

برنامج الأمم المتحدة الإنمائي  
United Nations Development Programme



Empowered lives.  
Resilient nations.



مؤسسة محمد بن راشد آل مكتوم  
MOHAMMED BIN RASHID  
AL MAKTOUM FOUNDATION

# Arab Knowledge Report 2014

## Youth and Localisation of Knowledge

### United Arab Emirates





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## Foreword

### Chairman of the Board Mohammed bin Rashid Al Maktoum Foundation

#### Arab World's Transition to Knowledge Society

Knowledge is considered as one of the key pillars of a nation's development and advancement, and critical to the society's progress and prosperity. It is an incentive for intellectual and social mobilisation as well. The current era is called the "knowledge era". If every era had its own wealth, this era's wealth would be knowledge. The knowledge society is the society of the digital revolution, which has contributed to the change of relationships in the developed societies and perceptions about of the outside world. Information and knowledge have contributed to enhanced standards of living, defined artistic tastes and values, and helped speed up development and industrial progress. Knowledge accumulation also plays a major role in sustaining economic growth.

By projecting the mobilisation of global knowledge on Arab realities, we find a big gap in the level of education and curricula and the volume of investments in education and research. Distinctions are evident in terms of the number of patents, and the volume of community participation, as well as in youth enrolment in the transfer of knowledge and the shift from consumer societies to productive societies. Together, these issues form an integrated system for building knowledge-based societies.

From this perspective, we find it necessary to empower youth by reviewing the school and university curricula, promoting research through well-equipped schools and universities, and supporting researchers in specialised centres. We need a comprehensive vision based on a series of factors such as:

freedom of thought, promotion of creativity in arts and sciences, equal opportunities for all citizens, transfer of knowledge through translations into Arabic, experiments, methodical research, exchange of expertise, continuing education, review of records and documentations, seminars, workshops and trainings, as well as other channels.

The Arab Knowledge Report comes as an indicator of the status of knowledge in the Arab countries. It presents a diagnosis of the situation to help those in charge to evaluate performance and implement development policies for building knowledge societies capable of facing challenges, and contributing to comprehensive and sustainable development. The third Report focuses on the importance of integrating youth in the transfer and localisation of knowledge processes in terms of its definition as well as economic and social benefits and priorities. The elements of localisation of knowledge are limited to two major integrated elements; the first being the production of knowledge and the second the employment of knowledge in human development in its cultural, scientific, social, political and environmental dimensions.

There is no doubt that the United Arab Emirates has made great progress in the development of dissemination and localization of knowledge through a number of initiatives, programs and projects. These together have helped the country overcome challenges and build knowledge based community and an environment that will ensure the sustainability of development and prosperity.

In an attempt to study the opportunities, threats and strategies in the successful integration of the Emirati youth in the transfer and localisation of knowledge on the national level, this UAE version of the Knowledge Report considers the main elements that would enhance the effectiveness of the youth and their participation in employing knowledge in sustainable human development.

We present before you the “Third Arab Knowledge Report: Youth and the

Localisation of Knowledge” that includes a special report of the status of knowledge in UAE. We hope that both the reports will present a clear and comprehensive picture of our local and regional knowledge status, highlight the strengths and the ways to exploit them, and identify the areas that need further development. We believe that the reports will act as a road map for decision makers, providing them an overview of the means and methods in the transfer and localisation of knowledge in our Arab world.

Sheikh Ahmed bin Mohammed bin Rashid Al Maktoum  
Chairman of the Board  
Mohammed bin Rashid Al Maktoum Foundation

## Preamble

### Regional Director Regional Bureau for Arab States, United Nations Development Programme

The publication of this special report on youth and the localisation of knowledge in the UAE comes within the strategic partnership and the shared vision that brings together the Mohammed bin Rashid Al Maktoum Foundation and the Regional Bureau for Arab States at the UNDP in support of establishing knowledge societies for development purposes, and within the framework of the Third Arab Knowledge Report 2014.

This report presents a comprehensive view of the status of the Emirati youth, its capabilities and cognitive effectiveness, along with the available enabling environments. Similar to the previous knowledge reports, the current one is characterised by studies and surveys conducted with representative samples of Emirati youth in the final academic year in all public universities in the country. The report also highlights the opinions of young people and various stakeholders on the status of the youth today and the localisation of knowledge. These opinions were given during a series of field studies and workshops carried out while drafting the report. As such, the report has become, whether through its dialectics, outputs or recommendations, a unique platform for the UAE youth and stakeholders, where opinions are expressed and solutions proposed, and it explores several aspects that require attention, whether in the course of avoiding obstacles or capitalising on achievements.

The UAE has had remarkable achievement in development, and in record time. Since

the beginning, building and enabling the UAE citizen have been among the adopted objectives, which have been accompanied by a political will, supported by an honest societal will and the awareness of the importance of catching up with developed countries. The persistent quest to establish the knowledge society and economy in the UAE represents one of the most important manifestations of these trends and policies. As confirmed in the report, the strategies and mechanisms proposed are not only applicable, but also enjoy the availability of most, if not all, conditions for their success. The UAE enjoys a developed information infrastructure and a strong economy, as well as a clear recognition of the importance of building the knowledge society and actively engaging the youth in this central development process.

I present my most sincere thanks and appreciation to everyone who participated in this great endeavour, including experts, researchers, as well as writers and editors, the UNDP and Mohammed bin Rashid Al Maktoum Foundation teams. My thanks also go to the UAE youth and everyone who contributed to the field research and workshops whose outputs formed the main material for this report.

At the end, I can only express my deepest respect, appreciation and thanks to H.H. Sheikh Mohammed bin Rashid Al Maktoum for his sponsorship and continuous support for the initiatives to establish the knowledge society, not only in the UAE, but also in the Arab region and the entire world. I reiterate the honour

to have this partnership at UNDP with the Mohammed bin Rashid Al Maktoum Foundation and our dedication to develop it further, to achieve our common vision of establishing knowledge societies and sustainable development for the people in the Arab region and beyond.

Sima Bahous  
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## Introduction

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Within the general framework of the third Arab Knowledge Report 2014 comes this report on “Youth and Localisation of Knowledge in the UAE”. It sheds light on one of the most important issues facing the Emirati society, namely integrating the youth and enabling them to actively contribute to the transfer and localisation of knowledge. This process serves as a springboard for the establishment of the knowledge society in the UAE and acts as a window to wider horizons for sustainable human development. The biggest challenge in creating this society lies in the process of building the human being, or the knowledge capital, on new foundations that are aligned with the requirements of the current age. This includes enabling the youth – the key category of this society – to develop their knowledge, skills, thinking frameworks and values so as to transfer, localise, produce and employ knowledge effectively, for their own benefit and that of the Emirati society as a whole.

With knowledge representing one of the most important foundations of comprehensive and sustainable human development, the engagement of all categories and elements of a given society in the processes of knowledge transfer, localisation, employment and production is a must. In order to achieve this, it is imperative to face the challenges that might impede the building of the knowledge society, be it in education, scientific research or other sectors. Moreover, the effective management of knowledge is a mechanism through which the state can build new generations of citizens who are equipped with the skills required to handle current knowledge learning schemes based on creativity, innovation, critical thinking and scientific research. Knowledge workers are the foundation of progress and wealth in the current knowledge age, and the primary wealth-producing activities do not rely on the availability of raw materials or labour but rather on the added value that these workers provide through renovation, innovation and knowledge application in the workplace.

This report addresses the capabilities and mechanisms that enable the country and its youth to achieve the goal of building a knowledge society and, therefore, actively participate in creating a new civilisation not only in the UAE, but across the world. Moreover, the report explores how to deal with the necessity of integrating the Emirati youth, aged 19-29, into the process of knowledge transfer and localisation and the opportunities and challenges that hinder this. Drawing upon field investigations, the current situation of the country’s youth is carefully examined, particularly with respect to the possession of cognitive, cultural, economic and societal capabilities that are essential to actively contribute to building the knowledge society. In addition, the report aims to diagnose the status of the available enabling environments and their ability to expand youth opportunities and build their capacity to achieve this goal.

The issue of integrating the youth and stimulating their active participation in the transfer and localisation of knowledge holds a special importance for the UAE, it being one of the steadily rising countries aiming to achieve the highest possible rates of development, as well as advancing in the wider fields of knowledge. In this regard, the UAE has declared its determination to become one of the best countries in the world as expressed in the UAE 2021 Vision. Undoubtedly, there are many factors that support this ambition. The country’s significant financial capabilities and firm political and societal will coupled with its relatively small size, in terms of land area and population, will make these ambitions possible, and within reach in the near future.

This report builds on several facts and intellectual bases, the first of which being that the youth are the main means and the primary group relied upon to establish the knowledge society, or at least they should be; as they are the primary engine pushing in this direction. As a result, the youth must be provided with adequate attention and empowerment. The fact that a knowledge society is not self-built comes as the second intellectual basis;

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The issue of integrating the youth and stimulating their active participation in the transfer and localisation of knowledge holds a special importance for the UAE, it being one of the steadily rising countries aiming to achieve the highest possible rates of development, as well as advancing in the wider fields of knowledge

knowledge may exist in a certain country, but its availability does not necessarily entail the existence of a “knowledge society”. The third basis indicates that establishing the knowledge society through the youth, equipped with knowledge tools, must be observed as a practical programme with measures that ought to be implemented in the fields of education, scientific research, culture, communication, economics, media, technology and other fields, all at the same time and in harmony and integration.

The importance of the UAE report lies in addressing this subject at a time of major economic, social and political transformations that are affecting the Arab society’s core pillars and its major capital represented in young human resources that are able to build. The Emirati society, 43 years after the formation of the Union, has attained a level of community and economic maturity, evident in its major achievements in almost all fields. The emergence of the youth, both in terms of quality and quantity, as a key group in society represents perhaps one of the most important features of this phase, with the opportunities, challenges and hopes it entails, particularly with respect to broadening their opportunities and activating their participation in building and progressing in what benefits them and Emirati society as a whole. The previous Arab knowledge reports<sup>1</sup> have shown that the UAE, despite its substantial progress in many fields, still suffers from a knowledge gap in numerous scientific, literary and technical fields. This report aims to present a model of what the UAE has achieved so far, and what it strives to achieve in order to bridge this gap. It is no exaggeration to say that the youth are and will continue to be the fuel of Emirati society, because they are capable of advancing towards the knowledge society. Both the state and society in the UAE shall continue to rely on and support the youth to enable them to achieve tangible development in the fields of education, scientific research, technology, media and culture dedicated towards establishing the knowledge society. Taking into consideration that the youth are the driving force, policies and strategies should aim at transferring the society into a

development phase based on the new engine of “knowledge”. The effective integration of the youth into the transfer and localisation of knowledge in this ambitious society is the beginning of the journey in search of a knowledge society in the UAE.

### Completing the Journey towards Establishing the Knowledge Society in the UAE

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This report continues the steps of the two previous reports that targeted knowledge and the establishment of the knowledge society in the Arab world in general, and in the UAE in particular. The first Knowledge Report, 2009, entitled “Towards Productive Intercommunication for Knowledge”, defined the essential concepts for building the knowledge society in the Arab world. It tackled the conditions for transferring knowledge, localising it and diffusing its instruments as well as identifying the necessary enabling environment, while focusing on the necessity of creating an atmosphere that promotes and nurtures knowledge in all arenas, especially in education. The first report showed the quantitative progress in education; while noting that it was not accompanied by a qualitative one that allows for the accumulation of knowledge capital and the creation of an adequate enabling environment that permits the conversion of knowledge into an active factor in human development. The Arab states, including the UAE, have not yet been able to build the required critical mass of qualified youth capable of leading the process of establishing a knowledge society and economy. The report’s conclusions have also shown the central role of knowledge in development. Furthermore, they stressed the strategic value of education and training systems, particularly for the youth who are the main actors in building the knowledge-based society, economy and associated main values.

Accessing the knowledge society requires a series of imperative conditions, the first of which consists of forming the youth and improving their qualifications by providing them with new knowledge and life skills

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It is no exaggeration to say that the youth are and will continue to be the fuel of Emirati society, because they are capable of advancing towards the knowledge society

that transform them from mere knowledge consumers to actors capable of producing, circulating and investing in knowledge. This was confirmed by the UAE case study in the second AKR 2010/2011. The report explored the level of readiness of those under eighteen years of age to access the knowledge society. It concluded that the existing skills were, in general, inferior to the required level that qualifies them to access the knowledge society, though the existing values were found to be satisfactory. The case of the UAE in the report was marked by both the desire and the will to work towards establishing the foundations of a knowledge society, as well as the availability of the requirements for action, especially financial capabilities and infrastructure. However, the strategies for action and their embodiment in programmes and plans were not very evident and were not reflected, as required, in the achievements and the improvement of young people's knowledge and education levels.

Based on the results and conclusions of the two previous reports, this report, "Youth and Localisation of Knowledge in UAE", focuses on the role of the youth, the main lever in building the knowledge society. The UAE case study comes as an essential complement, in parallel and in accordance with the third Arab Knowledge Report (AKR) 2014,<sup>2</sup> published simultaneously, which is addressing the same issues but from a regional Arab perspective. This report diagnoses the knowledge and value realities of the youth, as well as their readiness level and skills required for enabling them to achieve the quantum leap in Emirati society, and to contribute to the transition from the "transfer and consumption" of knowledge to its "acquisition and localisation".

### **The Concepts of Localisation of Knowledge and Active Integration of the Youth**

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In line with the conceptual model adopted in the Third Arab Knowledge Report 2014, the overall conceptualisation of the process of enabling the youth to actively participate in the transfer and localisation of knowledge

is based on two essential elements. First, the concepts and approaches of the "transfer and localisation of knowledge", and second, "enabling and preparing" the youth to actively participate in the transfer and localisation processes. Similarly, the concept of "localisation of knowledge" encompasses three integrated key elements: first is the production of knowledge, second is the employment of knowledge for human development purposes in its cultural, scientific, social, political and environmental dimensions; and third is the dissemination of knowledge.

The term localisation does not only entail the act of transfer, because what makes it localised is the process of producing and re-producing the representations that accompany it, along with the necessary conditions for the transfer process, followed by the localisation and production processes. The goal is to provide enabling environments that include institutions and legislation, without which it would be hard to attain the thresholds of knowledge localisation. This also entails devising the means that enable localisation and providing the necessary elements for building the foundations of the knowledge society, the most prominent of which are ICT and the internet. These elements have become an imperative precursor to accessing a new world and a fresh unbounded culture, i.e. the spaces of development and knowledge society.

Undoubtedly, knowledge transfer is a necessary step to acquire the rudiments and tools of the knowledge society, especially ICT, as well as the essential technical, communication and more general life skills. Localisation of knowledge – which is the main focus of this report – is the transition from consumption of knowledge, and recycling it from its original form, to its acquisition, use and deployment. This localisation should happen within specific communities and within a social and cultural system that aims at progressing and providing the conditions for genuine development capable of actively contributing to building the human civilisation. The Emirati youth are to this act its lever, main end and purpose.

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The goal is to provide enabling environments that include institutions and legislation, without which it would be hard to attain the thresholds of knowledge localisation

In his works, Manuel Castells<sup>3</sup> explained the major features of the network era and highlighted the role of information technology in achieving major social transformations. Castells has highlighted the role of the active “self” in the network society, where the workers strive, individually and collectively, within networks that produce and trade in what he calls “the power and experience”. This is done by moving in virtual worlds that transcend space and time barriers and defy simultaneously the various structures, classes and social segments.

### The Conceptual Model for the Youth and the Localisation of Knowledge

The conceptual model adopted in this report for the UAE case is based on the interdependence between two basic pillars for the transfer and localisation of knowledge:<sup>4</sup>

- First: “Providing the Knowledge Capital”, consisting of youth capabilities that will ensure the transfer and localisation of knowledge;
- Second: “Providing the Enabling Environments”, including the required legislations, supporting institutions, and freedoms in their broader sense. Thus, securing the necessary tools needed for the transfer and localisation of knowledge, including institutional, legislative, cognitive and financial tools.

Both pillars, and the means they embody, complement each other in achieving the localisation of knowledge within an integrated system based on the mechanisms of transfer and localisation, including information technology, financial and non-financial stimuli, openness and communication, global and regional partnerships, translation, evaluation and follow-up. According to these concepts, the transfer of knowledge processes are viewed as part of a bigger picture which entails the ultimate goal, namely the localisation of knowledge.

As demonstrated in Figure 1.1, the concept of knowledge localisation involves three complementary key elements. The first is the transfer of knowledge; the second, the

production of knowledge; and the third, the employment and diffusion of knowledge for development purposes to benefit society. Within this context, the question that arises is the extent of availability and efficiency of the enabling environments required for the transfer and localisation of knowledge, including legislations, laws, infrastructure, supporting institutions, as well as economic, social, political, educational, scientific, cultural and media conditions.

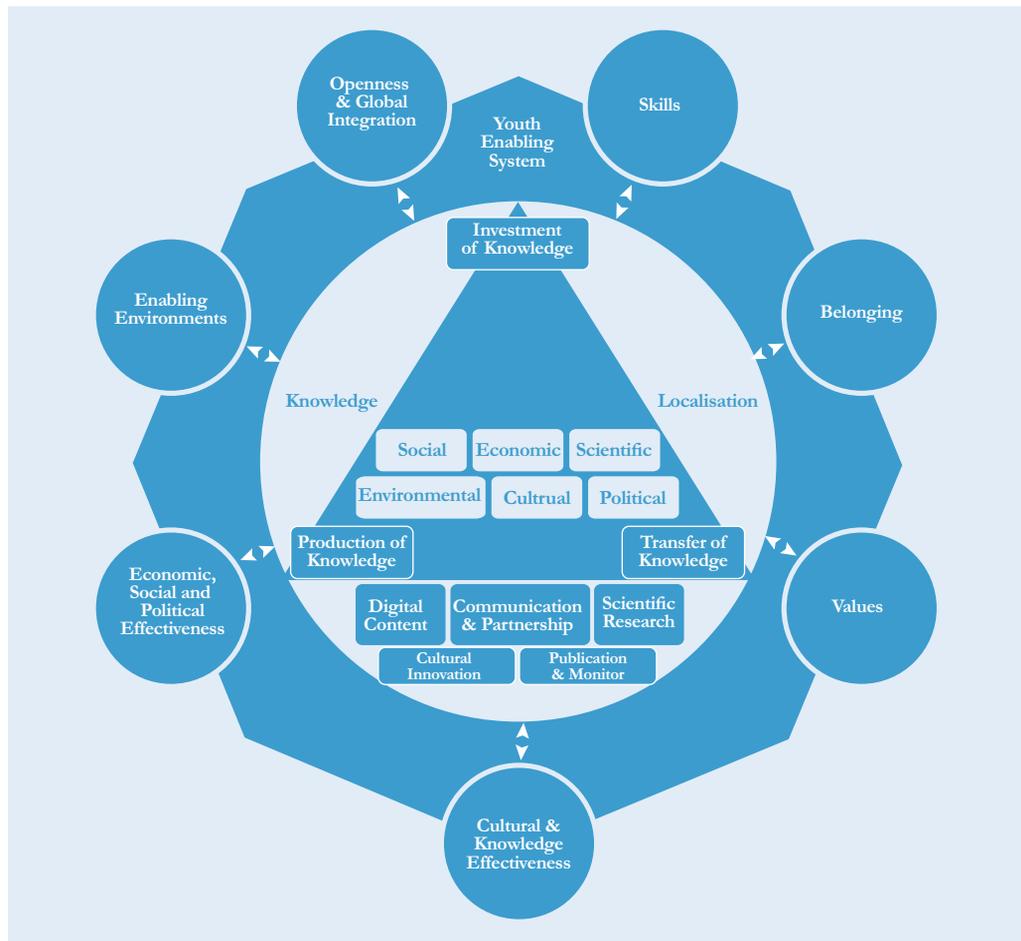
Within this conceptual model, enabling the youth is considered the second most vital element, as the transfer and localisation of knowledge cannot take place without the youth in particular and human resources in general. Empowering the youth is, then, one of the key tools in establishing the human knowledge capital needed in the UAE for the transfer and localisation of knowledge. Therefore, there is an interactive relationship between youth empowerment and knowledge localisation; the more the youth are enabled, the more enhanced the localisation of knowledge is. The concept of youth enablement and the enhancement of their contributions in building the knowledge society is based on the triad of knowledge, development and freedom adopted by the Arab Knowledge Report 2009. The current report considers that the issue of youth is not only inseparable from that of development, but rather lies at the heart of it. The youth are the bearers of knowledge and the achievers of development. At the same time, development provides opportunities to secure their freedoms and ensure their readiness to achieve sustainable development while enabling them to access the wider domains of the knowledge society.

### Knowledge Localisation as a Gateway for Sustainable Development

In this context, there is a need to touch on the concept of human development, which is the ultimate goal of establishing a knowledge society. For a long time, progress was associated in economic and social literature with the concept of growth, represented in the achievement of minimal accumulation of quantitative indicators such as the GDP and

Figure 1.1

The Conceptual Model for the Localisation of Knowledge and the Youth Enabling System



its per capita share, as well as the availability of economic and social structures and the basic and necessary infrastructure. However, development policies and their priorities have led in many cases to less-than-desired or counterproductive results, as priority was often given to monetary indicators while largely neglecting dealing with the essence of effective development and its center, i.e. humans.

Credit primarily goes to the United Nations Development Programme, which replaced the concept of growth with the new concept of development, which then became human development. This approach represents a quantum leap from the strategies and policies of growth to that of human development, the general concept under which localisation falls and from which it stems.

This move is defined in a very significant statement used in the first UNDP Human

Development Report in 1990 to define the concept of human development: “People are the real wealth of a nation... the basic objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives. This may appear to be a simple truth, but it is often forgotten in the immediate concern with the accumulation of commodities and financial wealth.”<sup>25</sup>

This definition reveals the depth of the concept of development versus the reductive concept of growth. Growth does not show the real beneficiaries in the development process, as there are certain investments whose results are not immediately shown in the national product or growth figures. Such investments include better nutrition and health services, easy access to knowledge, more secure livelihoods, good work conditions, security against crime and physical violence and a sense of participation

Growth does not show the real beneficiaries in the development process, as there are certain investments whose results are not immediately shown in the national product or growth figures

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The concept of sustainable human development thus highlights two aspects: the first is manifested in forming human capacity in the fields of education and knowledge, while the other stresses the need to empower human beings through the investment of their capacity in production and the contribution to various fields

in the economic and cultural activities of the community one lives in. Of course, everyone seeks income growth; however, that is not the only demand that a person lives for or a government is focused on achieving.<sup>6</sup> The quality of life is not associated with per capita income; it is significantly embodied in the total services provided to individuals in the community with the aim of achieving and securing what could be described as well-being and happiness. One of the main and direct results of using the concept of development in its aforementioned definition is associating it primarily with human well-being from a holistic perspective, and considering people's cognitive, cultural and social needs as important as their materialistic ones. There is no longer a standard form or unified recipe for development but rather different and multiple paths for various human communities and the multiplicity of their organisation and cultures.

Despite the substantial progress in terms of methods, scientific approaches and research, development will remain an abstract concept. While it suggests many mechanisms and interventions, it does not refer to an elixir for attaining a desired level of development. Every society has its own developmental needs that fit its capabilities. Hence, development seems like a complex process of change as results are not guaranteed, making it more perplexing since it does not simply happen by a politician or expert's decision but also requires several stimulating conditions and enabling environments necessary for its localisation and sustainability.

