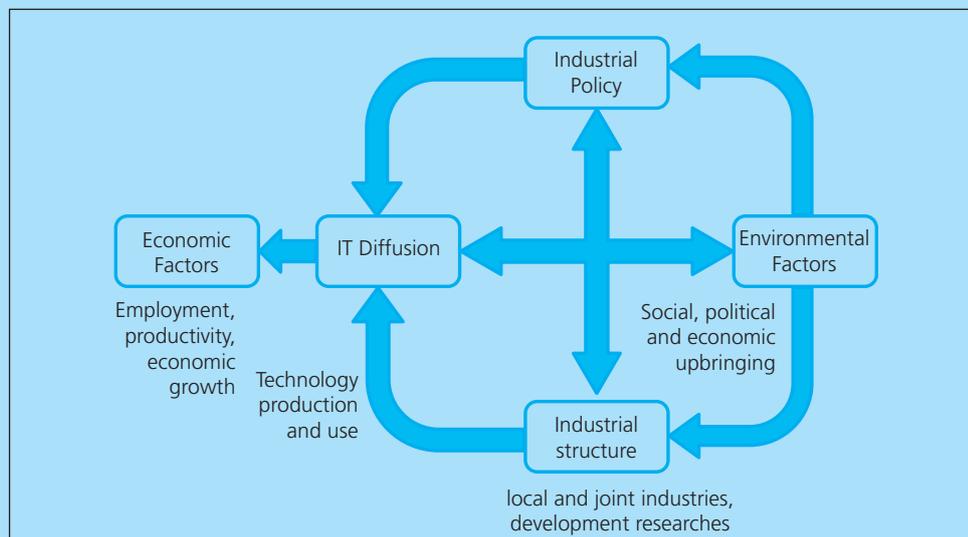
Figure 6-3 shows that Malaysia has established an environment of information technology within

Source: Hanz, 1998.

a comprehensive vision, and provided strong enabling environments that support the culture of a knowledge society and help individuals master the terminology and requirements of this society. It has done so through the deployment of information technology centres, scientific research and development, enhancement of education, and enabling young people to master science, mathematics and the English language, and to use technology efficiently. Malaysia has also instigated cultural renewal and wide societal development, encouraged openness to the world, built a global network for managing development investments, improved service levels and quality standards, achieved organisational reform, and established the thought of innovation and creativity in all centres of industry, production and services as a key process. Foreign investors have found a good environment for work, an appropriate infrastructure, educated and skilled labour, and highly qualified technical cadres. These investments have created opportunities for operating and transferring modern technology, and established a global market able to compete in the era of globalisation.

FIGURE 6-3

### IT, the development drive (Malaysia experience) Education, Skills, Technology



Source: Hanz, 1998.

while ensuring their sustainability in order to progress towards preparing the young Arab generation to access the knowledge society.

In order to ensure successful movement towards preparing young people for the knowledge society, according to the proposed paradigm, there should be a set of

systems already in place in active institutions. Some basic systems representing the requirements for sustainable and successful action include:

### *INCENTIVE SYSTEMS*

Efforts to ensure the prerequisites of action entail developing systems to motivate and support those working on preparing future generations, as well as those working in the overall supportive systems and enabling environments discussed above. In this regard, linking material and moral incentives to achievement, and building effective systems to manage this relationship and associate it with accountability would maximise the possibility of achieving the results sought by society in its efforts towards preparing young Arab generations.

### *MONITORING AND EVALUATION SYSTEMS*

Institutions adopting effective systems of monitoring and evaluation are paramount in evaluating the knowledge status of the state, evaluating the readiness of emerging young Arab generations to access the knowledge society, and monitoring and evaluating small and major enterprises, both at the regional level and the national level for each country in the Arab region. We must also consider developing a so-called 'Strategic Alert' system to monitor the signs of any change immediately and even anticipate it, thus going beyond just 'coping with events' and avoiding being surprised with unexpected scenarios that may confuse the pursuit of our goals and efforts towards the desired development (Nour El-Din Sassi, a member of Readers Committee). Various international experiences show that the countries which have made notable progress (such as those in the EU and Turkey) possess effective qualification frameworks and national standards for measuring the quality of production, services and performance, and participate

in international tests, such as TIMSS and PISA, wherein they achieve advanced rankings. In this respect, perhaps the measurement tools introduced by the field research of the four case studies in this report will represent a good nucleus for the possession of Arab tools and standards to measure learning outcomes and identify strengths and weaknesses on scientific and objective bases.