### **The Organic Relationship between Development and Knowledge**

Debating development issues is rooted in their direct relationship with the knowledge society, as human development finds its procedural interpretation in the knowledge empowerment of the members of the society. The spread of modern technology, the prevalence of the existing “proximity to information”, and the ease of access to science and knowledge are practical and empirical evidences of developmental successes.

Development in general is a consistent and harmonious political, social, economic and valuable process targeting the constant improvement of life conditions. It involves a type of change that targets the human environment in terms of preparation and equipment, as well as knowledge, trends and practices.<sup>7</sup> The concepts of human development and its practices also confirm the importance of investing in humans to build and establish a qualified human capital. This can only be achieved by granting the people wider opportunities to acquire knowledge, as there is no development without knowledge. The concept of sustainable human development thus highlights two aspects: the first is manifested in forming human capacity in the fields of education and knowledge, while the other stresses the need to empower human beings through the investment of their capacity in production and the contribution to various fields. Therefore, it can be said that sustainable human development is considered a comprehensive envisioning process aimed at empowering human beings, building cognitive abilities and expanding their options in various fields. This would render a qualified human being capable of investing his cognitive and intellectual energies in such a way that would enhance them, promote them and ensure their conservation.<sup>8</sup>

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#### **Box 1.1**

#### **Development and the Shift Towards the Knowledge Economy**

The increased reliance of development plans on knowledge and its derivatives has resulted in a shift towards the knowledge economy; from an economy based on the physical component to one in which knowledge and skills are at the core of the production process. This is evidenced by the shift in economic thought, which, in its definition of the levels of development of countries, moved from relying on conventional indicators, such as the gross domestic product or gross national product, to indicators that are more accurate taking into account other criteria such as education, health and per capita income, similar to the Human Development Index used by the United Nations Development Programme.

*Source: Abderrahim Al Maslouhi, background paper for the report.*

In general, “knowledge society” is used to indicate the current phase in human society’s development, mainly based on the transfer, localisation and dissemination of knowledge, as well as its production and efficient employment in all areas of communal activity, all the way to wider fields and levels of human development.<sup>9</sup> In this regard, the 2000 report of the Organisation for Economic Cooperation and Development (OECD) entitled “Knowledge Management in the Learning Society” confirmed that “knowledge is the key factor in the new mode of production, and that the learning process is the key to obtaining knowledge”.<sup>10</sup>

The main condition for knowledge to reserve its place as a vital element in the process of human development is to become a component of life in all fields, so the culture of searching for knowledge, acquiring it and utilising it becomes entrenched in peoples’ lives. Knowledge becomes useless if it is an individual product or an external product that has no return or benefit to society. Therefore, the term knowledge society concerns society as a whole, in addition to its culture, which seeks ways to acquire this knowledge, transfer, localise and benefit from it, build on and enrich it.

### **The Active Participation of the Youth as a Prerequisite for the Localisation of Knowledge**

As demonstrated above, the concept of human development intersects and goes beyond the preceding policies and progress strategies. It has human beings at its centre, as well as the most active and productive group, the youth, at its heart. In this context, the youth are no longer a mere age group with special characteristics and requirements, nor a turbulent period of transition between childhood and adulthood; they have become a “human capital” upon which all development strategies and policies are built.

Contrary to popular belief, the youth constitute the biggest social group of consumers and producers of values,

cultures and knowledge, in addition to various economic, social and cultural pressures. During this stage, young people complete their basic formation and training and move towards the labour market, seeking to start their own families and gain social status through social participation and recognition.

Knowledge, at its various levels and mechanisms, is considered an important aspect of young people’s thoughts and concerns. This means it is an essential element in building their identity within the framework of a general process determined by their self-perception and roles as young people on one hand, and by the culture, identity and values arising from their interaction on the other. The analysis of cultural and cognitive effectiveness of young Emiratis, and young Arabs in general, involves a number of relevant issues that include values, culture, identity, integration, belonging and citizenship.

Emirati youth are not currently subject to just one type of pressure and influence, but rather to a complex and interactive compound of internal and external influencers due to globalisation<sup>11</sup> and the development of means of communication and interaction. Add to this the openness of their society to a large number of nationalities, languages and cultures. This renders the issue of establishing one’s identity, or hesitating about it, one of the most important and major challenges that determines one’s position and stance on knowledge; whether to accept or reject it, to participate in its transfer and localisation or resist the process with justifications that revolve mostly around the issue of building a unified and acceptable identity.<sup>12</sup>

Such issues are not to be tackled as independent or isolated limitations, but rather as highly interactive and interdependent systematic dynamics. The selective or exclusionary position of any of this system’s components is one of the most important barriers to the localisation of knowledge which requires the efficient integration of the youth in the process.

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The main condition for knowledge to reserve its place as a vital element in the process of human development is to become a component of life in all fields, so the culture of searching for knowledge, acquiring it and utilising it becomes entrenched in peoples’ lives

As is the case for development as a central concept, it is necessary to redefine the parameters and limits of young people themselves, given their status as the “critical mass”, whether for the society as a whole or, in the context of the problematic and challenge of the transfer and localisation of knowledge.

#### Box 1.2

#### Youth: The Most Important Segment in the Dissemination and Production of Knowledge

Undoubtedly, young people represent the largest and most important segment which bears, more than any other segment, the responsibility of participating in the process of knowledge dissemination, production and employment. This is due to their high numbers and the role they should play in assimilating knowledge and the latest developments in building capacities, fixing errors and constantly developing themselves. Therefore, investigating what the socialisation systems produce in terms of youth groups who are supposed to respond to the requirements of participation in the processes of dissemination and production of knowledge, as well as the shift towards a knowledge-based economy, is a pressing topic of great importance that helps in understanding the organisational context of the scientific and educational formation the Arab youth are subject to.

*Source: Kamal Naguib, background paper for the report.*

#### Youth Between Two Aspects: Biological and Social

Who are the youth? What are their general characteristics? When does the period of youth begin and when does it end? Answers to these and similar queries do not require biological responses related to defining the age group or groups that frame this social bloc, but rather entail a debate on the reconstruction of the limits and relations between all other age groups. This selection will organically affect the rights and obligations of each age group. It will also impact its role and position within the community and the tasks entrusted to it, and, as much as this report is concerned, it will influence the transfer and localisation of knowledge.

According to Pierre Bourdieu, the youth represent a complex social and sociological

phenomenon.<sup>15</sup> The divisions and borders between age groups are ultimately representations formed by society about these stages rather than selections and biological differences.

Youth-related issues in the UAE and the wider Arab region are particularly important given the large demographic size of this age group and its own problems of quality. This is especially true in a highly-variable local and international context, with continuous openness to the world as a result of the progress and spread of modern technologies, especially the internet, and the acceleration of the globalisation of behavioural patterns and cultural values. And apart from the general definitions of youth as a statistical category that separates childhood from adulthood, there is currently no unanimous scientific definition or characterisation. This is a major obstacle for the various stakeholders involved in youth-related plans and programmes, particularly in adapting programmes and policies, and in our case of the transfer and localisation of knowledge, with the real needs and aspirations of the target groups. In all cases, for methodological purposes and in line with what was adopted in the third Arab Knowledge Report 2014, published in conjunction with this report, the 19-29 age group was considered as representative of the youth in the UAE. This category includes young people at the stage of university education and post-primary school formation and training, and extends to the early stages of work, production and social structuring, including marriage and building a family, bearing in mind the importance of young people in subsequent categories.

The youth in the UAE are considered one of the most important categories concerned with the transfer and localisation of knowledge and its production, utilisation, dissemination and integration into the economic and social development processes and in the wider cultural context. The youth represent the social segment that is most capable of learning, training and working as well as producing and being innovative. They are a driving force for development within a society.

Youth-related issues in the UAE and the wider Arab region are particularly important given the large demographic size of this age group and its own problems of quality

The increase in the proportion of the youth in the country's demographic pyramid is the best indicator of the importance of their role and highlights the need to better enable them. Based on population estimates for 2013, young people in the 19-29 age group in the UAE constitute 22.2% of the total population.<sup>14</sup>

Other Arab countries have expressed serious concern over their demographics, due to the high proportions of young people and the subsequent need to provide jobs that limit youth unemployment and qualify them to engage in social life. However, this does not seem to be among the UAE's concerns, for the country has managed so far to have the lowest youth unemployment rate among Arab countries. Add to that the numerous funds that help support the youth, such as the Marriage Fund, as well as the availability of family and social solidarity systems. The society's tribal structure, customs and traditions also help support young people and their integration into life in smooth and safe ways.

### Box 1.3

#### Youth and the Ability to Work

The concept of the youth is synonymous with the ability to work, produce and communicate. It is also equivalent to fertility and productivity, as well as being an intercommunication engine, given their feasibility. But at the same time, youths are keen on adventure and enjoy the ability to go forward with courage and enthusiasm. There is no doubt that the idea of giving young people a specific role in order to expand the horizons of the knowledge society in the Arab world, is a shift towards caressing the qualifications of youths backed by a spirit of initiative and courage, which will enable them to endeavour on the paths of the knowledge society in smoother ways, compared with the rest of the social components.

*Source: Kamal Abdul Latif, background paper for the report.*

## General Methodology

The methodology of this report adopted a number of empirical and analytic approaches in order to draw a more accurate picture of the status of the youth and knowledge in the UAE. Research tools were

numerous and included field surveys with the participation of representative samples from young people in the final stages of their university studies, intensive workshops with young people and specialists and the latest information, data and studies available at national and international levels. Below is a description of the most important features of these methodologies.

### Analytical Studies

To identify the availability of the enabling environments necessary for the transfer and localisation of knowledge, through the results of a desk study that involved critical analysis of available studies, research and reports, and based on the latest relevant information and data issued by international organisations, research and studies exclusive to Emirati society, in addition to background papers, statistics, and relevant data, with the analysis of legislations, laws and various relevant publications.

### Field Study

By conducting field surveys on representative samples covering the target population of young people (males and females), at their last year of university, and who receive their university education in one of the country's three public institutions: the United Arab Emirates University in Al Ain, Zayed University in Dubai and Abu Dhabi, and the Higher Colleges of Technology in nine cities – Dubai, Abu Dhabi, Al Ain, Madinat Zayed, Khalifa City, Ruwais, Sharjah, Ras Al Khaimah and Fujairah. The sample involved 2,142 female and male students in humanities and science departments in these three universities.

### Focus Groups with the Youth

These focus groups allowed for broader participation in understanding, debating and enriching the report. The team organised and managed focused workshops with groups of young people aged 22-34, in order to explore their views on their readiness for the transfer and localisation of knowledge and their suggestions for ways and strategies that go in

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this direction. Additionally, a brainstorming workshop was held with the involvement of a large group of experts and specialists who discussed various topics addressed in the report. Topics included the concepts of transfer and localisation of knowledge, the state and the challenges in this field, the elements of youth empowerment and supportive environments for this process, and the strategies of future action.

### Structure of the Report

This chapter offers an introduction to the report, highlighting its importance, which is represented by the active integration of the Emirati youth in the processes of knowledge transfer and localisation. In this context, a number of conceptual frameworks were provided based on the philosophical and theoretical frameworks adopted in the third Arab Knowledge Report 2014, taking into account the specifics of the UAE case.

In the next chapter, the report examines the knowledge and developmental situation and the challenges of knowledge localisation in the UAE. Moreover, it provides a description of the knowledge and developmental situation according to international indices. It also showcases the position of the UAE relative to other countries in several international indices such as the Global Innovation Index, Economic Competitiveness, Human Development Indices and the Happiness Index. The chapter exposes the most important challenges facing the Emirati society at the cognitive and developmental levels, without losing sight of achievements and with a positive look to maximise the benefits. It also addresses a number of challenges, including those in the areas of education, youth motivation, human resources and economic restructuring.

Since the concept of youth empowerment in the UAE cannot be discussed without identifying the enabling environments that surround this process, the third chapter addresses the nature of relevant enabling environments and their status in the UAE. These refer to the supporting environments

provided to the youth by the community in various structures and forms to prepare, help them and facilitate their engagement in the knowledge society. Within this setting, the chapter provides an analytical description of the status of the educational environment, particularly higher education, and reviews the status of scientific research and development, which represents one of the most important pillars of the desired knowledge society. The chapter examines the status of economic environments and the general economic structure and their ability and readiness to support the operations of transfer, localisation and youth integration. It then moves on to discuss social, political, demographic, cultural and technological environments from the same perspective. The chapter also includes a presentation and an analysis of a series of decisions and legislations in support of the knowledge society that could potentially establish a basis from which to push young people to acquire the necessary skills for the transfer and localisation of knowledge. It also observes the status of a number of sectors and institutions and their contribution to finding and activating projects that support the youth and the localisation of knowledge.

The fourth chapter presents a detailed analysis of the state of the Emirati youth, their ambitions and the challenges they face to achieve active integration in the transfer and localisation of knowledge. This analysis is based on the results of field surveys conducted with young people, and the results of focused workshops and brainstorming sessions. The chapter provides an objective assessment of the status of the youths' skills and the values that guide their behaviour and actions. It also focuses on the issues of belonging, identity, openness and communication with the world culturally and scientifically, while examining the current levels of effectiveness among young people, whether economic; labour issues, social; interaction and community participation, or general; cognitive and cultural effectiveness.

In line with the positive and realistic outlook adopted in this report, and in continuation of

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This chapter offers an introduction to the report, highlighting its importance, which is represented by the active integration of the Emirati youth in the processes of knowledge transfer and localisation

the trend that the Arab Knowledge Reports have followed, the fifth and final chapter suggests a set of strategies and mechanisms to activate young people's participation in the process of knowledge transfer and localisation, the production of knowledge and its employment for the benefit of human development in the UAE. These proposals are consistent with the overall strategy for supporting and enhancing the general trend in the UAE to build and activate

comprehensive national efforts aimed at the transfer and localisation of knowledge and to support creativity and innovation towards the production, development and deployment of knowledge in various fields. Such processes would contribute to the consolidation of the knowledge society in the country and institutions, so that it becomes an integral part of UAE society as a whole.

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The fifth and final chapter suggests a set of strategies and mechanisms to activate young people's participation in the process of knowledge transfer and localisation, the production of knowledge and its employment for the benefit of human development in the UAE

## Endnotes

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- <sup>1</sup> See the Arab Knowledge Report 2009 and 2010/2011 -the UAE case study.
- <sup>2</sup> See the third Arab knowledge Report for the year 2014, published in conjunction with this report, which deals with this subject from a regional perspective covering the Arab region as a whole.
- <sup>3</sup> See, for example: Castells 2000a, 2000b, 2004 & 2012.
- <sup>4</sup> This conceptual model was presented and discussed in a specialised workshop held in Dubai on 12 December 2013 with the participation of the UAE Minister of Education and a number of Emirati experts, academics, and stakeholders
- <sup>5</sup> UNDP 1990
- <sup>6</sup> UNDP 1990
- <sup>7</sup> AbdElrahim Al-Atri, background paper for the report.
- <sup>8</sup> UNDP 1990.
- <sup>9</sup> Murad Illah 2011.(Reference in Arabic)
- <sup>10</sup> OECD 2000.
- <sup>11</sup> The AKR uses the term globalisation or globalism, while the intellectual Murad Wehbe finds that the term “globalism” is a more accurate translation.
- <sup>12</sup> See Chapter 4 of this report, which shows the perceptions of young Emiratis with regards to the subject, based on field surveys and focused groups.
- <sup>13</sup> Bourdieu 1984. (Reference in French)
- <sup>14</sup> UAE National Bureau of Statistics 2013.





## Introduction

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This chapter observes the evolution of the situation of knowledge, development and competitiveness of the country with respect to the knowledge society, the knowledge economy and the factors that support active youth participation in the process of transfer and localisation of knowledge. As a first and important step to achieve this goal, the report addresses various global indices inherently related to the establishment of the knowledge society and the knowledge economy, as well as innovation and competitiveness indices. The chapter, on that basis, identifies a number of issues that should be addressed to strengthen the systems of transfer and localisation of knowledge to enhance the capacities of youth in this regard.

The study of the situation of knowledge in the UAE requires a clear distinction between “status of knowledge” on one hand, and on the other, the evolution of information systems, their penetration rates and the circulation of information and data through these systems via organised networks. Knowledge differs from information, as it requires the ability to learn and formulate plans. Moreover, knowledge does not consist of fragmented or general information, but rather comprises well-established skills entrenched in individuals and institutions, which cannot be separated from the cultural and moral surroundings or from its pre-planned objectives.

Information systems, of all forms, are merely carriers or modes necessary for the exchange and consumption of information. Nevertheless, their availability, dissemination and usage rates are among the key indicators in measuring readiness to move towards a knowledge society. However, media modes and networks cannot produce independent or spontaneous knowledge or any added economic or cultural value in the absence of enabling environments capable of integrating and processing information within the wider economic, social and value systems and education and training systems.

In this sense, knowledge and its modern mechanisms of production, dissemination, exchange and consumption becomes the characteristic that distinguishes the knowledge society from previous social systems. It becomes the hub and model of all structures and institutions within this society, and especially the “knowledge economy”, which, from an economic perspective, is directly based on the production, dissemination and use of knowledge.<sup>1</sup> It is also referred to as a complex mix of human activity based primarily on the adoption of knowledge as a capital and an economic commodity, as well as its adoption as an accurate quantitative criterion to mark the status of any economy on the sustainable development scale.<sup>2</sup> In other words, a knowledge economy is a system based on activities that use new knowledge as capital or as an engine to produce new goods. Only then, economic prosperity and development can be achieved.

Therefore, in a knowledge economy, knowledge is the main driver of economic growth, and depends mainly on the availability of information and communication technology and the use of research, development and innovation. In contrast to the production-based economy, where knowledge plays a lesser role and growth is driven by traditional factors of production such as wealth, labour or mechanisation, the qualified and highly-skilled human resources, or the so-called “human capital”, are among the most valuable assets in the knowledge economy. The relative contribution of knowledge-based industries with the technological dimension is also another important factor that characterises the knowledge economy. These two elements, i.e. the qualified and trained human capital and the modern technological infrastructure, are critical to the establishment of the knowledge economy.

Access to the knowledge society coupled with the establishment of its characterising qualitative economy depend, essentially, on the availability of a minimum level of structures, equipment and digital

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In a knowledge economy, knowledge is the main driver of economic growth, and depends mainly on the availability of information and communication technology and the use of research, development and innovation

In its diagnosis of the situation of knowledge in the UAE, the report has adopted a number of recent Arab and global indicators

The Knowledge Index (KI) measures the ability of a country to generate, adopt, and diffuse knowledge and is the average of three factors: education, innovation and ICT

networks. However, its main capital is the human factor: the citizen and more specifically qualified young people capable of processing information into a feasible economic value. Consequently, countries that have not yet recognised the importance of investing in the human element and its formation, or in the provision of an adequate enabling environment for the knowledge society, will not only fail to be part of the knowledge revolution, but will also become even more marginalised than countries that were not able to catch up with the industrial revolution.<sup>3</sup>

Based on the specific and accurate meanings of knowledge, its economy and society, the UAE report seeks to shed light on the development of the cognitive environment in the country, within the framework of the comprehensive approach of the third Arab Knowledge Report, and based on the latest global and Arab indices related to the knowledge society.

### The Situation of Knowledge in the UAE According to the Knowledge and the Knowledge Economy Indices

In its diagnosis of the situation of knowledge in the UAE, the report has adopted a number of recent Arab and global indicators. An indicator is a conversion of raw statistical data, derived from administrative records and documents, which are linked to a specific domain. They

can help in the diagnosis and identification of problems, and hence support planning, monitoring and evaluation. In this sense, indicators do not provide a detailed picture or result, but they provide the necessary elements for the general diagnosis. The value or ranking for a given indicator should only be interpreted within the framework of the overall indicators. Also, the value of an indicator is closely associated with the pre-set assumptions, perceptions or objectives.

On this level, the World Bank's Knowledge Economy Index (KEI),<sup>4</sup> is considered the most widely used index. The definition of the KEI takes into account four integrated and interacting sub-indices:

- Economic incentive and institutional regime
- Education
- Information and Communication Technology (ICT) infrastructure
- Innovation System

It is worth mentioning that the KEI indicates, according to the World Bank, whether a country's environment is "conducive for knowledge to be used effectively for economic development" and is the outcome of the four above-mentioned pillars. Meanwhile, the Knowledge Index (KI) measures the ability of a country to generate, adopt, and diffuse knowledge and is the average of three factors: education, innovation and ICT.

Table 2.1

#### Knowledge Economy Indices\* in the UAE and in GCC Countries (2012)

Country	Country Rank (of 145 Countries)	Knowledge Economy Index (KEI)	Knowledge Index (KI)	The Economic Incentive and Institutional Regime	Innovation Index	Education Index	ICT Index
UAE	42	6.94	7.09	6.5	6.6	5.8	8.88
Bahrain	43	6.9	6.98	6.69	4.61	6.78	9.54
Oman	47	6.14	5.87	6.96	5.88	5.23	6.49
Saudi Arabia	50	5.96	6.05	5.68	4.14	5.65	8.37
Qatar	54	5.84	5.50	6.87	6.42	3.41	6.65
Kuwait	64	5.33	5.15	5.86	5.22	3.7	6.53

Source: World Bank Statistics and Data Kam, World Bank 2012.

\*The index ranges between 0 (lowest) and 10 (highest).

Table 2.1 and figure 2.1 indicate that the UAE has ranked first among Gulf and Arab countries in the KEI and KI scoring 7.09 and 6.94 respectively. It also ranked 42nd on the international level, among 145 countries, advancing 6 positions from its rank in the year 2000.

It is important to note that the Education Index improved from 4.4 in 2000 to 5.8 in 2012, as indicated in Figure 2.2. The UAE ranked second after Bahrain among the Arab countries and 55th at the international level in the Education Index, which consists of the average of three factors: the adult literacy rate in the country, the rate of enrolment in secondary education, and the rate of enrolment in tertiary education. Surprisingly, this table indicates that the Education Index remains the lowest among the indicators constituting the general index for the knowledge-based society and economy in the country, which calls for increased efforts in this area, vital for the creation of the knowledge society and for increasing the human development rates in general. The next section, which discusses the rates of human development in the UAE, will shed more light on this subject.

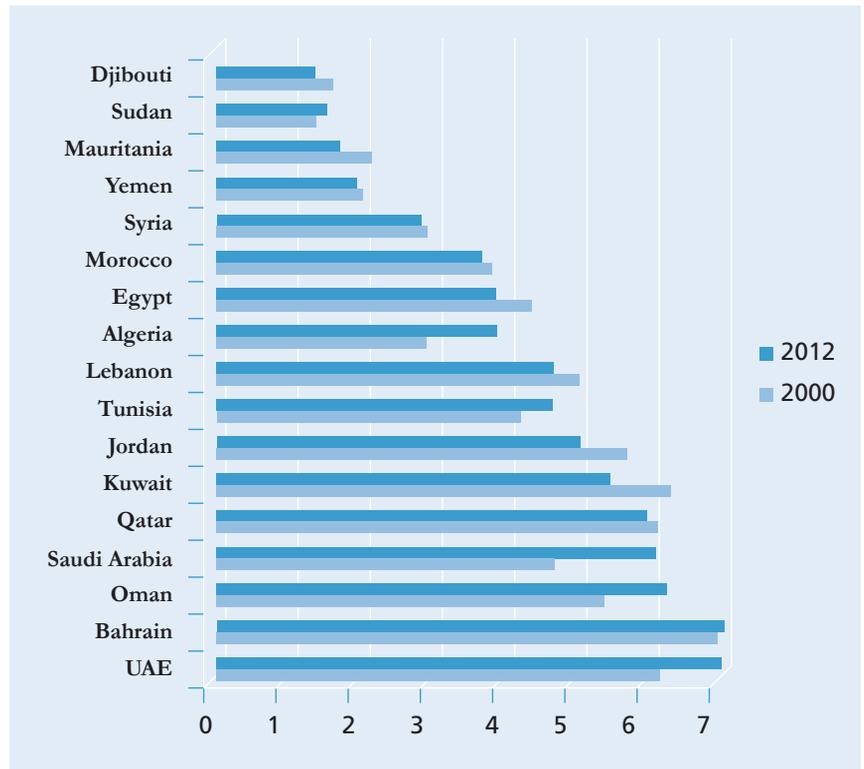
Concerning the ICT Index, the UAE advanced 20 positions and reached the 12th rank on the international level and the 2nd on the Arab one with an average of 8.88, followed by Saudi Arabia and Qatar. Figure 2.4 shows that the UAE ranks first among the Arab countries on the Creativity and Innovation Index, and the 46th on the international level, advancing 35 ranks compared to the year 2000. As for the Economic Incentives and the Institutional Regime Index, the UAE ranks 4th at the Arab level and 50th at the international level, with a score of 6.5.

### The Knowledge Status of the UAE according to the Human Development Index

The UNDP's development vision launched in the 1990s under the title of "Sustainable Human Development", gave priority to the human element as the concept of

Figure 2.1

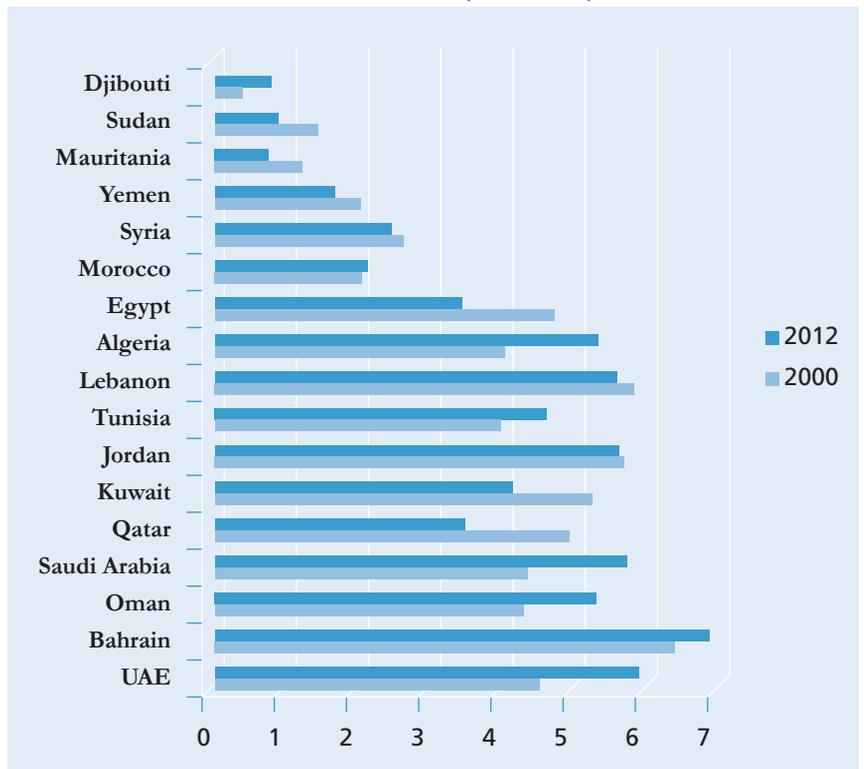
### Knowledge Economy Index (KEI) for the Arab States (2000-2012)



Source: World Bank Statistics and Data KAM, World Bank 2012.

Figure 2.2

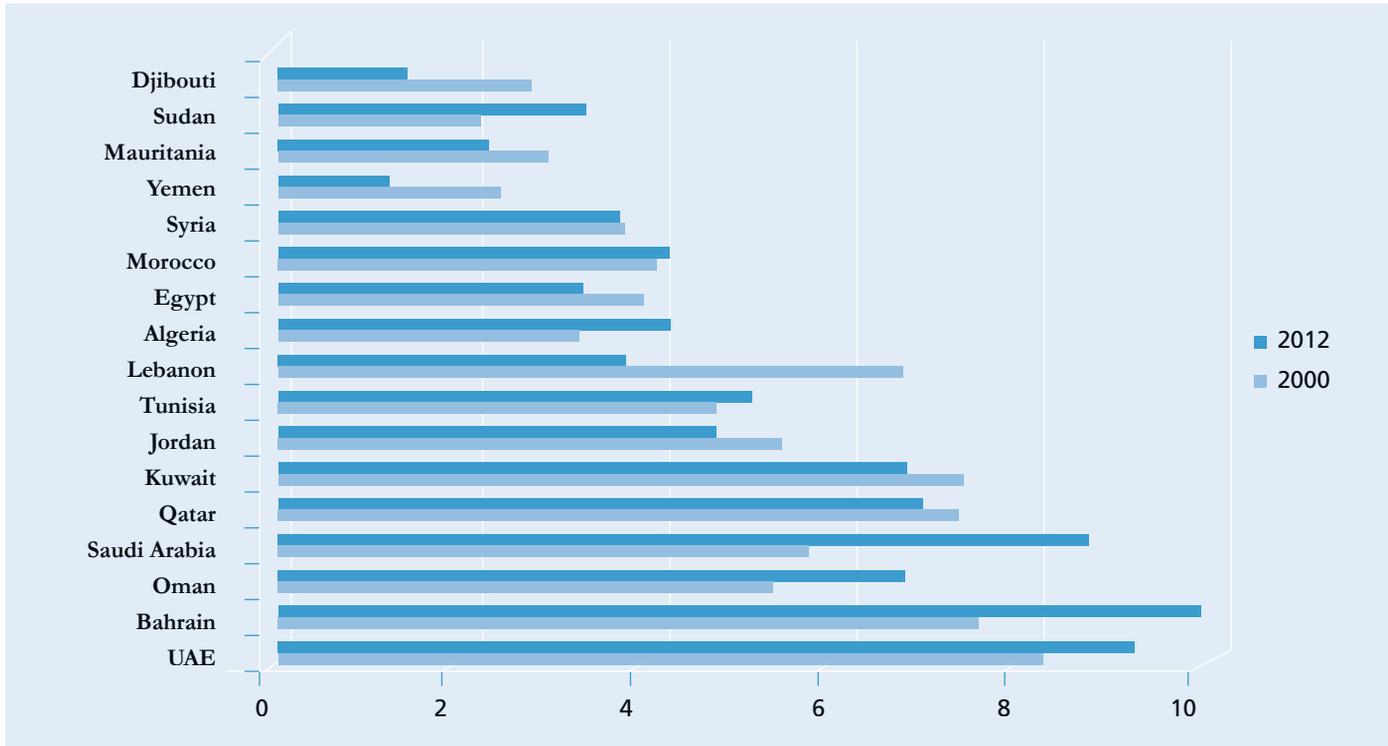
### Education Index for the Arab States (2000-2012)



Source: World Bank Statistics and Data KAM, World Bank 2012.

Figure 2.3

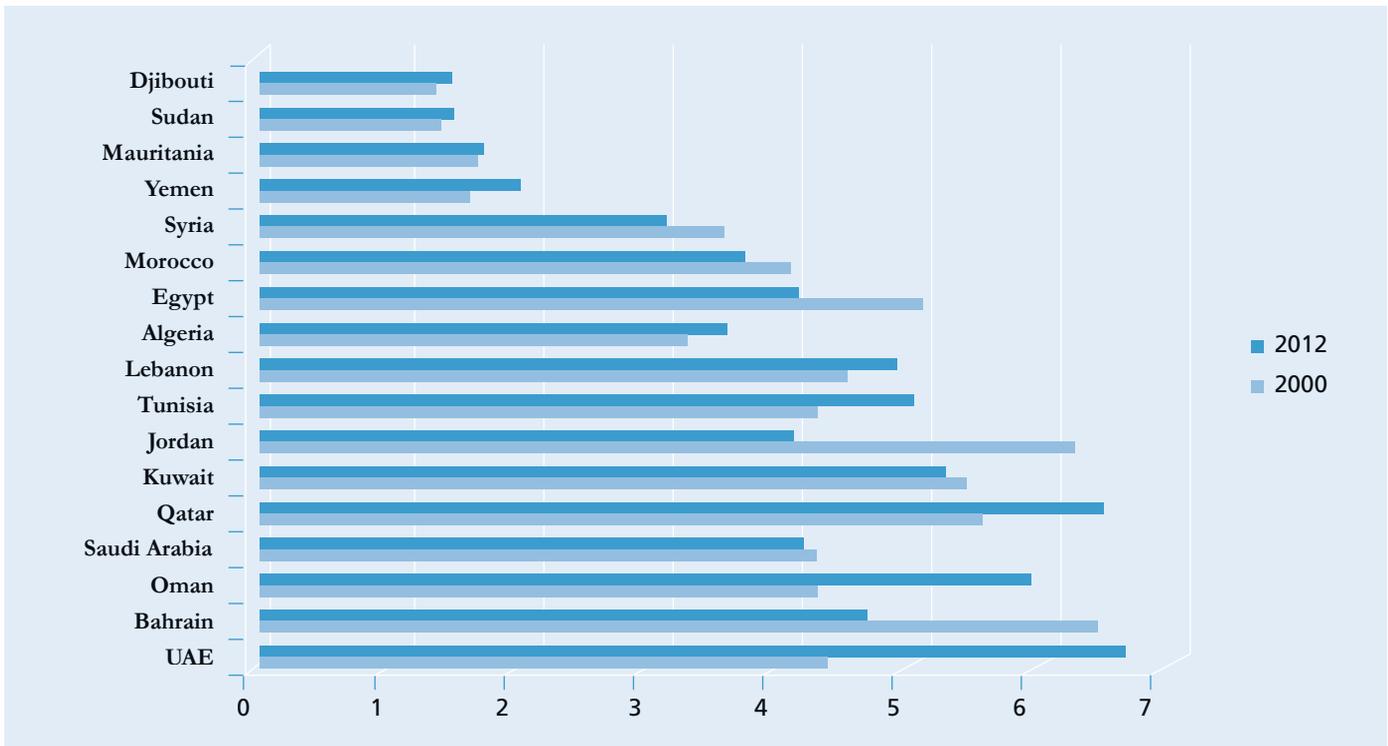
ICT Index for the Arab States (2000-2012)



Source: World Bank Statistics and Data KAM, World Bank 2012.

Figure 2.4

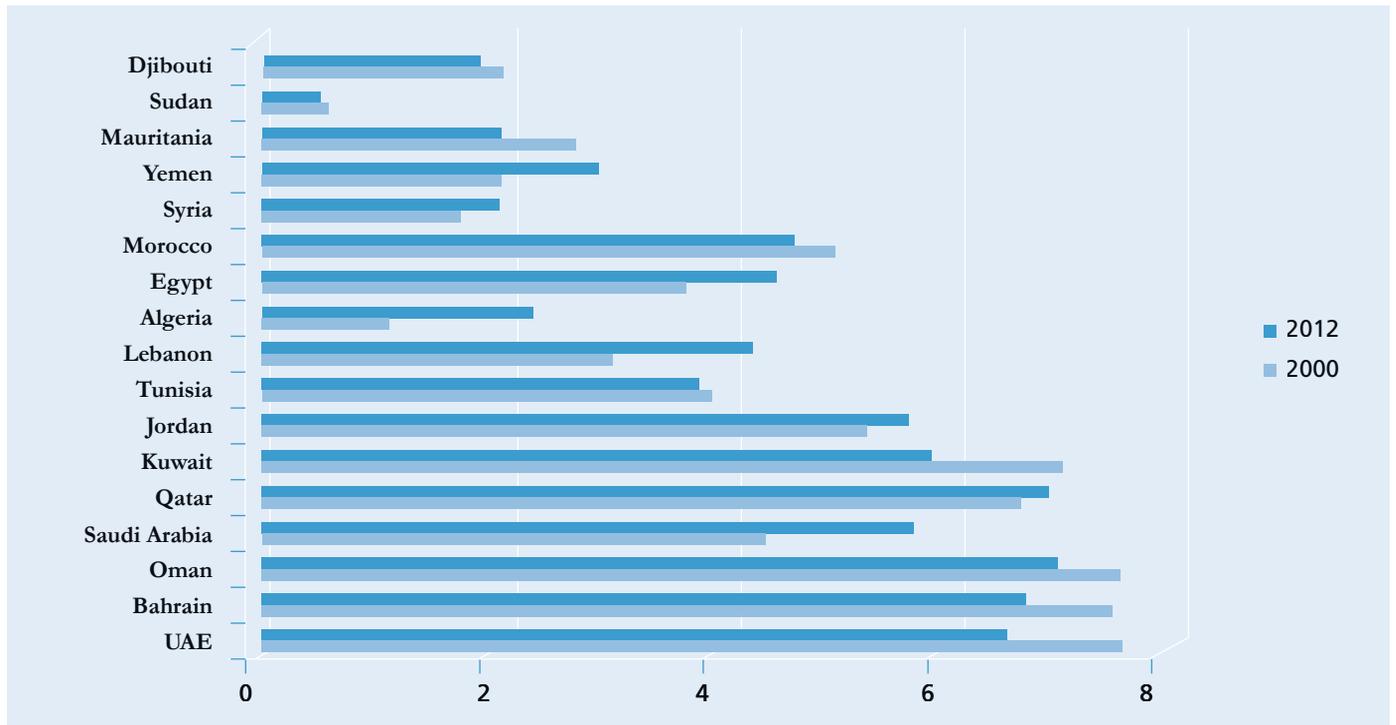
Innovation System Index for the Arab States (2000-2012)



Source: World Bank Statistics and Data KAM, World Bank 2012.

Figure 2.5

Economic Incentive and the Institutional Regime Index for the Arab States (2000-2012)



Source: World Bank Statistics and Data KAM, World Bank 2012.

development is centred on investing in the human capacity.<sup>5</sup> In line with this vision, the Human Development Index shows the progress achieved by the UAE in this area over the last 43 years since its formation, particularly with regards to health, education and income. The UAE’s progress is also reflected in the country’s position, among the top countries worldwide, enjoying very high human development rates, as determined by UNDP’s human development indicators. The UAE ranked 3rd on the Arab level and 40th internationally in the 2014 report (Table 2.2).

The UAE’s HDI indicates progress at three levels of development: health, measured by life expectancy at birth; education, measured by the average years of schooling for children and adults; and the standard of living, measured by the GNI per capita. The UAE achieved a total index value of 0.827, while the index value for education was 0.741 and that of health 0.874.<sup>6</sup>

UAE’s Human Development Index in 2013 falls within the category of very high development, making the country rank

40th worldwide among 187 countries. However, it should be noted that this rate has dropped from 0.832 in 2008 to 0.827 in 2013.<sup>7</sup>

The UAE’s HDI rose between 1980 and 2013: while the average life expectancy at birth rose by 9.2 years during that period to 76.8 years in 2013, the mean years of schooling increased by 5.5 years to 9.1 years in 2013, according to the Human Development Report 2014.<sup>8</sup>

To illustrate the extent of the achievements and challenges faced by the UAE in the future of human development, it would be beneficial to compare it to some of the GCC countries with close HDI ranks such as Qatar and Bahrain, and to the average of the Arab countries as well and to countries with very high rates of human development. In this respect, the UAE’s Development Index, at its current value of 0.827, is lower than the average of the countries in the very high human development category (0.890), but is much higher than the average of the Arab countries (0.682). With regards to the countries close to the UAE in terms

UAE’s Human Development Index in 2013 falls within the category of very high development, making the country rank 40th worldwide among 187 countries

Table 2.2

## Ranking of Arab Countries on the 2014 Human Development Index

Country	Human Development Index 2013	Global Rank
Qatar	0.851	31
Saudi Arabia	0.836	34
UAE	0.827	40
Bahrain	0.815	44
Kuwait	0.814	46
Libya	0.784	55
Oman	0.783	56
Lebanon	0.765	65
Jordan	0.745	77
Tunisia	0.721	90
Algeria	0.717	93
State of Palestine	0.686	107
Egypt	0.682	110
Syria	0.658	118
Iraq	0.642	120
Morocco	0.617	129
Yemen	0.500	154
Comoros	0.488	159
Mauritania	0.487	161
Sudan	0.473	166
Djibouti	0.467	170
Countries with Very High Growth Rates	0.890	
Countries with High Growth Rates	0.735	
Arab Countries	0.682	

Source: UNDP 2014.

With regards to the countries close to the UAE in terms of rank, such as Qatar and Bahrain, table 2.3 shows that these two countries ranked 31st and 44th respectively in the Human Development Index, while the UAE ranked 40th in the same index

of rank, such as Qatar and Bahrain, table 2.3 shows that these two countries ranked 31st and 44th respectively in the Human Development Index, while the UAE ranked 40th in the same index.<sup>9</sup>

Table 2.3 presents the human development indicators of the UAE compared to some Arab countries. We notice that despite the country's high rank on the scale of economic growth, the drop of some human-related

indicators, namely knowledge formation, has caused the UAE to lag nearly one point (0.063) behind the countries enjoying a very high Development Index (0.890). This fall behind is particularly due to the lag in the average years of schooling index with an average standing at around nine years compared to 11.7 years in the countries with very high Development Index, where this average is expected to reach 16 years in the foreseeable future.

Table 2.3

## The UAE Development Indices Compared to Selected Arab Countries

	Development Index Value	Country Rank	Life Expectancy at Birth	Expected Years of Schooling	Average Years of Schooling	GNI per Capita (USD)
UAE	0.827	40	76.8	13.3	9.1	58068
Qatar	0.851	31	78.4	13.8	9.1	119029
Bahrain	0.815	44	76.6	14.4	9.4	32072
Arab Countries	0.682	-	70.2	11.8	6.3	15817
Very High Development Index Countries	0.890	-	80.2	16.3	11.7	40046

Source: UNDP 2014.

The value of the Education Index and the formation of human resources, whether for knowledge, the knowledge economy or the Human Development Index, undoubtedly reflects the major transformation of development in the knowledge society, where the weight of human investment-related indices increases, especially in the areas of education, training, health and quality of life. The transfer and localisation of knowledge as well as efficient youth participation in the UAE remain dependent on the ability to implement human development policies as a strategic priority. The discrepancy between expectations and actual results is evident in education. While the country has set a target for the average years of schooling at 13,<sup>10</sup> this was unachievable due to the lack of motivation and participation among the youth; despite the political will, infrastructure and equipment. We will examine this issue at a later stage.

While assigning quantitative indicators for human development was relatively easy, following and monitoring achievements require additional indicators. Being of a

qualitative nature, these additional indicators are often harder to calculate and tabulate. They are mostly related to quality of life, and levels of satisfaction in material and moral terms. In this context, the Innovation, Competitiveness and Happiness Indices are among those that reinforce the central position of humans in the development process, and highlight the importance of knowledge and its economy in the transition towards the transfer and localisation of knowledge.

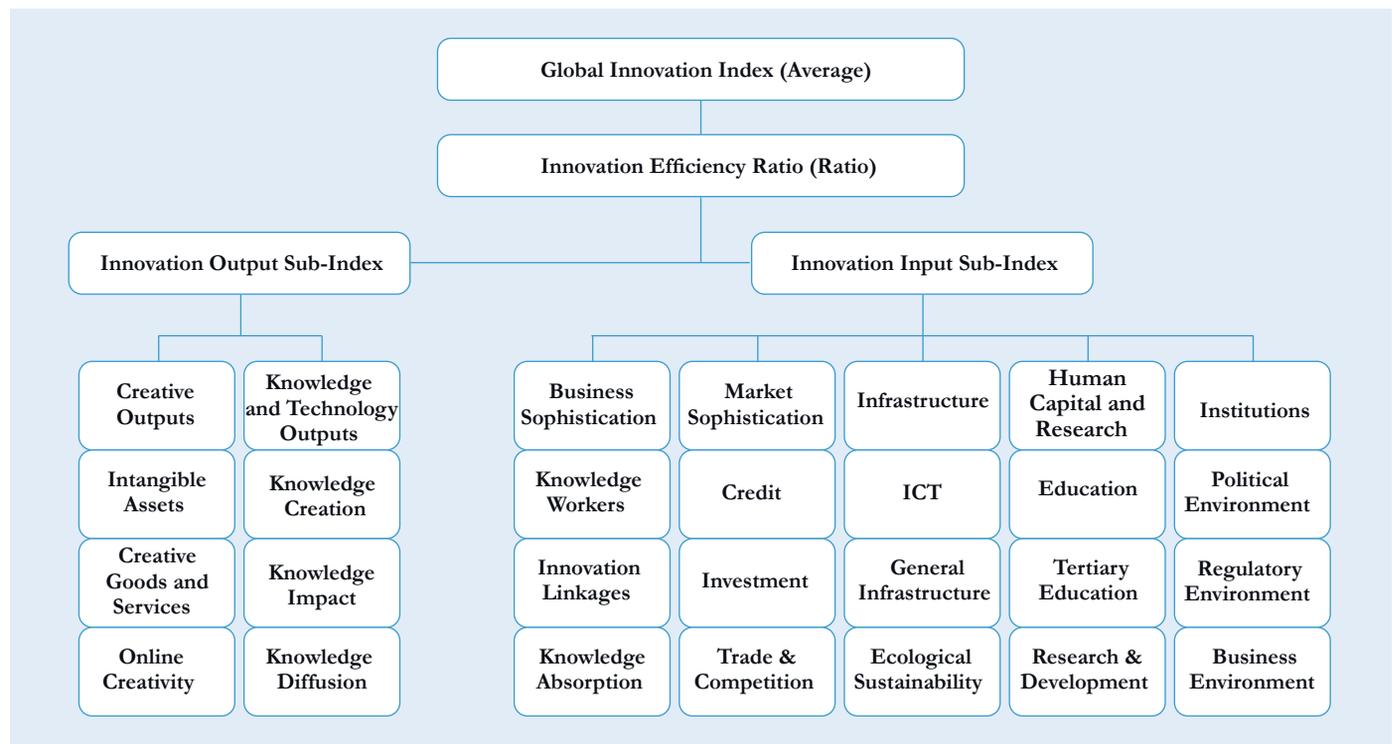
### Ranking on the Global Innovation Index (GII)

Published annually since 2007 by the Business School for the World (INSEAD), the 2014 Global Innovation Index (GII) Report was co-published by INSEAD, the World Intellectual Property Organisation (WIPO) and Cornell University. The GII not only puts particular emphasis on measuring the inputs and outputs of an innovation process, but also on the innovation policies that outline partnerships between industries and knowledge, the formation of innovative groups and the spread of knowledge. These,

The transfer and localisation of knowledge as well as efficient youth participation in the UAE remain dependent on the ability to implement human development policies as a strategic priority

Figure 2.6

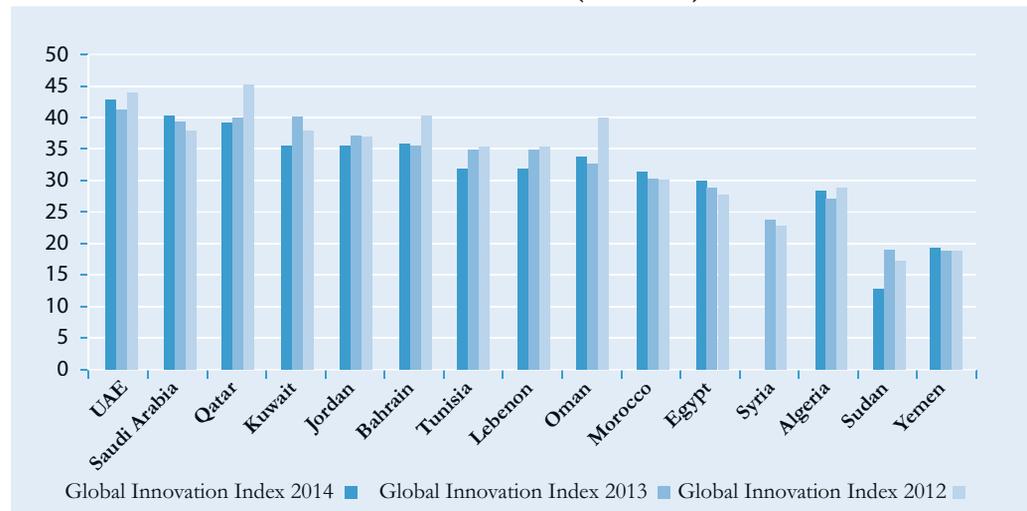
### Framework of the Global Innovation Index



Source: Cornell, INSEAD & WIPO 2014.