### *SYSTEMS OF GOOD GOVERNANCE*

Similar to the element of 'how to act', good governance is key in securing the move and making changes as described in the visions and strategic plans. Though good governance is an objective in the processes of 'how to act', it is an important 'mean' for ensuring the necessities and shrewd management of the processes of preparing young people for the desired knowledge society. In this sense, it requires the presence of mechanisms to help society and its various, formal and informal authorities to manage change.

Achieving an effective management of change must be in the framework of fostering and supportive institutions. The creation of laws and legislation and the realisation of good governance require establishing active and capable institutional structures to sponsor change and guide it correctly towards the preparation of young people for the knowledge society. Such institutions should possess the necessary strength to enable them to perform their work firmly to ensure achievement and flexibility to respond to changes and developments on the ground.

### *LEGISLATIVE AND LEGAL FRAMEWORKS*

Regulatory and stimulating legislation should provide the legal base guiding and binding all concerned bodies to work in preparing young people for the knowledge society. Such legislation can

*Efforts to ensure the prerequisites of action entail developing systems to motivate and support those working on preparing future generations, as well as those working in the overall supportive systems and enabling environments discussed above*

control and regulate the contributions of the various concerned bodies, including intellectual property rights, as well as establish limits for follow-up and accountability without which good governance and effective management cannot be realised. Legislation must assist in the establishment of global networks among local and international organisations through the provision of laws linking them together to ensure sustainable preparation of young generations and openness to the world. Eventually, what matters is that such laws have to be applied firmly. To illustrate, many Arab countries, including some of the countries studied in this report, possess legislation and laws which have for years stipulated work towards creating a knowledge society and preparing young people to sustain it, but none can boast of having completed the required tasks.

#### *SYSTEMS FOR MOBILISING SUSTAINABLE FINANCIAL RESOURCES*

To proceed with action and ensure its sustainability, it is believed that regional and national systems should be established to mobilise the necessary financial resources for implementing the plans for change. Such systems can be developed through assigning public budget and tax allocations, encouraging the private sector to invest extensively in the processes of preparing young generations, stimulating partnerships between the private and public sectors, encouraging the civil sector,

and attracting international investment to mobilise resources and pump them into development and investment plans which ultimately provide opportunities for fostering and motivating the preparation of young Arab generations for the knowledge society.

#### **CONCLUSION**

There is a need for action in order to prepare the new generations and equip them with skills and values; and to achieve fundamental reforms in fostering enabling environments; and to develop future generations to construct the modern Arab renaissance to help launch Arab potential to access the knowledge society with respect to the triad adopted by the report: knowledge, freedom and development. Since this issue relates to the fate of the entire nation, the process of advancing to the top ranks in the cognitive development areas requires a joint effort by all Arabs to mobilise various energies and allocate the necessary resources to bridge the gap and help catch up with the global caravan progressing steadily. The required change proposed by the report is, at its core, a comprehensive economic, social, political and cultural process of mobilisation to build the Arab renaissance project with and through which the young Arab generation can prepare for a new society that lays the foundations of knowledge and brings openness to the world to serve sustainable human development for the dignity and well-being of the Arab people.

*The required change proposed by the report is, at its core, a comprehensive economic, social, political and cultural process of mobilisation to build the Arab renaissance project*