Figure 2.7

Global Innovation Index for the Arab Countries (2012-2014)



Source: Cornell, INSEAD & WIPO 2014.

The Innovation Output Sub-Index examines knowledge and technology in terms of production, diffusion, cognitive impact, technology and knowledge outputs, and services and information available on the networks

for example, are represented in the number of participating projects and innovation associated with local or international inventors.

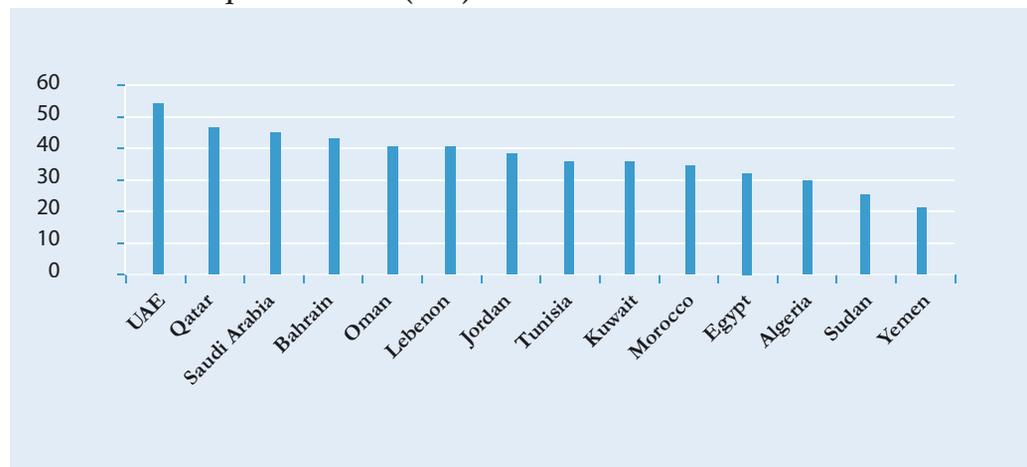
Figure 2.6 shows how the GII relies on two main sub-indices; the Innovation Input Sub-Index and the Innovation Output Sub-Index. The Innovation Input Sub-Index looks at economic and legislative institutions, institutions of human capital such as education and tertiary education, research and development, technology infrastructure, stimulating environments that support innovation, markets and investment climate and the intertwinement

of the business sector in terms of knowledge workers, creative links and the absorption of knowledge. The Innovation Output Sub-Index examines knowledge and technology in terms of production, diffusion, cognitive impact, technology and knowledge outputs, and services and information available on the networks.

The Global Innovation Index for 2014 highlights the severity of the gap in innovation and knowledge indices for the Arab region, reflected by the Arab countries' ranking in the "Global Innovation" indices, and its evolution compared to other regions of the world. The GII also shows the disparity in

Figure 2.8

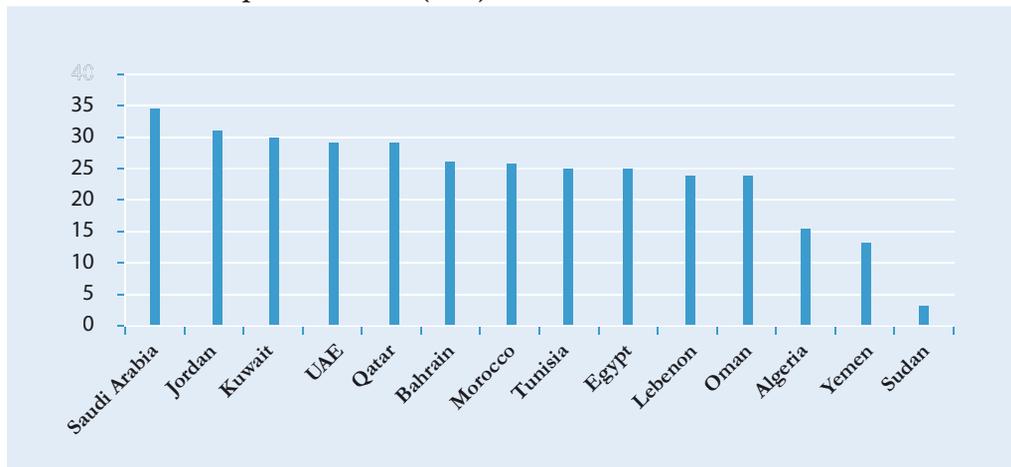
The Innovation Input Sub-Index (2014)



Source: Cornell, INSEAD & WIPO 2014.

Figure 2.9

### The Innovation Output Sub-Index (2014)



Source: Cornell, INSEAD & WIPO 2014.

performance in certain knowledge indices among the Arab countries (See Figure 2.7).

#### First: The Innovation Input Sub-Index

At the international level, the UAE came 25th on the Innovation Input Sub-Index, while it ranked first among the Arab countries, followed by Qatar and Saudi Arabia. This Index is measured by several sub-indices: institutions, human capital and research, infrastructure, market sophistication, and business sophistication. As for the UAE, the country ranked first among the Arab countries in all of these sub-indices except for the market sophistication index where it came 6th.

#### Second: The Innovation Output Sub-Index

In 2014, the UAE ranked 68th at the international level, advancing 13 positions in the Innovation Output Sub-Index compared to 2013; while the country came 4th at the Arab level following Saudi Arabia, Jordan and Kuwait. Paradoxically, the country's ranking at the international level fell to 132nd on the knowledge and technology index, one of the two pillars of the Innovation Output Sub-Index.<sup>11</sup>

UAE's ranking on the GII (input and output sub-indices) is quite surprising. The country ranked first among the Arab countries in

the overall GII, moving to a better ranking and average. Similarly, while the country ranked 25th at the international level in the Innovation Input Sub-Index, it lagged behind in the Innovation Output Sub-Index where it ranked 132nd in one of its pillars – knowledge and technology innovation outputs. Meanwhile, the country ranked 4th at the Arab level and 68th at the international level on the total Innovation Output Sub-Index. It can be concluded from those rankings that the UAE has achieved progress in some of the innovation sub-indices and pillars such as the infrastructure, institutions, business and regulatory environments. This progress, however, was not accompanied by progress in the other sub-indices which led to the country's relative poor performance in the Innovation Outputs. Therefore, the relevant institutions in UAE are called upon to focus on these elements, coordinate and work on the development of the sectors associated with the process of creativity and innovation.

#### The UAE Ranking on the Global Competitiveness Indices

The Global Competitiveness Reports are considered valuable sources and indices that measure the economic and social conditions in different countries and their relative standings in this regard. It is worth noting the significance of “knowledge”, including its components and indices, in

The Global Competitiveness Reports are considered valuable sources and indices that measure the economic and social conditions in different countries and their relative standings in this regard

the determination of a country's position on the global competitiveness scale, based on this index. A closer look at the Global Competitiveness Index (GCI) reveals several other indices directly related to the pillars of knowledge society, such as education, technology, training and creativity, let alone the cognitive element implicitly present in all of the Global Competitiveness Reports' indices.

Within this context, the ranking of the Arab countries reflects the conditions of economic and social development. It also reflects, to a large extent, knowledge conditions in the Arab countries, in terms of gaps and discrepancies, within the region and compared to other countries. Out of 148 countries listed in the Global Competitiveness Report published by the World Economic Forum, the Gulf States in general have occupied relatively advanced ranks, conveying their economic progress and progress in knowledge. Qatar came 13th at the international level, followed by the UAE at rank 19, entering the list of countries with the best economies for the first time, followed by KSA at 20. In contrast, other Arab countries occupied very low ranks on the international level where Mauritania ranked 141st and Yemen 145th out of the 148 countries covered by the report. The UAE has shown continuous progress throughout the Global Competitiveness Reports since 2011, advancing from 27th at the international level (2011-2011 Report), to rank 24 (2012-2013 Report), up to its current position at 19 while it ranked second among the Arab countries (2013-2014 Report). The UAE also ranked 4th at the international level in the "Basic requirements" index of the GCI; and ranked first out of 148 countries in six sub-indices which include the absence of organised crime, the quality of roads and the percentage of annual change in inflation. Furthermore, the UAE ranked among the top five in 18 sub-indices including government procurement of advanced technology products, the ease of accessing loans, and the effect of taxation on investment incentives.<sup>12</sup> However, there is a need to push towards better enrolment-related indices at all education levels and

increase women's participation in the workforce.

According to the IMD World Competitiveness Yearbook 2014, published by the International Institute for Management Development in Switzerland (IMD),<sup>13</sup> the UAE has ranked first among the Arab countries (8th internationally), followed by Qatar in second place (19th internationally), and Jordan in third place (53rd internationally).

The UAE also ranked first at the Arab level and fourth internationally on the index "How is your country perceived by the world?" included in the above mentioned report.

### The UAE Ranking on the Arab Competitiveness Indices

The concept of competitiveness is considered complex and multi-faceted, like other economic and social composites, such as economic and social development and globalisation. Greater attention has recently been given to competitiveness as a theoretical concept linked to development, particularly with regards to achieving greater economic efficiency through the distribution of income and reducing poverty levels. This has resulted in a redefinition of the concept of "competitiveness" by shifting it away from the scope of traditional economic theories that depend on the comparative advantage resulting from the abundance of natural resources and the factors of production, to achieved competitive advantage, that can be developed by adopting targeted policies aimed at building national competitive capacities, especially in the absence of talented resources.<sup>14</sup>

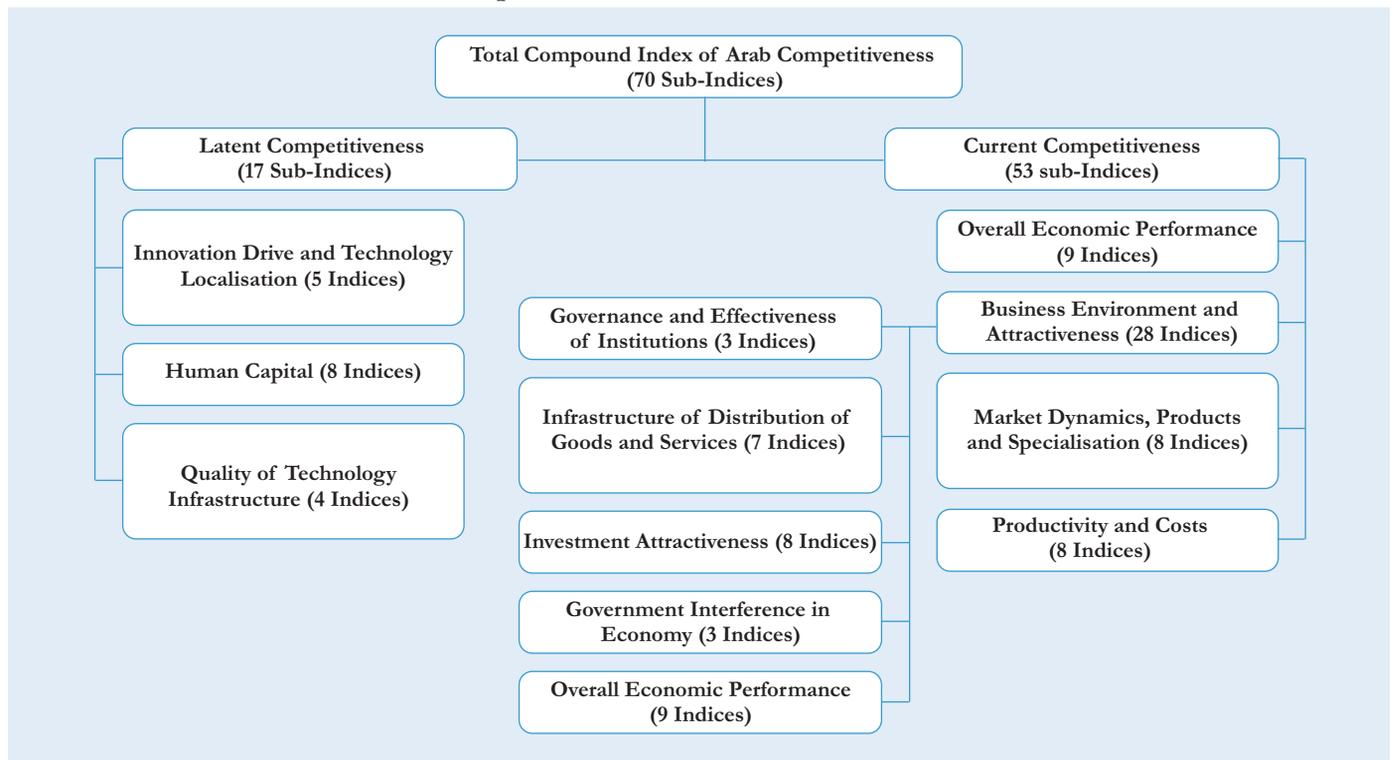
Since 2003, the Arab Planning Institute has made a great deal of effort to develop the concept of competitiveness and a methodology to measure it, in line with international efforts. The institute reached a framework based on a composite index that measures and monitors developments in competitiveness of the Arab countries in the international markets. The 2012 Arab

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The concept of competitiveness is considered complex and multi-faceted, like other economic and social composites, such as economic and social development and globalisation

Figure 2.10

### The General Structure of the Arab Competitiveness Index



Source: Arab Planning Institute 2012.

Competitiveness Report stems from the premise that competitiveness is the relative “current” performance and the relative “potential” performance of the Arab economies in the context of the sectors and activities that are exposed to competition by foreign economies. Based on this definition, the Arab Planning Institute built a composite index of competitiveness that includes two sub-indices (Figure 2.10).

The first sub-index focuses on the current performance and the factors affecting it, such as the structure of the markets, the business environment and the operations and strategies of the companies involved; while the second sub-index addresses the potential competitiveness of capacities with profound impact which ensure the sustainability of this competitiveness, and thus the sustainability of growth and the achievement of the goals of economic and social development, especially if accompanied by policies geared towards achieving these goals. Three key areas have been identified for potential competitiveness: human capital, the localisation of technology and technological

infrastructure. These areas are the outcomes of the reviews on theories of growth and development with regards to the importance of these factors in promoting development in the context of globalisation and the challenges of the information age.<sup>15</sup>

The Arab Competitiveness Report differs from other international reports as Arab countries are classified according to their relative performance compared to a number of non-Arab countries. In fact, the non-Arab countries form a reference point for the performance of the Arab countries in international markets, over which the calculations of the report are based. These comparison countries are Ireland, the Czech Republic, Mexico, South Korea, Chile, Portugal, Malaysia, South Africa, Argentina, Brazil, China, Greece and Turkey, bringing the total number of countries covered in the report to 30 (both Arab and non-Arab), with 17 Arab countries and 13 comparison ones. The selection process for comparison countries is very important because it defines the gap between Arab countries and other countries. If all the countries in the world

The selection process for comparison countries is very important because it defines the gap between Arab countries and other countries

were included in the report, the gap between the Arab countries and the best country in the sample would be huge, which would mean any target that would be set may be difficult to achieve. However, choosing to compare the Arab countries to a specific set of countries that have had a similar performance at a certain time and have overcome it with competitive advancement makes for a good reference point, with the potential to bridge the competitiveness gap with well-tailored policies.<sup>16</sup>

On the overall competitiveness level, the UAE scored 0.52 versus 0.50 for the comparison countries, which means that the UAE has exceeded the average. South Korea led the overall performance of competitiveness, followed by Ireland, Malaysia, Bahrain and then the UAE, which ranks fifth on the competitiveness ladder, ahead of the rest of the comparison countries. The UAE ranked first among both Arab and comparison countries on the index of Basic Infrastructure; and second after Ireland on the Dynamic Market Index. Notable as well, the UAE ranked third in the area of Low Government Interference in the Economy, with comparison countries included; and fourth in the Business Environment Index when including the

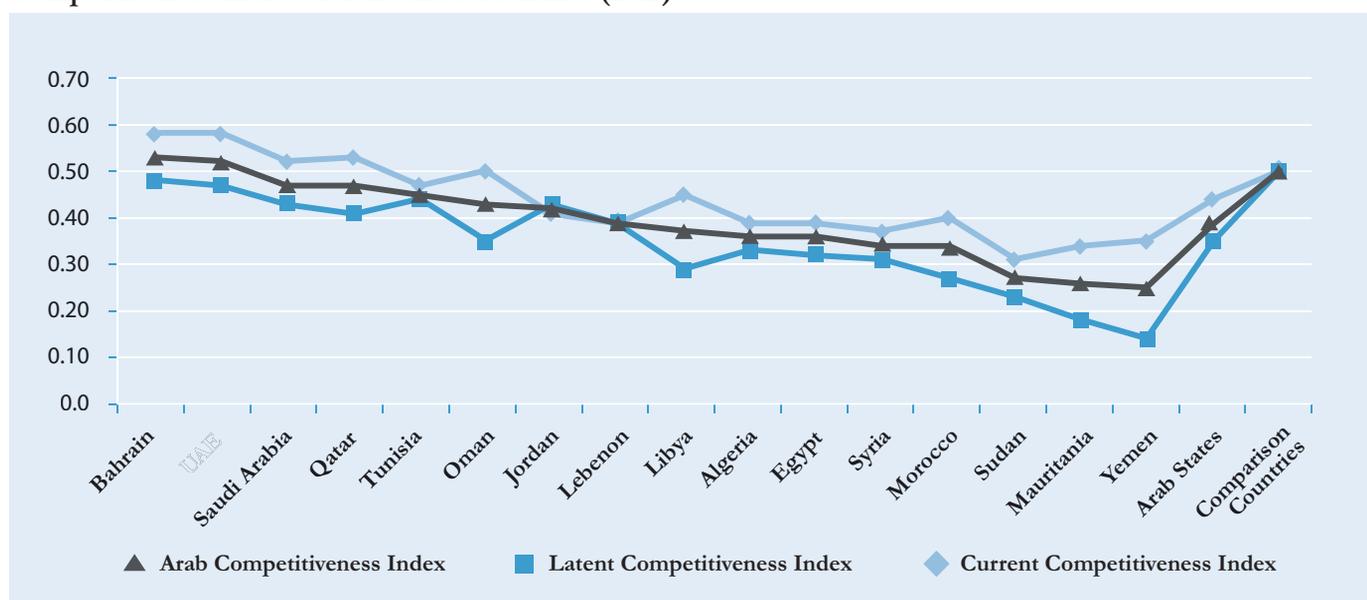
comparison countries (first among Arab countries). It has also ranked fourth when including the comparison countries and second among Arab countries, after Bahrain, in the Technology Infrastructure Index.

Concerning the Latent Competitiveness Index, the UAE ranked ninth when including the comparison countries, and second among Arab countries following Bahrain. The UAE ranked tenth on the Investment Attractiveness Index. In the Governance and Institutional Quality Index, the UAE ranked twelfth, while Kuwait, Qatar, Oman, and Morocco achieved better rankings. The country ranked 13th on the Production Price Index and 14th on the Cost-of-Doing-Business Index; alongside a modest performance on the Economic Performance Index where it ranked 17th. The UAE ranked twentieth on the indices of Human Capital, Innovative Drive and Technology Localisation.<sup>17</sup>

The UAE's fifth rank in the Current Competitiveness Index and ninth in the Potential Competitiveness Index should be regarded as a warning that the country may in the future fall back in the Composite Competitiveness Index, if not at the level of Arab countries, then at the level of the

The UAE ranked first among both Arab and comparison countries on the index of Basic Infrastructure; and second after Ireland on the Dynamic Market Index

Figure 2.11  
Competitiveness Indices for the Arab Countries (2012)



Source: Arab Planning Institute 2012.

reference countries. Once again, it seems that the performance of the social institutions concerned with competitiveness varies: while the country ranks first among Arab countries and comparison countries on the Basic Infrastructure Index, and the second among Arab countries and fourth when including reference countries on the Business Environment Index and the Investment Attractiveness Index, it scores notably lower on some of the Latent Competitiveness sub-indices – namely the Innovative Drive and Technology Localisation Index, and Human Capital Index where it ranked 20th.

It is worth mentioning that these last indicators are among the most important for the transfer and localisation of knowledge, which obviously reflect that the country still has to address a number of challenges to achieve knowledge transfer and localisation. The sustainability and advancement of competitiveness in the UAE largely depend on the efforts made in the areas of knowledge transfer and localisation. The same applies for the advancement and sustainability of human development at all social and economic levels.

### Ranking on the Happiness Index

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The Happiness Index is based on a number of important developmental indicators. These include health indicators – such as life expectancy; governance-related indicators focusing on impressions and corruption; indicators on income (GDP per capita); and other indicators such as freedom of choice and communal support. The index is measured on a scale of 10 degrees.

According to the World Happiness Report 2013, issued in partnership between the Earth Foundation of the University of Columbia and the United Nations' Network of Sustainable Development Solutions, Denmark ranked first globally with a score of 7.693, while the UAE ranked 14th globally and first among Arab countries, with a score of 7.144 and a difference of no more than 0.56 points from the first rank. Oman ranked 23rd globally and second among Arab countries with a score of 6.853, while

Qatar ranked 3rd among Arab countries and 27th globally with a score of 6.666.<sup>18</sup>

### Challenges of the Transfer and Localisation of Knowledge in the UAE

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By establishing and implementing ambitious development projects in economic, social, educational and health fields, the UAE has achieved an advance level in human development, which has enabled the country to maintain a high living standard for its citizens. The UAE was also able to realise significant achievements in ICT, economic incentives and institutional regimes, leading the country to a top position in the Knowledge Economy Index. However, further efforts are required for successfully investing those results in society in order to pave the way for the establishment of the knowledge-based society and economy. There is also a need to overcome the challenges that may prevent or delay the move towards the knowledge-based society and economy coupled with the need to achieve higher levels of human development at all levels.

Review of the UAE's standing, through the above mentioned four indicators highlights the challenge of human capital and other related economic challenges in the country due to the nature of labour in the economy. It also underlines a particular challenge in pre-university and university education systems that have not evolved in the same degree and modality as other areas and institutions of labour, in a way that contributes sufficiently to the transfer and localisation of knowledge. This educational challenge is linked to another cultural challenge, i.e. the challenge of motivating young people and urging them to strive and work hard, not only at school and university, but also in their jobs and businesses. Education, as a challenge, emerges from several overlapping and interlocking points, such as the poor perception of education, traditional teaching methods, the students' choice to memorise, the link between education and the job market, the disinterest in sciences and mathematics and the weakness of the outputs of university

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The sustainability and advancement of competitiveness in the UAE largely depend on the efforts made in the areas of knowledge transfer and localisation

education and its incompatibility with the labour market. It is to be noted that there emerges yet another challenge associated with education. This is the challenge of scientific research and development, which results from the small number of specialised research centres; the weak link between research centres and industrial enterprises; the weakness of research funding; and the small number of researchers and the weakness of their level. However, this will be discussed when addressing the issue of enabling environments in the country in the third chapter.

The second challenge, evident from the above discussion, is related to the demographic and labour force structure of the UAE. It focuses on the national human resources and is represented in three aspects: the relatively small national population compared to the number of residents in the country, the citizens' preference to work in the public sector rather than in the private sector, and the rise of unemployment among the youth. These human resources challenges are undoubtedly linked to a general economic issue, which is the high dependence of the public economy on oil. The following is a discussion of these challenges.

### The Educational Challenge

Investing in humans is regarded as the most important and the best type of investment on the long run. Proper education remains the tool for this investment and a means to develop society and ensure its rise, for the strength of countries is no longer measured

by its natural resources, its surplus of capital, its population or the strength of its armies; it is measured by the intellectual and innovative minds that create change and lead the development process.

The World Bank report on education in the Arab World,<sup>19</sup> including the UAE, shows that despite significant progress in achieving good percentages of mandatory education, high enrolment rates in university education, bridging the gap between males and females, and fighting illiteracy, students' performance in international tests taken in the UAE is still less than the average performance of students in some countries at a lower stage of economic advancement. Results of the 2012 PISA (Programme for International Student Assessment) international examination for 15-year-old students showed low results in the UAE compared to their counterparts in the OECD countries in the three examination sections (reading, science and mathematics), where there was significant disparity between the average results of the two groups. The fact that the performance of the UAE students was the best among participating Arab countries – Tunisia, Jordan and Qatar – is not necessarily a strong indicator that students are competent in the three sections. The average results that the students had scored in reading, writing and mathematics in the country are all lower by almost 50 points than the average results of students in the OECD countries. Table 2.4 illustrates these results.<sup>20</sup> This gap was further evidenced by the results of the field study for students in their final school stage in the UAE, carried out as part of the preparations for the Arab Knowledge Report 2010/2011. The results showed a clear weakness in the students' cognitive skills.

The aforementioned World Bank report shows that two-thirds of the students are majoring in arts and social and human sciences rather than in sciences and mathematics, and this has been confirmed by local studies.<sup>21</sup> Traditional teaching methods are still predominant, while more developed countries are moving towards research-based learning, which focuses on problem solving and critical thinking.

The aforementioned World Bank report shows that two-thirds of the students are majoring in arts and social and human sciences rather than in sciences and mathematics, and this has been confirmed by local studies

Table 2.4

PISA 2012 Results for the UAE and Selected Comparison Countries

	The General Average of Reading	The General Average of Mathematics	The General Average of Science
OECD Countries (Average)	496	494	501
UAE	442	434	448
Jordan	399	386	409
Qatar	388	376	384

Source: OECD 2014.

Several reports have noted that the Arab countries, including the UAE, did not completely achieve their goals in the education field, hindering thereby their ability to innovate. According to the report, the Arab countries failed in producing “knowledge workers” who have the ability to generate knowledge products such as information technology software, patents, or books and research.<sup>22</sup> The previous Arab Knowledge Report AKR 2010/2011 noted educational gaps in the UAE. It has also indicated that such a level of education is in disparity with the technical and informational development the country is witnessing. The report mentioned that the education system and the youth upbringing in the UAE face significant challenges,<sup>23</sup> most notably the high dropout rates at the country level, where statistics show that dropout rates at the school level stood at 2.2% for males and 1.1% for females, especially in Grade 10.<sup>24</sup> The Arab Knowledge Report confirmed that the outputs of the educational system do not conform to the requirements of the global economic changes that require advanced skills in relation to the knowledge economy and globalisation. It also pointed to a decline in the number of citizens in the fields of medicine, engineering, science, agriculture, and industry, a negative factor impeding the transfer and localisation of knowledge and the transformation of the society into a knowledge-based one.

One researcher notes several major reasons pushing Emirati young citizens in high school to choose the literary path or to drop out of secondary education system. First, the stereotypical thinking among many students that the goal of pursuing education is to obtain an academic degree, without carving out the benefits of the learning process for one’s success in professional life. Therefore, some students tend to drop out of school if they fail to obtain the degree or as soon as their circumstances allow them to sustain themselves without a degree. The second reason is the rigidity of the educational process and its reliance on traditional teaching methods, without taking into account the character of the new generation, brought up in a revolutionary

era characterized by information and communication technology.<sup>25</sup>

In October 2010, during the first specialised annual conference on education, organised by the Emirates Centre for Strategic Studies and Research entitled “The Status of Education and its Future Development in the UAE,” the Emirati Ministry of Education identified sixteen challenges facing education in the UAE. Seven of these challenges are directly related to the transfer and localisation of knowledge and to the establishment of the knowledge society. The latter challenges include insufficient learning methods such as libraries, traditional teaching methods based on memorisation and rid of critical thinking strategies, rigid teaching methods lacking active student participation that depend for the most part on listening to the teacher and writing down lessons, and traditional curricula taken from foreign countries. Students also suffer from weak guidance who, more often than not, choose majors not in line with the labour market’s needs. These challenges are further heightened by the weakness of the secondary education system and its incompatibility with the requirements of higher education, requesting students to spend a foundation year at universities.<sup>26</sup>

In his assessment of education and its role in creating the knowledge economy, Alan Weber claims that education does not encourage creativity, and the curriculum neither interests students scientifically nor challenges them enough. The communication between the teacher and the student shrunk to its lowest degrees, and only focuses on memorisation and remembering. Additionally, the school management does not have sufficient authority to take the necessary actions given the rigidity of the educational system and the fewer opportunities for students to express their creativity, which hinders even further the establishment of the knowledge society.<sup>27</sup>

### **The Status and Challenges of University Education**

The UAE has established a system of higher education within the framework of social

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In his assessment of education and its role in creating the knowledge economy, Alan Weber claims that education does not encourage creativity, and the curriculum neither interests students scientifically nor challenges them enough

and economic model and in the context of globalisation and neo-liberal frameworks, with a focus on professional and human sides.<sup>28</sup> It also provided opportunities for the opening of private universities to develop the university education sector by integrating smart technology in public universities and paving the way for private higher education. Despite that, the relationship between the needs of the labour market and graduates remains a critical issue.

Research has identified a number of challenges in this field. Among them is a shortage of people studying medicine, engineering, science and ICT, as most students tend to enrol in the humanities. As a result, the country is forced to hire foreign expertise.<sup>29</sup> On the other hand, students' perspective on university education and its importance may pose a serious threat to the transfer and the localisation of knowledge and to the establishment of a knowledge society, as some students only see a university degree as a mere tool to work in the public and government sector, which offer lucrative salaries.<sup>30</sup> The second danger in this view is that most students believe that education is the final product and not a continuous process; many college graduates do not consider themselves lifelong learners, but regard graduation as the end of their commitment to the learning process.<sup>31</sup>

Another researcher argues that the main problems faced by the university education system include its reliance on a group of advisors who lack the required qualification to achieve the goals; its lack of educational materials related to the country's socio-cultural context; and the absence of a long-term vision on educational offerings and the availability of specialisations.<sup>32</sup> With the country's reliance on foreign consultation and knowledge imported from private higher education institutions, the concerned educational institutions become limited in their ability to engage effectively in the development challenges or to contribute to the localisation of knowledge through local curricula and input for research. Ironically, the restructuring reforms provided an opportunity for the expansion of the higher

education sector in an unprecedented manner, but only to prove later that the increased reliance by higher education institutions on visions of modernity and globalisation does limit the country's ability to localise knowledge in a system that best fits the country's cultural context.<sup>33</sup>

The number of students enrolled in universities has increased, but the increase in those numbers did not translate into the development of the knowledge economy or the creation of a generation or a critical mass capable of creating this economy. There are many obstacles that prevent the country from achieving that, such as some of the non-positive cultural concepts and the employment of some people for jobs that may not be commensurate with their potential and competencies. All these factors weaken the value of education and its perception, hindering the outputs of the education system and the impetus it may provide for the localisation of knowledge and the establishment of a knowledge society in the country.<sup>34</sup>

### **The Youth Motivation Challenge**

One of the major challenges in the transfer and localisation of knowledge is the lack of initiative and motivation among the youth and graduates, who tend to seek secure jobs in the governmental sector. Often, Emirati youth tend to pursue administrative jobs that offer good incomes and avoid sectors directly related to the transfer and localisation of knowledge, especially those associated with innovation, scientific research and technology. Most male citizens prefer to join the police or the army after preparatory or high school, while most female citizens prefer to work in governmental departments. A labour force survey in 2008 has shown that 89.5% of male workers and 83.7% of female workers are employed in government and joint sectors.<sup>35</sup>

The UAE has been able to provide the enabling environments, as will be seen in the third chapter. However, this should be paralleled by a motivated youth who want to effectively integrate into the processes

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A labour force survey in 2008 has shown that 89.5% of male workers and 83.7% of female workers are employed in government and joint sectors

of knowledge transfer and localisation. The Arab Knowledge Report 2010/2011 showed that one serious challenge that faces the Emirati society is the lack of real incentives among youth and the focus on consuming knowledge products represented by various commodities without engaging in genuine processes of knowledge production or in the employment of these products for the benefit of development.

A study carried out by the Ministry of Culture, Youth, and Community Development in the UAE in 2009 showed that those between 18 and 23 years old believed in some extremely passive attitudes when it came to their perspective towards knowledge. For example, some believed that knowledge was simple and not subject to change and that the ability to learn was innate and not linked to exerting effort. This proves that there is a dire need to bring about change and critical development in the current educational system. Such change would aid in the move from traditional education based on memorising and remembering to education based on the skills of creative thinking, innovation, scientific research, and constructive criticism from the earliest stages of education. Thus, the state can build a national human capital of citizens who are capable of skilful interaction and communication in the era of knowledge.<sup>36</sup> The final chapter of this report will provide a vision towards making this move.

### **The Human Resources Challenge**

One of the major challenges facing the UAE in the transfer and localisation of knowledge and in building the knowledge-based society is the limited number of citizens or local human capital; citizens make up 11.5% of the total population.<sup>37</sup> This is the first aspect of the human resources challenge facing the country and society.

Due to the population gap, enhancing the role of citizens has become a major challenge in the UAE. The citizen workforce needs to be developed and the human capital invested in to create cadres who possess the necessary skills and capabilities to

transfer and localise knowledge. Such skills include positive thinking, problem solving, communication and the use of technology, effectiveness in the community, belonging and openness.

More optimistic is the youth's significant interaction with the huge developments in social media and communication. It should be noted here that we do not deny the role of expat human resources in the transfer of knowledge and the establishment of economic infrastructure, just as we cannot recommend to dispense with all foreign workers and depend on the local workforce for the time being, as this would be a waste of a significant force of knowledge in the country that can actually help the national workforce and develop citizens' human capital in the processes of knowledge transfer and localisation.

The second aspect of the human resources challenge is the emergence of youth unemployment as the result of the influx of graduates year after year from institutions, colleges, and universities into the market. This has coincided with the decline of employment opportunities in the government sector, which had been able - until recently - to accommodate all graduate citizens. The situation has been exacerbated as the youth are attracted to majors that may not be in line with the requirements of the labour market, such as humanities and management as outlined above. As a result of fewer opportunities and shortcomings in the plans and programmes aimed at accommodating the citizen labour force in non-governmental sectors, citizens have been forced to enter into an uneven competition at home with the expats. This has led to high unemployment rates among job-seeking nationals. Unemployment is concentrated among those aged between 20 and 35 years old, who are mostly high school and intermediate graduates, or university graduates; the overall unemployment rate is 4.6%.<sup>38</sup> Despite this low percentage, the issue should be given more attention.

The third aspect of the human resources challenge is the limited number of citizens

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The citizen workforce needs to be developed and the human capital invested in to create cadres who possess the necessary skills and capabilities to transfer and localise knowledge

### Knowledge Trends among the Youth in the UAE

The Ministry of Culture, Youth and Community Development in the UAE conducted a study in 2009 to identify the prevailing knowledge trends among young Emiratis aged between 18 and 23 years old. Most notable, the study pointed out to the following:

The youth have a firm belief that knowledge is simple, and that information is not related and is neither interdependent nor integrated. They consider the teacher to be the source of knowledge, especially in their early years of undergraduate study. This affects their learning style as the youth tend to rely on the book and the professor as sources of information. Such convictions contradict with the basics of learning and the knowledge society where students look for information on their own and build knowledge with their colleagues. Students must be prepared to rely on themselves since self-reliance constitutes the basis for the formation of an independent personality capable of learning and producing knowledge.

Some youth believe that knowledge is certain and is not changeable. This perception should be changed because knowledge is variable and may not be fixed. This is vital given its importance in the process of knowledge development and the creation of new knowledge.

Those with diplomas tend to believe that the ability to learn is innate, and that one cannot learn how to learn, that success is not linked to perseverance and efforts compared to other categories of participants in the study. This result reveals some sort of a problem for this

category of people because it is imperative to believe that knowledge is acquired, and what this belief implies in being reflected at the level of the efforts made to obtain knowledge.

Some young people tend to believe that success is not associated with perseverance and effort, and therefore they might not be making any effort to build knowledge or carry out a knowledge activity in order to develop their knowledge.

The negligence of parents when it comes to knowledge aspects, that is, in terms of buying books, visiting exhibitions, and even holding conversations with their children. The reason for this is probably related to the parents' educational level and their concern with several other issues, particularly with regard to the economic aspect, many times at the expense of the knowledge aspects.

The youth are reluctant to visit public libraries, and become well-versed with the knowledge available on the Internet, or attend seminars, lectures, and workshops that are held in the country, or participate in the cultural programmes on the media, or even participate in knowledge competitions.

Books were ranked last among the methods used by the youth to acquire knowledge. This means that it is necessary to increase their interest in reading books and references, due to the latter's importance in the development of thought in the present era and its impact on the creative process in all fields.

Source: Quoting the Ministry of Culture, Youth and Community Development 2009.

A background paper for the report has pointed out that, based on the records of the UAE Ministry of Labour, the number of workers in the private sector is 3,895,695, out of which 19,874 are citizens, i.e. 0.05%

Source: Quoting the Ministry of Culture, Youth and Community Development 2009.

working in the private sector; most Emiratis will avoid it if offered a job in a government institution. A background paper for the report has pointed out that, based on the records of the UAE Ministry of Labour, the number of workers in the private sector is 3,895,695, out of which 19,874 are citizens, i.e. 0.05%. This is a low percentage, making the contribution of national labour in the private sector minimal, especially when it comes to the transfer and localisation of knowledge to build a knowledge economy and society. Moreover, 76.8% of those jobs assumed by citizens involve wholesale, retail, trade, real estate and financial intermediation. These careers do not rely on educational certificates or advanced vocational training,<sup>39</sup> thus posing serious

questions on the appropriateness of such a local labour structure in the private sector for the requirements of building the knowledge economy and knowledge society.

Workers in the private sector are considered to be among the major driving forces since they shoulder the responsibility of leading the economic development of the UAE. Given the fact that the workforce in the private sector comprises mainly temporary and foreign workers, it does not achieve one of the most important objectives of human development – ensuring sustainability by involving citizens in the process, where they become contributors rather than receivers. Building the Emirati human capital in all fields is necessary to achieve development.

Accordingly, increasing the percentage of citizens working in the private sector and ensuring they are efficiently skilled are two of the most important determinants to the success of the policy to catalyse the work environment in the UAE towards the transfer and localisation of knowledge and a knowledge society.

It is worth mentioning that the process of knowledge transfer for citizens has been carried out in some sectors such as the oil sector, but it hasn't been executed to the same extent in other sectors. This might be due to the lack of interaction and communication between foreign and local companies, and between residents and Emirati citizens. This might also be due to the various social, cultural, cognitive and technological backgrounds of each of these parties. Although they all operate in one country, and in close sectors, they operate as if through isolated clusters. Hence, there is an urgent need to increase communication between these parties to contribute to the building of networks and partnerships, which will allow for establishing common systems of creativity and innovation.

The localisation programme for Emiratis in the private sector is an important national programme. However, imposing such a policy on companies might not be feasible for the goal of gaining experience and attracting competences based on efficiency. The small number of nationals in the private sector is not only due to the high salaries in government institutions, but also to a lack of skills, education, training and ability to compete with expatriates. Thus, those in charge of the programme should not give citizens a sense of entitlement with their employment just because they are citizens; rather, employment should be based on data market, competition and merit. This will be a motivation for citizens to compete and be ambitious so as to develop themselves accordingly. Although this might be resented by some citizens, it is the only and best way to push them to accomplish and work hard in the labour market. Paradoxically, the UAE creates a competitive market that attracts people from all over the world while it still

cannot push its own citizens to enter the market based on their own competency.

## The Economic Challenge

The UAE 2013 Annual Economic Report issued by the Ministry of Economy concluded that despite the many merits achieved and the favourable economic opportunities, the country still faces a number of challenges that might hinder its journey and its ability to achieve the goals of sustainable development. These challenges should be addressed through innovative and non-traditional approaches, while taking the necessary measurements and precautions to limit its negative impacts and bring it to an end. One of the main challenges as such is the limited size of the citizen population needed as a base to carry out the requirements of development and the resulting dependency on expat human resources. The end result is manifested in two problems; an imbalance in the labour market and another in the structural composition of the population. That is what we have touched upon when we discussed the challenge of "human capital" in the country.

The other economic challenge facing the country – which was also mentioned in the UAE 2013 Economic Report – is the continuous reliance on oil as a major and essential resource for the country, and the consequent fluctuation of the state's revenues in financing the development movement. The country has been making efforts to find alternatives to public revenue, and has been successful in diversifying the sources of income from other sectors such as trade, transport, communications and industry as well as re-exportation, given the special geographical location of the UAE, leading to an increase in the contributions of non-oil sectors in output; from 62.5% in 2006 to 67.3% in 2012. This percentage dropped to 61.14% in 2013, according to estimates of the National Centre for Statistics (see Chapter III). However, the financing of development projects and programmes is still dependent on the country's resources from hydrocarbon exports, which is not expected to change in the near future.<sup>40</sup>

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The small number of nationals in the private sector is not only due to the high salaries in government institutions, but also to a lack of skills, education, training and ability to compete with expatriates

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The persistence of this economic system – which relies mainly on oil to finance development and on the diversity in other sectors dependent mainly on trade and transport – does not provide the required driving motives for the transfer and localisation of knowledge

The persistence of this economic system – which relies mainly on oil to finance development and on the diversity in other sectors dependent mainly on trade and transport – does not provide the required driving motives for the transfer and localisation of knowledge. The nature of these sectors and the prevailing patterns of production in the UAE, include in general low added value of knowledge, especially when compared to the productive sectors and industries with high added value of knowledge as is the case with the electronics industry. The oil sector is mostly based on the extraction of crude oil and thus does not involve a high added value of knowledge. The same applies to other sectors which have dramatically grown in the UAE. Such

sectors include trade and transport, as well as the telecommunications sector that has relied on the consumption of knowledge products without a real transfer or localisation of knowledge that accompanied the production of these vital tools for the knowledge society. Despite understanding and appreciating the major role played by these sectors in supporting development in the UAE and pushing it towards higher levels, and within the framework of the localisation of knowledge and the establishment of the knowledge economy, this report highlights the importance of reconsidering the general economic structures and the productive and active sectors in the UAE so as to gradually move towards economic practices and sectors of higher knowledge value.

## Endnotes

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## Introduction

The enabling environments are represented by the various structures and forms of support that society provides to the youth for the creation of an environment that facilitates their engagement in the knowledge society. Therefore, the knowledge-enabling environment is an integrated system based on the interaction of educational, economic, social, political, technological and media frameworks among others. Enabling, therefore, refers to two overlapping processes: the first is related to the acquisition of knowledge, skills and capacities. The second refers to the environments that foster the utilisation of these capacities, skills and knowledge in the production of knowledge. And if the process of enabling is associated with capacities, skills and values, then it also requires appropriate fostering environments. This means that we will not succeed in empowering the youth and society by merely equipping them with knowledge, skills and values; we also need proper fertile ground and appropriate surroundings in which the youth can practice those skills for the employment and production of knowledge. This requires institutions that are qualified with the features of supporting systems in the knowledge society. This also confirms the importance of the integration of various institutions so that the youth can move throughout those stages.

Accessing the knowledge society is based on a number of determinants that must be made available. These include: success in education, efficiency in research and innovation, rationality in planning and

management and adoption of good governance.<sup>1</sup> How are these factors reflected in the Emirati experience? And is their role manifested in the integration of the youth in the knowledge society? To answer these questions, we shall address the problem of building the knowledge society in the UAE in relation to the youth, through the various enabling environments that could better enable them to contribute to the transfer and localisation of knowledge.

## The Educational Environment

### Higher Education in the UAE

The mission of universities is associated with three main goals: teaching, scientific research and community service. Universities and institutions of higher education in general play a major role in the consolidation of national identity and community values, as universities are considered to be the main influent which provides society with qualified and trained young national cadres. This is in addition to the scientific, technical and administrative competencies and skills in various fields, so as to achieve economic and social development. Universities also contribute to solving the various issues and challenges faced by society.

Statistics indicate an increase in the higher education enrolment rates in the UAE; the total number of students enrolled in higher education and university stages (nationals and expatriates) was around 118,600 students in the academic year 2012/2013, with a growth rate of 7.95% compared to the academic year 2011/2012. The number of Emirati

Statistics indicate an increase in the higher education enrolment rates in the UAE

Table 3.1

The Number of Students in Higher Education and University in the UAE for the Academic Year 2012/2013

	Citizens			Non-Citizens			Total
	Male	Female	Total	Male	Female	Total	
Private Education	19,652	14,619	34,271	19,840	22,798	42,638	76,909
Private Education	10,508	27,589	38,097	1,340	2,214	3,554	41,651
<b>Total</b>	<b>30,160</b>	<b>42,208</b>	<b>72,368</b>	<b>21,180</b>	<b>25,012</b>	<b>46,192</b>	<b>118,560</b>

SOURCE: UAE National Bureau of Statistics, 2014. (Reference in Arabic)

citizens among students in 2012/2013 statistics was 72,400, representing 61% of the total number of students.<sup>2</sup> The increase in the proportion of citizen undergraduates (aside from the financial factors and free education for citizens in public universities) might be due to the high input rate from high school graduates, where the number of secondary school certificate holders was 46,900 students in the academic year 2010/2011, 27,900 of which were Emirati (59.5%).<sup>3</sup> Statistics also indicate that female citizen undergraduates represented 58.3% of Emirati citizens among students at the higher education and university stage, while the percentage of non-citizen female undergraduates from the total non-citizen undergraduates was 54.1%. In general, the proportion of females to males in higher education and university was 56.7%.<sup>4</sup>

In reference to the party providing the educational services, we find that the private sector provides nearly 65% of higher education and university education in the UAE. This is due to the fact that 92% of university education provided for non-citizens takes place at private universities, while citizens represent 47% of the total number of private university students, which is a high percentage compared to the privileges offered to citizens in Emirati public universities. Undoubtedly, the increase in the private education contribution rate in university education in UAE has its impacts on the transfer and localisation of knowledge. We shall debate this issue later when addressing foreign and private universities.