## End Notes

- <sup>1</sup> Hassan Bilawi, background paper for the report, 2006.
- <sup>2</sup> See Chapter Five on the views of students on the legal and social enabling environment.
- <sup>3</sup> Here, secondary education involves both preparatory/intermediate and secondary stages, despite the fact that the UNESCO's programme 'Education for All', according to the conferences held in Jomtien (1990) and Dakar (2000), divides general education to two main stages: basic education (1-9) including both primary and preparatory stages, and secondary education. It should be emphasised that the term 'basic education' is a legal term referring to what is committed to by a country according to its ability to provide free and compulsory education for its children. We find many of the developed countries consider basic education as all stages of pre-university education.
- <sup>4</sup> Website of UNESCO Institute for Statistics on May 23: <http://www.unesco.org/ar/home/resources-services/statistics>
- <sup>5</sup> TIMSS (Trends in the International Mathematics and Science Study) is an international test to assess the international trends in 4th and 8th grade students' achievement in mathematics and science.
- <sup>6</sup> The terms 'pupil' and 'student' are used interchangeably in the report, noting that some countries use the term 'pupil' for primary schooling and pre-university stage and 'student' for those enrolled in the university stage.
- <sup>7</sup> The findings of TIMSS 2011 were not available during the preparation of the report.
- <sup>8</sup> Programme for International Student Assessment
- <sup>9</sup> English was introduced in the teaching of mathematics and science in 2003, but, as indicated by studies, it did not lead to an improvement in academic achievement. Rather, some studies showed that there was deterioration, and the students did not achieve any improvement in learning the English language. The results of these studies have been discussed since 2009, and a decision was made to withdraw the idea as of 2012 (Muhammad bin Muhammad Al Mutahhar, a member of the Readers Committee)
- <sup>10</sup> These points have been confirmed by the field studies conducted during the preparation of this report. See the results of writing communication skills in Chapter 5.
- <sup>11</sup> [www.internetworldstats.com](http://www.internetworldstats.com) on 8/8/2011
- <sup>12</sup> See informational decision support center, 2008.
- <sup>13</sup> <http://www.womengateway.com> on February 25, 2011.
- <sup>14</sup> The United Nations Development Programme (UNDP), Regional Bureau for Arab States (RBAS) launched the Programme on Governance in the Arab Region (POGAR) in early 2000 based on these three pillars: <http://www.pogar.org/arabic/>
- <sup>15</sup> World bank povacal <http://iresearch.worldbank.org/PovcalNet/povcalSvy.html> and <http://hdr.undp.org/en/statistics/>
- <sup>16</sup> This index is launched by LEGATUM, a privately owned, international investment organization, headquartered in Dubai.
- <sup>17</sup> [http://Btselem.org/Arabic/about\\_Btselem/index.asp](http://Btselem.org/Arabic/about_Btselem/index.asp) on May 23, 2011
- <sup>18</sup> [www.arabvolunteering.org/corner/avt252666.html](http://www.arabvolunteering.org/corner/avt252666.html) on May 23, 2011
- <sup>19</sup> [www.alukah.net/culture/0/19913](http://www.alukah.net/culture/0/19913)
- <sup>20</sup> World bank (2005) conflict in Somalia. Drives and Dynamics. [www.worldbank.org/Somalia/](http://www.worldbank.org/Somalia/) Somalia Millennium development goals. Somalia Socio-Economic Survey 2003, World Bank
- <sup>21</sup> [http://www.unicef.org/arabic/har2010/index\\_somalia.php](http://www.unicef.org/arabic/har2010/index_somalia.php)
- <sup>22</sup> The report was prepared in the period preceding the separation of the south from the north. Thus, all data are from before the division of Sudan.
- <sup>23</sup> [www.worldbank.org/etools/KAM2/KAM\\_page5.asp](http://www.worldbank.org/etools/KAM2/KAM_page5.asp)
- <sup>24</sup> Source: [www.worldbank.org/indicator/GB.XPD.RSDV.GD.Z5/countries](http://www.worldbank.org/indicator/GB.XPD.RSDV.GD.Z5/countries) World Bank Database
- <sup>25</sup> One of the modern educational theories that stresses the active role of a learner in the learning process and the importance of social interaction with the teacher and peers to facilitate the acquisition of skills. (constructive and cognitivism)
- <sup>26</sup> In this round of the series of Arab Knowledge Reports, a field research was conducted only in the major cities in the four Arab countries that were subjected to case studies (Jordan, UAE, Morocco and Yemen), as they were selected in this investigative and pioneering study to represent, to some extent, the different areas in the Arab region from the Arab Mashreq region (Jordan) to the Arab Maghreb region (Morocco), the Gulf (the UAE), as well as the countries demanding more growth (Yemen). For regulatory reasons, field surveys were completed on pilot principles in the major cities of these four countries (Amman, Rabat, Sana'a, Dubai and Abu Dhabi).
- <sup>27</sup> The International Adult Survey 1997.
- <sup>28</sup> Mentioned in the 'Science and Technology Education in the Arab World in the 21st Century'. UNESCO International Science, Technology & Environmental Education Newsletter, Vol. 28, 2003
- <sup>29</sup> Al-Suwaigh, Seham Abdul Rahman. Socialisation for Arab children and its relationship to the development of knowledge

- <sup>30</sup> Education and Future Challenges. Arab Gulf Journal, 3rd year, 5th issue.
- <sup>31</sup> Education and Future Challenges. Arab Gulf Journal, 3rd year, 5th issue, p. 56.
- <sup>32</sup> The Arab States spent 5% of their national income on education and 20% of government spending during the last forty years.
- <sup>33</sup> World Bank Database (KAM) on May 28, 2011.
- <sup>34</sup> According to the World Bank's Index (KAM), 3 countries are among the top 50 countries (Qatar No. 44, UAE No. 45, and Bahrain No. 49) in the Knowledge Economy Index. Saudi Arabia has risen 13 places, and also Tunisia, Sudan and Mauritania have risen 11 places since 2000. @ ranked 21st on the ICT Index at the world level and the 1st at MENA level. Qatar ranked second on the MENA level and 27th on the world level.
- <sup>35</sup> Organization Change