While discussing the status of universities, we must address the relationship between current student specialisations and the scientific specialisations that serve the process of the transfer and localisation of knowledge; especially since undergraduate students are considered to be a key component for the creation of the critical mass of human capital that is qualified and cognitively capable of leading the processes of the transfer and localisation of knowledge, up to the establishment of the knowledge society and economy.<sup>5</sup>

According to the data of the Ministry of Higher Education and Scientific Research, published by the National Bureau of Statistics for the academic year 2012/2013, specialisations ranked as follows in terms of student enrolment: economics and administration ranked first with 27.1%; followed by basic education in second place with 16.2%; and engineering in third place with 13.6%; with the total for the three specialisations being 56.9%. On the other hand, the specialisation of Sharia and law attracted 10.8%; humanities 4.6%; medical sciences 3.5%; and sciences 0.8% (see Table 3.2).

The population of non-citizen students was estimated at 46,192 students. Among this population, the number of those majoring in business and economics ranked first, accounting for 29.4%, of students; followed by engineering at 18.9%; then Sharia and law 7.5%; and medical sciences attracting 7.1% of non-citizen students. When comparing Emirati students to non-Emirati ones, it appears that the latter category tends to specialise in scientific majors while the majority of the Emirati students would rather specialise in humanities and social sciences. The proportion of citizen students specialising in Information Systems from the total population was 6% against 4.8% among the total non-citizens; a percentage that remains low in the Information Age. Unfortunately, both citizen and non-citizen students are not inclined towards “science” majors; where the percentage of specialisation came at 0.6% among citizens and 1.1% among non-citizens.<sup>6</sup>

The relatively low enrolment rates in scientific majors that directly contribute to the transfer and localisation of knowledge can be related to internal and external variables affecting the educational system. The percentage of high school graduates enrolled in the humanities division during the academic year 2010/2011 was 73.5% while that of those enrolled in the scientific division was only 26.5%. This clearly highlights that the citizens who stray away from scientific majors, do so during the pre-university stage, which affects the decision

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The relatively low enrolment rates in scientific majors that directly contribute to the transfer and localisation of knowledge can be related to internal and external variables affecting the educational system

Table 3.2

## Enrolment in Higher Education and University by Subject and Gender for the Academic Year 2012/2013

Specialisation	Citizen			Non-Citizen			Total Number of Students (Citizen/Non-Citizen)	Ratio of Specialisation to Total (%)		
	Male	Female	Total	Male	Female	Total		Citizen	Non-Citizen	Total
Arts & Design	34	836	870	329	1,222	1,551	2,421	1.2	3.4	2.0
Engineering	4,527	2,925	7,452	5,882	2,831	8,713	16,165	10.3	18.9	13.6
Information Systems	1,810	2,555	4,365	1,368	834	2,202	6,567	6.0	4.8	5.5
Management, Business & Economics	8,241	10,362	18,603	7,280	6,305	13,585	32,188	25.7	29.4	27.1
Education	164	2,123	2,287	259	1,671	1,930	4,217	3.2	4.2	3.6
Foreign Languages	85	445	530	31	350	381	911	0.7	0.8	0.8
Health & Environmental Sciences	115	1,317	1,432	461	2,625	3,086	4,518	2.0	6.7	3.8
Medical Sciences	100	692	792	1,047	2,254	3,301	4,093	1.1	7.1	3.5
Media and Communication	2,958	3,348	6,306	878	1,625	2,503	8,809	8.7	5.4	7.4
Sciences	58	389	447	188	336	524	971	0.6	1.1	0.8
Sharia & Law	6,544	2,775	9,319	1,909	1,555	3,464	12,783	12.9	7.5	10.8
Humanities	711	2,226	2,937	468	2,038	2,506	5,443	4.1	5.4	4.6
Primary Education	4,757	12,157	16,914	1,000	1,289	2,289	19,203	23.4	5.0	16.2
Food & Agriculture	40	49	89	12	6	18	107	0.1	0.0	0.1
Unspecified	16	9	25	68	71	139	164	0.0	0.3	0.1
<b>Total</b>	<b>30,160</b>	<b>42,208</b>	<b>72,368</b>	<b>21,180</b>	<b>25,012</b>	<b>46,192</b>	<b>118,560</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Estimations by the AKR team based on data from the Emirati National Bureau of Statistics 2014. (Reference in Arabic)

over which major to choose at university. Furthermore, the female preference for humanities majors is evident, with more than 70% of the female students enrolling in such subjects as shown in Table 3.3.<sup>7</sup>

External factors that could affect university and higher education in the UAE include the fact that the current educational policy is based on the market being the main mechanism for developing the university education system. In this regard, the impact of the socio-economic model seems to be largely pushing university and higher education towards vocational domains.<sup>8</sup>

Considering the active and growing role of private educational institutions in the higher education sector in the country, with more than 70 institutions in the Emirates and with the primary goal of profit, it is thus not surprising that such institutions are focusing on the most popular specialisations and programmes. The number of programmes offered is also anticipated, since in terms of returns, the most popular programmes offered are those of business administration and economics, engineering, computer science and information technology.<sup>9</sup> This may also be due to the relatively recent higher education system in the UAE and

The impact of the socio-economic model seems to be largely pushing university and higher education towards vocational domains

Table 3.3

## Distribution of Emirati Students, Holders of the Secondary School Diploma, across Educational Divisions for the Academic Year 2010/2011

Section	Number of Students in the Scientific Division			Number of Students in the Humanities Division		
	Male	Female	Total	Male	Female	Total
Private	1,203	2,219	3,422	4,189	5,458	9,647
Public	91	86	177	217	111	328
<b>Total</b>	<b>1,294</b>	<b>2,305</b>	<b>3,599</b>	<b>4,406</b>	<b>5,569</b>	<b>9,975</b>

Source: National Bureau of Statistics 2014. (Reference in Arabic)

Table 3.4

**Distribution of Emirati Students with Study-abroad Scholarships during the Academic Year 2012/2013, by Educational Level and Gender**

Degree	Number of Males	Number of Females	Total Number	Percentage of Males of the Total Students at the Educational Level
Doctorate	6	6	12	50%
Master	39	23	62	63%
Bachelor	371	87	458	81%
<b>Total</b>	<b>416</b>	<b>116</b>	<b>532</b>	<b>78%</b>

Source: Emirati National Bureau of Statistics 2014a. (Reference in Arabic)

the lack of established university traditions, leading to an increased focus on vocational domains, in addition to a decreased interest in pure scientific specialisations, such as science and mathematics. One of the researchers described this situation as a “Commodification”<sup>10</sup> of knowledge, in the sense that it is related to the social benefits of the country and the individual, than the individual’s personal, intellectual and cultural development. Hence, this may lead to an emergence of problems in providing the diversification required in the subject areas necessary for social development in the long-run.<sup>11</sup>

*“It should be noted that the budget for education is derived from two main sources: the federal budget; and the local budget of each emirate. The federal budget for education, in both primary and tertiary education, was AED 9.9 billion of the total 2013 budget, representing 22.2% of total public spending. The budget for basic education was AED 6 billion, which represents a significant proportion of 13.5% of total public spending. This reflects the efforts of the federal government in supporting the Ministry of Education towards the development of federal education so as to advance to the level of local education in the UAE, as well as to exert efforts to introduce modern education techniques to public schools”.*<sup>12</sup>

As for the share of university education, it amounted to AED 3.9 billion of the federal budget, which makes 8.7% of total spending of the 2013 federal budget. This is expected to contribute to the significant development of public university education and an increase in the number of citizen students studying at universities outside the UAE. It would also contribute to developing

the academic, scientific and scientific research skills required for establishing the knowledge society and the knowledge economy.<sup>13</sup>

***Study-abroad Scholarship Programmes***

Following on the presentation of the educational environment and the capability to transfer and localise knowledge, one significant element in the process of the transfer and localisation of knowledge in the UAE is the study-abroad scholarship programmes. These programmes are considered some of the most important cognitive channels that flow directly into achieving two goals: the creation of the knowledge society and the building of the knowledge economy, whether on the level of increasing competency or productive

Table 3.5

**Scientific Specialisations for Students on Study-abroad Scholarships during the Academic Year 2012/2013**

Specialisation	Number	Percentage
Management Sciences	91	1%
Engineering Sciences	209	39%
Banking and Financial Sciences	69	13%
Computer Science	22	4%
Political Science	35	6.5%
Education	19	3.5%
Law	17	3%
Mass Communication	5	1%
Sciences	17	3%
Forensics	5	1%
Medical Sciences	38	7%
Environmental Sciences	5	1%
<b>Total</b>	<b>532</b>	<b>100%</b>

Source: Emirati National Bureau of Statistics 2014a. (Reference in Arabic)

One significant element in the process of the transfer and localisation of knowledge in the UAE is the study-abroad scholarship programmes

communication with the world. In this context, the number of students who were granted a scholarship for the academic year 2012/2013 was 532, with 86% of these students being undergraduates, 11.6% at the Master's degree level, and 2% Doctoral students. As for the overall percentage of male students, it was 78%. This indicates low female participation in the study-abroad programmes and thus their limited involvement in the transfer and localisation of knowledge in the UAE (See Table 3.4).

Looking into the scientific specialisations of the students on scholarships studying abroad, we notice the prevalence of the specialisation in engineering sciences, at 39%, followed by management sciences at 17%, then banking and financial sciences with 13%.<sup>14</sup>

### ***Foreign Universities in the UAE***

The Arab Gulf states present a new model in the establishment of higher education for building the knowledge society. This model is represented in the branches of Western foreign universities, especially from Australia, England and the United States, being established in campuses with innovative names such as Dubai's Knowledge Village and Sharjah's University City. In Abu Dhabi, MIT (Massachusetts Institute of Technology) has a huge university campus. The UAE hosts almost one quarter of the total number of branches of foreign universities in the world, with the University of Wollongong being the first foreign accredited university to open a campus in Dubai in 1993. In 2010, the number of students enrolled in this university was 3,500, in various areas of specialisations at the undergraduate and graduate levels. In 2006, Abu Dhabi hosted the first Paris-Sorbonne University branch (PSUAD), and New York University (NYU) in 2010.<sup>15</sup>

All of the private universities and educational institutions operating in the country are licensed by the Ministry of Education and receive the necessary accreditation for their programmes from the Commission for Academic Accreditation (CAA). In October

2010, the number of accredited private universities was 66 with 479 educational programmes.<sup>16</sup> At the end of August 2012, there were 75 universities with more than 600 programmes, accredited by the Commission.<sup>17</sup>

More than 30 foreign universities are based in Dubai International Academic City (DIAC), in the Free Zone. Within this area, foreign universities enjoy many privileges that include the right to 100% foreign ownership, 100% tax-free profits, and the right to transfer 100% of the profits. In Dubai for example, both the Knowledge and Human Development Authority, along with the International Network for Quality Assurance regulate the work of foreign educational institutions.<sup>18</sup> While branches of foreign universities attract its vast majority of students from UAE residents, some of them, such as NYU Abu Dhabi, attract students from all over the world to ensure the highest possible number of exceptional students.<sup>19</sup>

Since the establishment of foreign universities branches within the country, a significant number of national students have decided to enrol at these universities rather than travel abroad. In 2009 for example, the proportion of citizen students enrolled at Wollongong University was 13.4% of the total number of students.<sup>20</sup>

DIAC has aspired since its establishment to become a regional hub for students from all over the Middle East, South Asia and Africa. In 2013, DIAC had already attracted 20,000 students of 125 nationalities, studying in 21 branches of foreign universities.<sup>21</sup>

Undoubtedly, the branches of these universities contribute to the facilitation of mutual understanding between students of different nationalities and backgrounds, as well as to crafting the students as global citizens. These universities have succeeded in reducing the number of students who study abroad and the migration of some of the youth. They have also contributed to the diversification of experiences among students who thus acquire the knowledge

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The UAE hosts almost one quarter of the total number of branches of foreign universities in the world, with the University of Wollongong being the first foreign accredited university to open a campus in Dubai in 1993

and skills that help them gain employment at a pace faster than that of their counterparts in public universities.

It is noteworthy to point out that all of the higher education institutions must commit to the standards and regulations of the mother institution. Also to be noted is that the increase in the number of branch campuses will lead to positive impacts on quality through competition to improve the programmes so as to achieve the most prestigious levels in the recruitment of graduates.<sup>22</sup>

On the other hand, we find ourselves facing the reality of the “commodification” of education. And since profit maximisation is the goal, some universities branches lean towards reducing the cost hence paying less attention to investments in libraries, education sources and students’ social facilities.

Further arguments of criticism include that the outputs of these universities may be of high quality in the countries to which they belong, but they are not at the same level of quality and excellence once they depart to other countries. Some of these institutions tend to provide the same educational programmes in their university branches in the UAE as those provided in their mother country, which means that they request “off the shelf” what is already available in the original university, in terms of standards and content, and transfer it to the branch. This results in a clash between the provided knowledge and education, and what is locally required.<sup>23</sup>

A series of questions may be asked here, some of which are: do these universities have a genuine and active role in the transfer and localisation of knowledge? How keen are these universities on their contribution to the processes of transfer and localisation? What is the actual impact of these universities on the UAE community in light of the fact that the majority of professors and students at these universities are non-citizens?

Some researchers believe that Western

universities are more inclined towards a colonial style in its new sense. Some aim at control, not for the establishment of a certain ideology or certain political reasons only, but for the mere achievement of commercial profit. The expansion in the establishment of foreign branches in the Arab countries might lead to the emergence of inequality. Universities in Europe, the United States and English-speaking countries will prevail, while the other local universities would remain marginalized, unable to compete.<sup>24</sup>

Proceeding from the concept of countries of the centre and countries of the margin, two other researchers believe that the Gulf States will face further educational and knowledge marginalisation, while the counties of the centre will become more and more powerful, so much so that the Arab Gulf states will easily fall into the trap of knowledge consumption and not production.<sup>25</sup> However, several branches of these universities have embarked on the establishment of research centres offering Doctoral programmes, which would contribute to connecting knowledge to the country’s needs.

The higher education market in the UAE is considered to be one of the most competitive markets in the Gulf States as this market seems to face excess demand. This was evident in the results of the Wilkins Study (2010) that concluded that many of the private higher education institutions in the country are facing a difficulty in attracting students. Consequently, these institutions failed to expand their programmes as planned. They have also failed to increase university expenses and tuition fees due to competition and were unsuccessful to manage or offer all of the programmes and courses they had pledged.

### **Smart/E-Learning Initiatives**

E-learning is an advanced way of learning, leaving behind the traditions of memorisation and textbooks and embracing innovation, interaction and skills development. E-learning uses the latest electronic methods of teaching, learning,

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Some argue that outputs of foreign universities may be of high quality in the countries to which they belong, but they are not at the same level of quality and excellence once they depart to other countries

### Roger's Theory on Knowledge Transfer and Innovation

According to Rogers' *Diffusion of Innovations* theory,<sup>26</sup> pioneers of change and educators do not give enough attention to the results of the transfer and diffusion of knowledge and innovations because it is a relatively difficult task. Moreover, there is always the assumption that the result would be positive, but this is not always the case. The consequences of the diffusion of new knowledge may be desirable or undesirable, in addition to the fact that the transfer of the best Western models and practices in the field of education is a commendable and positive approach since human beings are always eager for new knowledge and new ideas. The adoption of a Western best-practices approach to education in the UAE has supported the observance of a quantum leap in the students' learning techniques. This came through limiting the act of memorising and encouraging self-reliance as well as independent critical thinking, with the goal of equipping students with the analytical skills needed for them to make their own decisions. This enables students to be educated for their entire lives and able to contribute in their communities and their professions in the future. Moreover, the adoption of Western approaches to education provides the students with the opportunity to acquire a perspective on the Western culture, which will help reduce the differences and bridge the gap of understanding. This by itself is vital to bring about a certain kind of understanding between the different cultures, which is a significant element in the settlement of certain conflict between the Arab world and the West.

However, the Western education models, as well as the best practices, books and educators, might also bring along some specific cultural jargon that could be entirely different from students' cultural context and contrary to what students are learning; this may even be against their values and may have adverse consequences. In addition to that, the students' pattern of thinking might not change but they would emulate their teachers' behaviour. There are many cases in which Western teachers violate, whether intentionally or unintentionally, the cultural

and religious beliefs of Arab students. Those teachers bring along their own norms and values and those of their own communities; they might be threatening to the concepts of the students and the society in general. This might happen unintentionally because these teachers cannot detach their desire to offer knowledge or innovation to a country other than their own. Rogers assures that values, beliefs and stances in a certain culture are effective for that culture, and judgement has to be based on their functions in terms of their own circumstances and needs. Thus, these foreign standards must not be imposed since "every social system includes some qualities that should not be destroyed if we seek the welfare of the system and its sustainability".

Also according to Rogers, innovations are not without any limitations or conditions. Some consequences of the transfer of knowledge are predictable, but others are hidden, unintentional or unexpected. Rogers provides an analogy of the possible changes that accompany the transfer of knowledge. He says it is a bowl full of marble balls, and once any of them is moved, the others are moved as well. However, the transferors of these particles do not necessarily understand the complementarities among them all. At the same time, foreigners do not fully understand the nature of the internal and external forces operating within the system.

The act of re-invention or re-discovery represents another aspect of Rogers' *Diffusion of Innovations* theory. It is "the extent to which an idea or knowledge is changed by the user in the process of adopting the idea and implementing it". Astonishingly, foreign universities arrive in the Gulf with a preconceived notion of "copy & paste" of their educational model into the area, only to find out that this method is futile. Western educational programmes should be amended and adapted to the local context of the Arab Gulf. In other words, and as Rogers has indicated, the receiver of knowledge is not always passive, but can also be an active converter for new ideas.

The higher education market in the UAE is considered to be one of the most competitive markets in the Gulf States as this market seems to face excess demand

Sources: Everett Rogers 2003. Juliana G-Mrabet 2010.

acquiring knowledge and diffusing it, relying on high-tech educational methods, equipment and applications such as computers, tablets and high-speed internet. This provides an advanced and attractive educational system as well as high-quality educational services, that in turn lead to the improvement of learning outputs and exposes the youth to the language of the era. It allows the wide interaction of learners with each other as well as with their teachers, during classroom time or not, which

embodies the future's learning pattern that accompanies the student wherever he or she may go.

In order to keep up with the global changes, take advantage of the potential of the ICT infrastructure in the country, and better enable the youth as to receive knowledge by all possible and available means, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai launched the

“Smart Learning” initiative in 2012. The AED 1 billion initiative covers all the public schools in the country and is to be implemented over a period of 5 years. It is considered to be a national necessity for the achievement of UAE’s vision 2021 and is set to transform conventional classroom environments into smart classrooms through access to high speed 4G networks, designing innovative curricula, providing pupils with tablets and training teachers on modern technology devices to ensure the proper implementation of the initiative and its intended objective. The initiative is being implemented in collaboration with the Ministry of Education and the Telecommunications Regulatory Authority.<sup>27</sup>

To ensure the success of the Smart Learning initiative, it should be emphasised that technology alone cannot change the teaching methods and styles because it is closely linked to the method by which programmes and curricula are designed. Therefore, curricula must be redesigned in a comprehensive way that leads to the development of teaching methods that meet the needs of the students, while focusing on operational thinking, problem solving and critical thinking.<sup>28</sup> Also, to ensure the success of the Smart Learning initiative, efforts should encompass the student, teacher and family because such an initiative will induce a huge quantum leap in society. This requires the launch of a parallel media project to introduce both the community and parents to the initiative. It shall also require the development of an integrated programme that supports the eradication of digital illiteracy among parents in order to enable them to follow up on their children’s lessons through the school’s digital network. Moreover, teachers must receive proper training and their competencies development to support the shift into smart learning in UAE’s public schools.

And to complement the process of shifting into smart learning at the university stage, the iPad Initiative was launched at three higher education public institutions: the United Arab Emirates University (UAEU), Zayed

University (ZU) and the Higher Colleges of Technology (HCT); which is a significant leap that would render the learning process easier and much more interesting. This last step would make the UAE among the first countries in the world to introduce the iPad in university education and thus achieve an international precedence in the shift to E-learning. The implementation phase of the shift to smart higher education started with 14,000 enrolled students in the Foundation Year Programme at the United Arab Emirates University (UAEU), Zayed University (ZU), and the Higher Colleges of Technology (HCT) at the beginning of the academic year 2012/2013. Consequently, the UAE is stepping into the electronic shift in education and is undergoing the most significant global experience with the use of the iPad in university education.<sup>29</sup>

## Research and Development Environment

The driving force behind the transfer and localisation of knowledge, as well as the technological and industrial progress, undoubtedly lies in research and development. The importance of research has increased in recent years, due to a raging battle over the acquisition and production of knowledge, especially following the opening up of new markets and the world trade environment. The new environment has introduced a global competition which has encouraged many states to enter the creative field through research and development. Scientific research is an activity that enjoys its own tools, methods and foundations, as well as its physical and human requirements that should be provided so as to achieve positive results to the benefit of the community, and contribute to the transfer and localisation of knowledge. Without these requirements, it would be hard for countries to compete in the new global economy.

UAE has continuously encouraged research through the establishment of the “National Research Foundation”. Despite this, the local research environment did not develop enough to form a true pillar for building the knowledge society. The country still suffers

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To ensure the success of the Smart Learning initiative, it should be emphasised that technology alone cannot change the teaching methods and styles because it is closely linked to the method by which programmes and curricula are designed

from a shortage in research products, including studies and research papers in international scientific magazines.<sup>30</sup> The Emirati status does not differ much from that of the other Arab states with respect to the lack of potential, spending and production. The financial support falls below the required level, whereas it only represents 0.2% of the GDP, in comparison with what is allocated to the research budget in many developed countries, reaching more than 4% of the National Product.<sup>31</sup> The scarcity of financial support for research and the lack of encouragement and care thereof are considered to be among the most important challenges facing the UAE in establishing the knowledge society.

In addition, the private sector's small contribution hinders innovation and development in carrying out scientific research, due to the scarce financial provisions allocated to projects and innovations in universities, leading to the failure of numerous research projects and their incompleteness, and as a result, the frustration of those in charge. The inadequacy of research funding at universities is clear, since research does not fall within their priorities. Universities, rather, show more interest in the academic and educational aspect, that neither enhances the true role of the university in serving the community nor helps in building the knowledge society.

Among the challenges hindering the progress of research in the country is the lack of a trained national cadre capable of elevating the national research activity and pushing it forward. There is also a shortage in Emirati executives who assume leadership in research positions, as well as a scarcity of patents and a lack of awareness towards its importance. It is also noted that the number of patents registered and declared by the country is small relative to what is produced by universities and research centres in developed countries.

One researcher attributed the limited research in the country to the weak beliefs among stakeholders in the importance of research, lacking the proper scientific foundations

necessary for research production in schools and universities, missing financial and moral support for researchers as well as awareness on the importance of research as an essential factor in achieving a developmental revival in all fields.<sup>32</sup>

### Box 3.2

#### The National Research Foundation

The National Research Foundation was established in March 2008, in view of founding a research leadership in the country. The Foundation is involved in all research matters; it issues recommendations specific to funding centres, programmes, institutions and individuals, monitors grants periodically to insure the achievement of the intended goals, provides an internationally competitive research capacity and an innovation system in the country so that the outcomes of these research activities become a source of intellectual property, ideas and knowledge, and enables Emirati companies to be more competitive and enhance the lives of the citizens of UAE.

*Source: National Research Foundation 2014. (Reference in Arabic)*

Despite the establishment of research centres, knowledge villages and academic villages, the increase in the number of international universities and university instructors, both citizens and non-citizens, along with the increase in the number of citizens graduating with Master and Ph.D. degrees, there is no push towards linking research with development. These institutions have failed to become project initiators. This might be attributed, as some researchers stated, to the commercial drift in administering these institutions. Dubai's Knowledge Village is inclined to making money through its orientation to work as a trade centre system, bringing along leasers with the latest trademarks.<sup>33</sup> It is to be noted that the UAE Vision 2021 includes seven main goals, among which is a strategy to transform the economy into "a competitive knowledge economy". This entails a re-analysis of the research status that is currently marginalised and does not support the establishment of the required environment for the transfer and localisation of knowledge, which is a prelude to the transformation into a knowledge society or knowledge economy.

The inadequacy of research funding at universities is clear, since research does not fall within their priorities

### Box 3.3

#### The Importance of Scientific Research

Emphasis should be on raising community awareness on the importance and value of research. Research not only has a scarcity of funding and in some areas fragility in the main infrastructure needed for the implementation of research, there is also the lack of recognition, i.e. the importance of research and its central vitality for establishing the knowledge society and the knowledge economy. We are aware that knowledge or information is among the most important financial assets and the most important commodity traded today. This is a commodity that can only be produced or obtained through research. Unfortunately, the community and institutional acknowledgment of its importance is still poor; and this is one of the most significant reasons for the scarcity of funding and its weakness. It is not a current priority; as its value is ultimately dictated by the society.

*Mona Jom'a Al Bahar, Member of the AKR Report Readers Group.*

The role of universities must be reconsidered, especially in UAE, in such a way that research and community service become top priorities

The UAE is in dire need of local research and development efforts in order to increase the knowledge absorptive capacity. However, this issue is apparently lacking in the countries of the Middle-East region in general. Although “Knowledge Cities” are prospering in the Gulf area in general and the UAE in particular, they are still infrastructure cities that have attracted foreign universities because of the facilities they offer. Most of these branches only carry the names of the mother universities, with no instructors or administrators from the mother university.<sup>34</sup> The other important aspect is the dependence of these branches on education and training, and their obvious negligence of research, and this also applies to western researchers working at these branches.

The establishment of systems of innovative research seems to undergo three stages: the first is the creation of a group of companies in one specific area, the second is the creation of a group of knowledge institutions around these companies, and the third is the facilitation of the social communication process and mechanisms between the companies, institutions and universities, allowing the

establishment of a mutual interactive learning process. The UAE has succeeded in achieving the first element. The Dubai Government, for instance, has been attracting foreign companies working in many fields by creating several free zones in which thousands of employees from around the world are working for hundreds of companies. As for the second and third elements, they need more attention. The system of creativity and innovation through research and development does not only require the existence of economic and commercial entities; it rather needs knowledge entities working around these institutions, and building networks and communication channels between them.

The role of universities must be reconsidered, especially in UAE, in such a way that research and community service become top priorities. Partnerships should be established between universities and economic and industrial entities, with the goal of serving creativity, innovation, as well as knowledge employment and production.

UAE has provided many financial requirements in a serious attempt at supporting creativity and research. However, planning and monitoring resources, even building facilities and providing requirements is not enough to establish the desired knowledge society. All such efforts will not be productive unless the two previous elements are in place and invested in to benefit the youth so that they can acquire the skills and capabilities required to keep up with the scientific age and enter into the knowledge society.<sup>35</sup>

#### The Economic Environment

The UAE national economy has witnessed major growth from 1990-2010. The GDP volume has increased, in current prices, from AED 125.3 billion in 1990,<sup>36</sup> to exceed, and for the first time, AED 1,093 billion in 2010.<sup>37</sup> According to the 2014 report of the National Bureau of Statistics, the country's GDP was estimated at AED 1,477 billion for the year 2013, achieving a growth rate of 8.1% from 2012. The same applies to

the total GDP, in fixed prices, which reflects a growth rate of 5.2%, from AED 1,033 billion in 2012, to an estimated AED 1,087 billion in 2013.<sup>38</sup> The federal government's budget was estimated at AED 44.6 billion for the year 2013, with estimated expenses of AED 133 billion, with no deficit. This budget is expected to cover the total needs of the federal government for its services and programmes directed at the country's inhabitants; citizens and residents.<sup>39</sup>

While the UAE economy is still largely dependent on oil revenues, it has made notable achievements in gradually transferring from a oil-based economy to a diversified economy where non-oil production and services sectors contribute more than two thirds of the domestic product. The sectors of tourism, services, industry, construction and real estate have gained a leading role in diversifying the country's GNI (Table 3.6). The country also achieved an unprecedented record of reduction in inflation to reach less than 0.66% in 2012,<sup>40</sup> from 0.88% in 2011 and 1.7% in 2010.<sup>41</sup>

The economy of the UAE is the second largest Arab economy, right after Saudi Arabia. However, the UAE has a high global ranking in the GDP per capita, reaching USD 58,100, and is third after Qatar and Saudi Arabia at the Arab level in this regards.<sup>42</sup> The UAE is considered among the high-income non-OECD member countries.

Over the past few decades, the Emirati economy has achieved positive growth rates

### Box 3.4

#### The UAE Vision 2021

As a result of the belief in the importance of knowledge and its central role in the human development of the UAE society, the UAE Vision 2021 was set to ensure the country was one of the best in the world by 2021, which coincides with the 50-year anniversary of the establishment of the state and the formation of the Union. The vision was launched in 2010 by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, under the slogan: "We want to be among the best countries in the world".

The UAE Vision 2021 is centred on the four important pillars of national identity, economy, education and health. It aims at building an ambitious, confident population that is attached to its identity and heritage, a strong Union bonded by a common destiny and a competitive economy led by Emiratis distinguished by innovation, knowledge and a high quality of life in a generous and sustainable environment. The UAE Vision 2021 also aims at developing a knowledge-based economy that enjoys diversity and flexibility, led by skilled and experienced Emiratis; on the basis of the achievements already attained, while looking forward to achieving more in the future.

The Government's strategy for 2011-2013 included a set of strategic foundations, which the Government is currently working on, as a prelude to the UAE Vision 2021 goals. The Government is prioritising these efforts through many executive initiatives that relate to the strategic plans aiming at establishing a "competitive knowledge economy".

Source: UAE Vision 2021. (Reference in Arabic)

While the UAE economy is still largely dependent on oil revenues, it has made notable achievements in gradually transferring from a oil-based economy to a diversified economy where non-oil production and services sectors contribute more than two thirds of the domestic product

thanks to its developed infrastructure, which is on a par with many developed countries, as well as its flexible economic legislations and investment-inducing environment.<sup>43</sup> UAE

Table 3.6

The Contribution of Oil and Non-Oil Sectors to the UAE GDP in Fixed Prices for the Years 2012 and 2013 (Billion AED)

Data	2012	2013
Gross Domestic Product	1367.3	1477.6
GDP of Non-Oil Sectors	828.2	903.5
GDP for Oil Sectors	539.2*	574.1
Contribution of Non-Oil Sectors in the GDP(%)	60.6%	61.1%
Contribution of Oil Sectors in the GDP(%)	39.4%*	38.9%

Source: UAE National Bureau of Statistics 2014b. (Reference in Arabic)

\* Report team calculations based on data from the UAE Ministry of Economy

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E-commerce is one of the features of the knowledge economy and one of the most important basic applications of information and communication technology

has worked towards developing the laws and legislations. This has provided a major push that contributes to fostering investors' trust, supporting the continuity of growth, developing non-oil sectors, and providing a competitive environment for the business sector and the UAE markets at both regional and global levels. UAE also achieved notable major progress in the fields of education, health, housing services, foreign trade, transportation and communications.<sup>44</sup>

Nevertheless, the funding of development programmes still mostly depends on the country's oil revenues.<sup>45</sup> Economic diversity for the UAE is suggested as the best solution to achieve sustainable development in a future that is less dependent on oil resources. This entails the stimulation of new strategic sectors in order to establish a higher potential and appeal for the industries and services that enable building long term competitive advantages,<sup>46</sup> hence the importance of the UAE's transfer into the knowledge economy.

### **E-Commerce**

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E-commerce is one of the features of the knowledge economy and one of the most important basic applications of information and communication technology. The fast development and increasingly widespread usage of information technologies have led to a change in the nature of commerce; from the traditional pattern to new more electronic forms. E-commerce has also become a tangible reality in light of the current components and the accelerating progress of the electronic transactions sector: referred to more generally as "E-commerce". The World Trade Organisation defines E-commerce as "the production, advertising, sale and distribution of products via telecommunication networks, especially the internet - the medium with which electronic commerce is primarily associated".<sup>47</sup>

The globalisation of E-commerce has led to the minimisation of the role of borders and barriers in entering the trade markets. This has turned the world into an open market before the consumer, regardless of

the geographic location of the vendor or purchaser. The internet is considered to be the fostering environment and the most widely used electronic means. The steady increase in the growth rates of E-commerce in recent years indicates its increased importance. The internet has enabled individuals, as well as small, medium and large business sectors to benefit from E-commerce technologies and operate them in various ways.

With regards to the frameworks of regulations and legalisation on E-commerce in UAE, a law regulating E-commerce in the State was promulgated in 2006 (Federal Law No. 1 on E-commerce and Transactions), which stipulated the authorisation of the Telecommunications Regulatory Authority (TRA) to license and monitor the activities of E-commerce service providers. Another license was issued for Etisalat, being the national company for providing telecommunication services, to provide Electronic Certification services by law.<sup>48</sup> To be noted here is the role of the Emirati government in supporting a higher penetration of E-commerce, through pushing TRA to create a stimulating environment. The establishment of an electronic payment gateway had a tangible effect on spreading E-commerce by allowing the agents to pay online the fees for governmental electronic services, round the clock and in a secure way.

In light of the encouragement of E-commerce in UAE, TRA signed a Memorandum of Understanding with "Dubai e-government" to become a partner in the "Trustae" initiative, and to grant the initiative seal to any company practising E-commerce. The initiative protects the rights of the dealers and promotes improvement in the quality of services since it guarantees to the dealer that the electronic dealings bearing this stamp will be governed by the corresponding code of conduct for E-commerce transactions in the state.<sup>49</sup>

One can say that the UAE's efforts in both economic and institutional areas, do not fiercely compete in the current global industry in the traditional sense. The state

### Box 3.5

#### UAE: The E-Commerce Hub

UAE is considered the hub for E-commerce in the region. It ranked first among the GCC countries, attracting approximately 60% of the total market volume in the GCC countries, estimated at around USD 3.3 billion at the end of 2011, due to the increase in the rate of internet use and the increase in the awareness in using credit cards, in addition to the higher levels of trust in internet shopping and online payment services. Around 42% of the population use E-commerce solutions. Data issued by the Centre for Studies on Electronic Economy (Madar) reveals a growth in E-commerce activities in the UAE at an annual rate of 15% compared to a growth rate not exceeding 10% in the Middle East and North Africa, according to usage statistics of “CashU”, a secure platform for online payment services.

*Source: Al-Ittihad 2013. (Reference in Arabic)*

economy depends on investment in non-industrial sectors such as higher education, funding, insurance, real estate, banking, tourism, aviation and others.

Despite the tangible progress in both the economic and institutional areas in these sectors, it might be best for the UAE to go beyond the phase of attracting capital and commissions, to enhance its capability in attracting knowledge and talent as well. In order to achieve such a leap into the future, UAE will have to master and improve the imported or copied knowledge which is made possible by the attractive economic and institutional environment. However, studies show that such a leap is no easy task. The successful transfer and localisation of knowledge is a long-term process, and usually entails learning, assimilation, apprehension and production of knowledge by individuals in the society.<sup>50</sup>

### The Social Environment

#### The Social Dimensions of Progress

UAE society has witnessed tremendous social changes. This is not merely due to modernisation and to opening up to the outside world, but also to other internal factors that include the transformation of the country into a welfare state after

discovering oil and the huge economic and cultural changes that followed. This led to the emergence of phenomena that were not present before. Some of these phenomena are positive and others negative in terms of relationships between the members of society, the relationships between fathers and sons, the effects on family solidarity, the interaction and understanding between generations, and how all of this reflects on the family's setting and role in transferring the social culture to its members through social upbringing.

There is no need to stress the centrality of the family's role in the development of the youths' skills and values. To be emphasised, however, is that the role of the family might be competing with other roles in social environments, smart technology and the means of communication and media. This is not particular to the UAE community, but is global. Young people are nowadays creating their own world relatively away from the control of their families, and many of them now live in a virtual world, away from reality. From here, specific attention must be dedicated to the youth and one must try to bridge the gaps that this new social environment might create for them. The Emirati family was characterised, and still is, by being extended and patriarchal, and by having a prevalence of the endogamy pattern. It is known that the presence of the extended family has positive effects on the upbringing of children and youth. It grants them many values and habits that the elder enjoy. New generations learn from their elders how to assume responsibility and to enjoy feelings of affection, love and sacrifice. It is obvious that the youth living in extended families under strong social and economic relationships do enjoy a psychological and spiritual balance, and a stability that enables them to truly benefit from their education and develop a social, scientific and technical sets of values.

The economic progress in UAE has led to positive developments, notably with respect to empowering women and their role in society. The developmental efforts have contributed to an increase in

Despite the tangible progress in both the economic and institutional areas in these sectors, it might be best for the UAE to go beyond the phase of attracting capital and commissions, to enhance its capability in attracting knowledge and talent as well

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The biggest obstacle to the participation of women in work and in development in general, the cultural and social dimension

women's participation in society. The most important factors that have enabled women and increased their participation include providing equal opportunities for education and granting increasing opportunities in work and economic activity. The UAE government also took steps that reduced the gap between males and females in the labour market by issuing laws and adopting international conventions that advocate the right of women to be treated equally with men. The constitution of the UAE confirms equality between all citizens<sup>51</sup> and Emirati Labour laws denounce all forms of gender-based discrimination. Women, according to the Constitution, are entitled to secured rights of education, health and social care, as well as the rights to exercise the same professions as men, the right of inheritance and ownership rights according to Islamic Shariah. However, the tangible progress in developing the capacities of Emirati women, especially in the field of education, has not largely contributed to changing the social positions and values related to them. The biggest obstacle to the participation of women in work and in development in general is, the cultural and social dimension. Despite advocating equality at many levels, cultural and community traditions still prevent achieving that in full.

### The Challenges of Language and Citizenship

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A society's culture, customs and traditions are passed on to subsequent generations through language, which showcases a society's identity. Preserving the native language of Arabic in the UAE means preserving the identity of society and culture. Given the nature of the Emirati society and the composition of its population, with a high rate of expatriates who outnumber citizens with a variety of nationalities and languages, the extent of influence of these languages and cultures on the language and culture of the society should be taken into consideration.

Accordingly, preserving the Arabic language is a political and social claim imposed by reality, so that no complete reliance on

languages other than the language of the society takes place. This should be achieved without overlooking the openness of the UAE to other countries economically and culturally, which gives individuals, particularly the youth, the opportunity to enjoy other languages that enable them to communicate with others and get acquainted with the cultures of the world, especially the English language which is considered the language of the knowledge society.

Emphasis should also be made on the importance of citizenship. The central element in the citizenship concept is the sense of belonging to the nation. Belonging is not achieved unless one enjoys protected rights and feels part of the society. In order for this feeling to consolidate, individuals ought to enjoy appropriate standards of living in their society, respect for their privacy as well as non-violation of their rights and freedoms. The concept of citizenship is present in the UAE society, where citizens enjoy all the rights that guarantee them a good living.

The Constitution of the UAE stipulates that equality, social justice, ensuring safety, security and equality of opportunity for all citizens shall be the pillars of society, and that co-operation and mutual mercy shall be a firm bond between them.<sup>52</sup> This is why belonging to the nation is highly evident and frequently manifested in rallying around their leaders and in their love for the nation and their desire to protect it, defend it and preserve its acquisitions and achievements. This feeling of loyalty and belonging is extremely important to the youth because it makes them active members of their society, with a sincere desire to give.

A study<sup>53</sup> argued that the concept of national identity was witnessing a certain crisis among the youth in UAE, as a result of the variables and challenges experienced at the social, cultural and economic levels. Such challenges include the multiple expatriate cultures, the media openness and the accelerated technological progress at the societal level. Decision-makers are focusing on the issue of national cultural

identity in UAE, through tailored plans and programmes that aim at preserving the national identity among the Emirati youth, hence the organisation of the Emirati Youth Forum, the Arab Youth Forum, Youth TV programme, Youth Heritage Forum, and Shura Council of Youth, among others. All these activities and programmes implemented by the youth centres play a great role in entrenching the local culture and the national identity in UAE.

Communal and civil work is of significant importance in the UAE, where the society maintains its supportive and cooperative nature in the service of its members. UAE promotes the establishment of civil and communal organisations and associations, out of a belief in the role they play in providing support and care in social, health, services and knowledge sectors, besides what is provided by official institutions. The civil society organisations in UAE are diverse. According to the statistics of the Ministry of Social Affairs, there has been 145 associations of public benefit, six institutions, and 17 funds in the end 2012.<sup>54</sup>

The nature of the programmes in these associations varies across human, cultural, educational, professional, folklore, theatre, women's and community affairs. There are also many professional associations in UAE that play various roles according to their areas of specialisation. Such associations include those of social workers, lawyers, teachers and doctors, as well as the Association for protection of Arabic language, environmental associations and others. However, it is obvious that most of these associations do not directly address issues related to youth empowerment or the knowledge issues.

Other examples of these institutions include the General Authority of Youth and Sports Welfare, which is the supreme body specialising in youth welfare, catering to their affairs and activities in UAE.<sup>55</sup> The Authority aims at implementing the Government's policy on youth welfare, socially, culturally and in sports, in accordance with the principles of Islam, moral values

### Box 3.6

#### The Community Development Authority: An Example on Social Work Institutions

The "Community Development Authority" is one of the examples on the social work institutions in UAE. It was established with the objective of transforming the Emirate of Dubai into a better place to live in, for the generations of today and tomorrow, through working on achieving sustainable social development. The Authority endeavours to achieve this purpose by focusing on social groups in need of financial support, and on improving the living conditions of people, empowering them socially and encouraging them to live independently. It also strives to enhance the national identity and encourages citizens to feel proud of being part of the Emirati society, while assuring that the Emiratis play an essential role in improving the society.

*Source: The Community Development Authority, Government of Dubai 2014. (Reference in Arabic)*

and national goals. The Authority generally focuses on fitness and sports. However, there are no specialised sports establishments for the sports federations. In addition, athletic establishments are not equally distributed throughout the country, and the sports culture is fragile among society members. The customs and traditions, as well as the lack of an adequate environment, also limit the participation of women in sports.

### The Political Environment

The United Arab Emirates (UAE) is a federal independent and sovereign state that was established in 1971. It comprises seven emirates: Abu Dhabi, Dubai, Sharjah, Ajman, Um Al Quwain, Ras Al Khaimah and Fujairah, with Abu Dhabi city as capital. The UAE adopts a federal system and the supreme council of the emirates is the Supreme Council of the Federation comprised of the rulers of the seven emirates and has an elected chairman serving a five-year term. The cabinet represents the executive authority while the Federal National Council represents the legislative authority. According to the Constitution, the authority of the Federal National Council is restricted to its legislative tasks including discussing constitutional amendments, approving, modifying or rejecting draft

Many associations do not directly address issues related to youth empowerment or the knowledge issues

laws, commenting on international treaties and agreements, and all conventions forwarded to it by the president, in addition to discussing state budget and submitting any comments thereon. The 40-member National Council serves as an authority of political supervision and control. 50% of the Council's members are elected every four years while the remaining members are appointed by the government. Women make up 20% of the members of the Council.<sup>56</sup> The local government of each emirate manages its own domestic affairs in coordination with the federal government.

The UNDP reports have adopted a definition of the knowledge society where knowledge goes hand in hand with freedom. Based on that, we must emphasise the fact that the UAE's Constitution and its system of governance have guaranteed freedom in the transfer of knowledge and educational attainment.

The Constitution of the state guarantees the personal freedom of citizens (Article 26) and freedom of opinion and expression in all its forms (Article 30). It further guarantees citizens the right to work in various fields and gives them the freedom to establish associations in accordance with the Law (Article 33). Foreigners as well enjoy the rights and freedoms stipulated in the applicable international instruments, treaties and conventions to which the UAE is a party (Article 40).<sup>57</sup>

Observers of political life in the UAE often note the existence of effective participation of the different segments of society. This includes the youth whom the state is keen to rehabilitate educationally, and to enhance their abilities so that they can take the lead in various national positions; in addition to women who are now active participants in various fields, and have become qualified to occupy positions in different state institutions. This confirms to what has been mentioned earlier in the Arab Knowledge Report 2010/2011, that the system in the UAE allows its citizens to exercise their roles in a society based on transparency and objectivity.<sup>58</sup> This stems from what is described in the report as the availability of enabling environments which the UAE has succeeded in establishing, since the laws, the prevailing regulations and the existing institutions provide the supporting institutional framework for all the sectors of society.<sup>59</sup>

## The Demographic Environment

The UAE witnessed an unusual population growth that resulted in a rise in the number of its residents from 557,887 in the first official census conducted in 1975 to 4,106,627 in the 2005 census, with an average annual growth rate of 12.5%, bringing the number of those who dwell in the UAE to 8.26 million in 2010. According to demographic estimates in mid-2010, the UAE population has reached 8.26 million

Table 3.7

Population Growth of Citizens and Non-Citizens in the Period 1975-2010

Population/Year	Citizens	%	Non-Citizens	%	Total
1975	201,544	36.12	356,343	63.87	557,887
1980	290,544	27.9	751,555	72.1	1,042,099
1985	396,114	28.71	983,189	71.28	1,379,303
1995	587,330	24.36	1,823,711	75.6	2,411,041
2005	825,945	20.1	3,280,932	79.89	4,106,427
2006	851,164	16.98	4,161,220	83.02	5,012,384
2007	877,741	14.12	5,341,265	85.88	6,219,006
2008	904,857	11.21	7,168,769	88.79	8,073,626
2009	933,381	11.38	7,266,615	88.62	8,199,996
2010	947,997	11.46	7,316,073	88.54	8,264,070

Source: UAE National Bureau of Statistics 2014a. (Reference in Arabic)

Table 3.8

**Age Distribution of the Emirati Citizen Population (Estimates of Mid 2010)**

Age Groups	Number of Males	Number of Females	Total Number
(15-19)	63,604	60,388	123,992
(20-24)	58,004	60,655	118,659
(25-29)	45,154	47,283	92,437
(30-34)	29,724	30,554	60,278
(35-39)	23,223	24,868	48,091
(40-44)	16,845	18,862	35,707
<b>Total Number of Residents Aged 0 to 80+</b>	<b>479,109</b>	<b>468,888</b>	<b>947,997</b>

Source: UAE National Bureau of Statistics 2012. (Reference in Arabic)

people, of whom around 948,000, i.e. 11.46% are citizens; divided between 50.5% males and 49.5% females. Non-citizens (i.e. expats), constitute 88.5% of the country's population, divided between 77.67% males and 22.3% females.<sup>60</sup>

The increase in the population was due to the employment of large numbers of foreign workers to contribute to the overall development process that accompanied the rise in oil revenues. The population of citizens is distributed in variant proportions across the emirates. The Emirate of Abu Dhabi ranks first in the number of citizens with 42.7%, followed by the emirate of Dubai which hosts 17.7%, and the Emirate of Sharjah is third with 16.2%. This means that 76.6% of the UAE population is concentrated in the three emirates, while the rest of the population are in the other four emirates.<sup>61</sup> Table 3.7 presents a comparison between the growth of citizen and non-citizen populations from 1975-2010.

This table reveals the imbalance in the growth of citizen and non-citizen populations. The local population has tripled in the past three

decades (1980-2010), whereas the number of non-citizens has grown nine-fold over the same period. The unbalanced upward trend in the number of residents in the country since 2005 is very clear, as the increase in the percentage of the citizen population between 2005 and 2010 has reached 14.7%, whereas the percentage of non-citizens has jumped to 123%. This reveals a problem in the population structure; the percentage of the citizen population was 11.46% in 2010 compared to the high non-citizen population of 88.54%.

However, one reason for optimism is that the percentage of the youth, aged 20 to 39 among citizen population is roughly one third, and that is a significantly high percentage (as shown in Table 3.8).<sup>62</sup> This is an asset that can be built upon in the transfer and localisation of knowledge and the establishment of the aspired-for knowledge society. The phase of the youth is one of very special nature in terms of its circumstances and psychological and social characteristics. It relates to those engaged in the labour market or who are in the final stages of education. For this reason,

The increase in the population was due to the employment of large numbers of foreign workers to contribute to the overall development process that accompanied the rise in oil revenues

Table: 3.9

**Distribution of UAE Population (2010)**

Nationality	Males	Females	Total
Citizens	479,109	468,888	947,997
Non-Citizens	5,682,711	1,633,362	7,316,073
<b>Total</b>	<b>6,161,820</b>	<b>2,102,250</b>	<b>8,264,070</b>

Source: UAE National Bureau of Statistics 2012. (Reference in Arabic)

Table: 3.10

## UAE Citizen Residents According to Age and Gender (2010)

Age Group (Years)	Number of Males	Number of Females	Total Number
0 – 17	223,178	211,420	434,598
18 – 35	162,968	167,621	330,589
36 – 79	89,806	87,010	176,816
80 +	3,157	2,837	6,994
<b>Total</b>	<b>479,109</b>	<b>468,888</b>	<b>947,997</b>

Source: Statistical Annex: Data.

The media plays a significant role in the formation of society in its different segments, especially the youth. Therefore, media institutions bear a responsibility that is equally important and influential as that of educational institutions, and might even sometimes be of greater influence

this age group of young producers enjoys a particular importance in the processes of building a knowledge society.

The demographic composition as a whole should not be considered an impediment to the establishment of a knowledge society. On the contrary, its positive aspects are to be dually regarded. The country should benefit from the presence of so much expertise among non-citizens and utilise this to assist in the transfer and localisation of knowledge for the Emirati youth. It is unjust to consider expats an obstacle to the transfer of knowledge because they have helped in developing the country's economy, which allowed it to achieve notable global recognition. The second positive aspect is that the small number of citizens represents an opportunity for officials in the country to provide the necessary attention and support for the youth so that they can become knowledge workers capable of directing the society towards the target of establishing the knowledge society and economy.

### Media Environment: Media and Mainstream Values among Youth

*“The media scene in the UAE has witnessed a number of important developments in terms of improving the infrastructure to keep pace with global developments in the field of ICT, in addition to instilling transparency and freedom of the press, updating legislations that regulate the media and establishing new free zones for the media. The UAE hosts many print and broadcast media outlets,<sup>63</sup> including eight daily newspapers published in Arabic, six newspapers published in English, and dozens of magazines and specialised journals, in addition to a number of television and radio stations.”<sup>64</sup>*

Modern media has developed mechanisms and an ability to create a special educational environment of its own. This has marked the end of the monopoly of formal educational institutions in the dissemination of culture and knowledge. Many societies have been witnessing a veiled and an open competition between the education and media systems. The media plays a significant role in the formation of society in its different segments, especially the youth. Therefore, media institutions bear a responsibility that is equally important and influential as that of educational institutions, and might even sometimes be of greater influence.

One study found that the dominance of imported ideas from Western media was the main reason behind the alienation experienced by the youth in the Arab region. While the youth ignore reading as a source of knowledge, they are dependent on the media as their main source of information and knowledge. The study also noted the prevalence of the technical aspect, represented by the internet and television, on the daily life of the youth as it takes up most of their time. This confirms the influence of the media on the youth as a major source of knowledge.

Clearly, educators are faced with a challenge in the UAE regarding the media environment. This challenge is represented by the means to deal with advanced and rapid media production, and how to benefit from these enormous media outlets in instilling good values. This would develop an ability within the youth that would help them judge whether a programme was valuable or not so that they could choose

### Box 3.7

#### Models of Leading Media Organisations in the UAE

The Emirati National Media Council was established in 2006 as an independent federal body. Its role encompasses overseeing the media policy in the state, supervising and regulating media outlets, and following up on print and broadcast media content inside the country and what comes from abroad, in addition to supporting and developing the media capacities of citizens and representing the country in media events at home and abroad.<sup>65</sup> The media law was instated to promote freedom of the press in the UAE, and support political and economic empowerment to the better service of development and national identity, and to keep pace with the various professional and technical developments that have been taking place in the media sector.<sup>66</sup>

The UAE enjoys a large media presence which has made it one of the most wired states in terms of the percentage of media outlets compared to the population size. The media sector in the country has witnessed remarkable growth during the past two decades in terms of the number of institutions, media information and technological development.<sup>67</sup>

There are four active free media zones in the country: Fujairah Creative City, Ras Al Khaimah Media Free Zone, twofour54 Abu Dhabi, and Tecom Investments, which includes Dubai Media City and Dubai Studio City and other businesses.<sup>68</sup>

It should be noted here that Dubai Media City is one of the most famous media cities in the region. It was launched in January 2001 in line with Dubai's vision to become a hub for communication and media in the region. Since its inauguration, the city offers its services to the media community in sectors such as publishing, printing, music, new media, entertainment, broadcasting, film, information and media agencies and marketing services.

Dubai Media City offers an opportunity to interact with some of the leading marketing companies and media giants such as Bertelsmann World, CNBC, CNN, Forbes, MBC, Reuters, Showtime and Sony. Additionally, the business centres in the city have contributed to the process of encouraging talents and entrepreneurship in the region, as these centres offer the opportunity to gain experience and build relationships with media producers.<sup>69</sup>

Source: National Media Council, UAE 2010 and 2014. (References in Arabic). Abdullah Al-Jbali 2013. (Reference in Arabic). Dubai Media City 2014.

what benefits their abilities. In parallel, it is necessary to think about the alternatives to audio, visual and internet media production, those which provide virtuous content that is exciting and impacts upon the youth. Such alternatives will attract the youth and help them abandon any invalid programmes offered by the media market.

*“Investing in the media to instil values and search for alternatives directed towards the youth in the framework of a strategic plan that integrates the efforts of the family, schools and other institutions, is the strongest guarantee of protection for future generations from the negative influence of poor channels without ignoring the impact of their surrounding environments.”<sup>70</sup>*

#### Cultural Environment

Emirati citizens enjoy the multiplicity and diversity of cultural channels that provide them with a distinct and attractive environment of cultural and cognitive diversity, with several cultural institutions and events. These have built a bridge for

citizens to communicate with other cultures and thus benefit from their knowledge. Perhaps the most important of those cultural channels is what is being offered by the cultural initiatives and projects that the UAE implements to support the country's strategic shift towards becoming a regional centre for culture, arts and heritage and a bridge to communicate with civilisations from around the world.

### Box 3.8

#### Dubai Museum of Contemporary Art (DMOCA): A Valuable Cultural Landmark

The DMOCA and the Dubai Opera House project are among the many cultural and tourist projects launched in the city of Dubai to promote and strengthen the status of the UAE as a regional hub for world-class cultural activity. These projects include: Khor Dubai Cultural Centre, international museums in Dubai - where artistic, cultural and heritage treasures from around the world are showcased - the Museum of Middle East Modern Art (MOMEMA), and the Dubai Culture Village.

Source: Emarat Al-Yawm 2012b. (Reference in Arabic).

Emirati citizens enjoy the multiplicity and diversity of cultural channels that provide them with a distinct and attractive environment of cultural and cognitive diversity, with several cultural institutions and events

### Box 3.9

#### The Strategy of the Ministry of Culture

The strategy of the Ministry of Culture in the UAE is focused on preparing educated youth, aware of the issues of their homeland and nation - and even the world - by raising the level of cultural and community awareness; improving practices and innovations; enriching cultural interaction; developing and boosting young people's capabilities in knowledge and skills; and enhancing their productivity and competitiveness. Moreover, Emirati cultural weeks are being organised in various capitals across the world to introduce the culture and history of the UAE and boost human in communication with the cultures of the world.

Locally, there are many cultural organisations that contribute to the efforts of making young people more knowledgeable about their own culture and other cultures. These bodies include the ADACH, which seeks to promote culture and national identity as a source of pride for all. ADACH focuses on the preservation and protection of the cultural and material heritage at archaeological and cultural sites and at historic buildings, while it also organises art festivals and exhibitions for hundreds of Emirati and non-Emirati artists from around the world. The UAE also organises several book fairs, including the Abu Dhabi International Book Fair and the Sharjah International Book Fair.

*Source: National Media Council UAE 2010. (Reference in Arabic)*

The country has worked to build cultural and artistic partnerships with many countries and institutions in order to attract the most famous cultural, archaeological and heritage regions to the UAE. The Cultural District of Saadiyat Island is among the most notable of these projects, where the island is becoming a global cultural destination hosting Sheikh Zayed National Museum, the Louvre, the Guggenheim Museum, and the cultural minaret of Saadiyat *Manarat Al Saadiyat*.<sup>71</sup>

The cultural and literary scene in the UAE presents a multitude of regular events, activities, exhibitions and cultural, scientific and technical seminars through the different governmental and communal institutions concerned with culture and science. These institutions include the Ministry of Culture, Youth, and Community Development; the Emirates Centre for Strategic Studies and Research in Abu Dhabi; Abu Dhabi

Authority for Culture and Heritage (ADACH); the National Centre for Documentation and Research in Abu Dhabi; the Culture and Sciences Symposium in Dubai; the Department of Culture and Information in Sharjah; the Department of Culture and Information in Fujairah; Dubai Culture; Juma Al Majid Centre for Culture and Heritage; Sultan Bin Ali Al Owais Cultural Foundation; Ousha Bint Hussein Cultural Centre; Fujairah Culture and Media Authority; among others, in addition to the UAE Writers' Union and the UAE Women Writers Association.

The informational and cultural environment available to young Emiratis is considered among the most important factors that will support the processes of knowledge transfer and localisation. Once properly exploited by young people in the UAE, these factors are not solely local cultural institutions, but also direct sources of knowledge, arts and literature from all over the world, connecting the youth with the cultural and scientific riches of the world.

### Technological Environment

#### Supporting the Legislative and Regulatory Structure in Technology

The telecommunications market in the UAE achieved a stimulating 20% average growth rate per annum, from USD 8.2 billion in 2005 to USD 13.6 billion in 2011. This was largely due to the new legal framework, which allowed for the Telecommunications Regulatory Authority (TRA) to issue several regulations to support the development of the information technology and telecommunications sector.<sup>72</sup> The liberation of the telecommunications sector in the UAE began with the issuance of the Federal Law N° 3 of 2003, *The Communications Act*, establishing a regulatory authority for the telecommunications sector in the UAE.<sup>73</sup>

*“The UAE correspondingly sought to promulgate and develop the legislations related to the support of the legal and regulatory environment in various technology and telecommunications areas. Three federal laws to protect the intellectual property*

The cultural and literary scene in the UAE presents a multitude of regular events, activities, exhibitions and cultural, scientific and technical seminars through the different governmental and communal institutions concerned with culture and science

*rights were issued in accordance with the provisions of Trade-Related Aspects of Intellectual Property Rights (TRIPS). The UAE joined the membership of treaties, conventions and charters on intellectual property, and the Dubai Government also approved a number of laws regarding the establishment of the Free Zone Authority for Technology and Media and the organisation of electronic transactions in all economic and social activities in the emirate?'.<sup>74</sup>*

### **Developing Human and Institutional Capacities in the Field of Information Technology**

The UAE has worked on strengthening the processes of transforming into the knowledge society and the knowledge economy through the development of policies and programmes aimed at increasing the impact of information technology in education reform and economic and social development, while attempting to modernise education and link it to rapid and successive variables in information and educational technology. An example of this is the expansion in the provision of laptops and internet connected smart boards at schools, and the expansion of e-learning and smart learning programmes through smart technology such as the iPad. Capacity building in the field of technology

can be discussed here through the two following dimensions:

The first dimension is manifested in establishing ICT institutions and the country's expansion in higher education institutions to enable the better penetration of e-learning, which was introduced in a number of universities, institutions and research and technology institutes, to motivate the youth towards activities of scientific research and innovation. The most important among these institutions are Hamdan Bin Mohammed Smart University; Masdar City; Masdar Institute of Science and Technology, which is considered a higher education university directed at research that focuses on alternative energy and the environment;<sup>75 76</sup> Mohammed bin Rashid Technology Park; Dubai Biotechnology and Research Park; Dubai Silicon Oasis Authority; Dubai Silicon Oasis City, Centre and Masterplan, to host the different expertise of workers in the technological field; the International Media Production Zone in Dubai, where Dubai Internet City (DIC), Dubai Media City and Dubai Knowledge Village are located; Arab Science and Technology Foundation in Sharjah; Science Information Technology Centre, Ras Al Khaimah; the Centre of

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The informational and cultural environment available to young Emiratis is considered among the most important factors that will support the processes of knowledge transfer and localisation

#### **Box 3.10**

##### **ICT Fund**

Besides setting the legal framework for the advancement of the information and communication technology (ICT), the UAE also launched financing programmes to stimulate the growth of the telecommunications industry. The ICT Fund is the first of its kind in the Middle East, and is designed to support innovative research and development projects, and to provide education and training opportunities in the ICT field. In terms of research and development, the fund supports the initiation and promotion of business incubators, as well as support the establishment of high-quality research and development institutions. The fund provides scholarships for citizens who wish to specialise in the ICT sector, and also provides the necessary support for the establishment of institutions that organise courses and trainings in the ICT field.<sup>78</sup>

Within the broad objective of preparing and qualifying national cadres to localise the ICT sector,

the ICT fund is expected to finance the studies of 680 students abroad, in coordination with the relevant authorities, during the next five years. The programme, called "Be'tha" [*lit. Mission*], aims to training specialised cadres to become the real nucleus for knowledge localisation processes in the ICT sector in the country. The Fund has allocated an estimated budget of AED 198 million for the study-abroad scholarship programmes that will support up to a thousand citizen students. Thirty per cent of the programme has been completed so far. The Fund requires the student to obtain a score of more than 85% in high school and pass the examinations related to the programme. Around 100 students are already on scholarship grants currently in the United States and Britain under the programme's scheme, in cooperation and coordination with the Scholarships Office of the Ministry of Presidential Affairs. The fund targets to provide scholarships for 120 students annually in the coming years.

*Source: Youssef A-Arabi 2012b.*

Table 3.11

## ICT Development Index (IDI) in the UAE and Selected GCC Countries (2012)

Country	Rank on the Regional Level	Rank on the Global Level	Index
Qatar	1	31	6.54
UAE	2	33	6.41
Bahrain	3	39	6.3
Saudi Arabia	4	50	5.60
Oman	6	54	5.36

Source: International Telecommunication Union 2012. (Reference in Arabic)

The UAE has worked on strengthening the processes of transforming into the knowledge society and the knowledge economy through the development of policies and programmes aimed at increasing the impact of information technology in education reform and economic and social development, while attempting to modernise education and link it to rapid and successive variables in information and educational technology

Excellence for Applied Research and Training (CERT); and the institutes and centres that focus on environmental research and water biotechnology treatment.<sup>77</sup> These institutions, among many others, provide many programmes that aim at the development of the human capacity of nationals and expatriates in the field of information and communication technology and the wider technological field.

The second dimension in capacity building is manifested in the development of ICT and associated infrastructure. The information and communication infrastructure is considered a key pillar of the knowledge economy and the gateway of the population's access to ICT. It also promotes the use of ICT in order to maximise the potential flow of information and knowledge. The UAE has upgraded the technological competence of its telephone network and other telephone services supporting the internet. As a result, it has reached a leading position among the world countries and ranked 33<sup>rd</sup> globally in the Communication Technology Development Index in 2013.<sup>79</sup> It now provides one of the most modern infrastructures in terms of the capacity and diversity of the services offered – all at affordable rates. The prevalence rate reached 22.32 lines per 100 inhabitants in 2013, with a total number of around 2 million subscribers to fixed lines as by the end of 2013. The number of subscribers to mobile phone lines totalled around 16 million subscribers, with a penetration rate of roughly 172 lines per 100 inhabitants for that year.<sup>80</sup>

As for the penetration of broadband internet services, according to the statistics of September 2013 the number of subscribers has exceeded one million, at a rate of 11.11 subscribers per 100 inhabitants. Those indicators are considered the highest among the GCC and Arab countries.<sup>81</sup> The UAE also ranks first among the Arab countries in terms of the quality of its infrastructure and connectivity (see Table 3.11).

The International Telecommunication Union (ITU) Guide, “Measuring the Information Society 2013”, shows 11 indicators related to accessing ICT, the associated benefits and the relevant skills needed. The index includes 157 countries and compares them on the global and regional levels, classifying them into four groups based on the ICT level: Very high, high, medium and low.<sup>82</sup>

*“The UAE ranked second in the MENA region and 36<sup>th</sup> globally in the “Special Preparations and Equipment for the ICT” Index. It also ranked 3<sup>rd</sup> in the MENA region and 30<sup>th</sup> globally in the “Use of Information Technology” Index. Moreover, it ranked 3<sup>rd</sup> in the MENA region and 33<sup>rd</sup> globally in the “Economic and Social Impact of Information Technology” Index.”<sup>83</sup>*

*“The UAE ranked on the top of the list of world countries in regard to the number of houses connected to the fibre optics services, ranking second in terms of highest penetration. This international achievement comes as the fruit of the great investment by the Emirates Telecommunications Corporation “Etisalat” in the fibre optic network. Investments in this*

network had exceeded AED 15 billion by the end of 2012. Etisalat is working to raise the coverage rate of fibre optic networks to the highest rates towards complete coverage so that the UAE becomes the first country in the world to provide such a record rate of penetration in high-speed telecommunications technology”.<sup>84</sup>

The Networked Readiness Index (NRI) measures the ability of a certain economy to benefit from ICT to increase competitiveness and development. The NRI study, published in the 2014 Global Information Technology Report, is based on the data collected by organisations such as the International Telecommunication Union, the World Bank and the United Nations. In this context, the UAE ranked second in the MENA region and 24<sup>th</sup> globally in “Networked Readiness” General Index, as shown in the report of the World Economic Forum of 2014. It also ranked second in the MENA region and 18<sup>th</sup> globally in the “Overall Environment for Information Technology” indicator. Moreover, the UAE ranked among the top Arab countries in several indicators, including the rates of internet users; the importance of ICT in the government’s vision for the future; and e-government readiness. At the global level, the UAE also featured in advanced positions coming second place in the government’s success in promoting ICT, the government procurement of advanced technology products and e-government readiness.<sup>85</sup>

## E-Government

According to the e-government report for the year 2014 issued by the United Nations, the UAE has assumed a leading position among 193 developed and developing countries participating in the report. The UAE ranked second among Arab countries and 32<sup>nd</sup> globally, according to the “E-Government Development” Index. Although as such, the UAE retreated 4 ranks from its 2012 standing (28<sup>th</sup> globally), it maintained its significant progress compared to its 2010 ranking when it ranked 49<sup>th</sup> globally.<sup>86</sup> The E-Services Index measures the development of electronic services in terms of abundance, quality

### Box 3.11

#### E-Government in the UAE

The UAE is considered among the first Arab countries to implement the e-government concept. The Emirati e-government supervises the UAE e-Government Portal, which provides all of the services and federal and local government information in the country. It also works to increase the readiness levels for e-transformation of the services provided by the federal government, so as to ensure the provision of modern and efficient government services that can be obtained around the clock. The portal also provides several files and documents with open content within the concept of “open data.”

*Source: UAE Telecommunications Regulatory Authority 2014a. (Reference in Arabic).*

According to the e-government report for the year 2014 issued by the United Nations, the UAE has assumed a leading position among 193 developed and developing countries participating in the report

### Box 3.12

#### Development Initiatives for the ICT Sector

##### “My Government” Initiative (Interaction with Citizens)

This initiative aims to promote the e-services that guarantee improving the operating efficiency of the federal government services. It is considered one of the main pillars of the UAE Government strategy for the period 2011/2013. The “My Government” initiative was launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President, Prime Minister and Ruler of Dubai. It is an integrated electronic gateway directly linking citizens to the five federal entities participating in the service. These entities are the Ministry of Labour, the Dubai Electricity and Water Authority [DEWA], the Sheikh Zayed Housing Programme, the National Transport Authority and the Ministry of Interior.

*Source: International Telecommunication Union 2014. (Reference in Arabic).*

##### Arabic Domain Initiative “.emirates”

Based on its belief in the importance of the use of the Arabic language in electronic addresses, the TRA has launched the Arabic domain name “.emirates” in Arabic to maximise the benefit for Arabic speakers from the internet and its multi-channels. The Arabic domain .emirates is an achievement for the country in the

communication technology sector at the regional level; it introduced the Arabic language for internet domains, and became one of the few countries in the world to get the ICANN approval.

*Source: UAE Telecommunications Regulatory Authority 2014. (Reference in Arabic).*

##### International Partnership

The country has supported the establishment of key partnerships and economic ties with many of the world’s most prestigious companies, which have cutting-edge technology potential, in order to bring these capabilities and direct them towards research and development. This has created an environment that drives economic diversification in various economic activities, by making use of what those companies enjoy of potential knowledge to promote the transfer and localisation of knowledge. The country has called on the leaders of both the public and private sectors to work together on forming partnerships to support research and innovation across all sectors. This includes the information technology sector, through the Abu Dhabi Government’s establishment of the Mubadala Development Company, General Electric (GE),<sup>90</sup> the EBX Group, Boeing company and Airbus.<sup>91</sup>

*Sources: Mubadala 2014c. Mubadala 2014a. (Reference in Arabic).*

and variety of channels and the use of these services by the public. The UAE's ranking among the top best 20 countries in "providing electronic services", maintaining the progress it has attained since ranking 99<sup>th</sup> in the "E-Government Services" Index of 2010, where it ranked 12<sup>th</sup> for the same index in 2012. This progress is considered one of the rare and unprecedented cases in the history of the United Nations reports on e-government readiness.<sup>87</sup>

The e-government participation indicator measures the extent of internet use by the government in the areas of transparency, communication with the public and involvement of the public in formulating policies and developing services. According to the results of the UN E-government Survey Report 2014, the UAE consolidated its advanced position, assuming the 3<sup>rd</sup> place according to that indicator.<sup>88</sup> The report named UAE specifically as one of the pioneering countries in setting phone participation as a priority for providing round-the-clock services to its citizens since June 2013.<sup>89</sup>

While discussing the economic, political, cultural and technological situation in UAE, it seems clear that the horizon for the transfer and localisation of knowledge,

leading to the establishment of a knowledge society and knowledge economy, has strong potential in terms of the availability of requirements. There is no economic, political, cultural or technical obstacle that prevents focusing attention on this subject. On the contrary, it can be said that the UAE has a historical opportunity, reinforced by the pillars previously mentioned, to move forward with this project. This falls within the framework of the political climate supporting the freedoms, the strong technological environment and, depending on its culture and its stable economy, to finance the costs of this project.

### Youth Empowerment Initiatives

Youth empowerment is an efficient means of securing the availability of the knowledge capital needed by the country for the transfer and localisation of knowledge. Thus, there is an interactive relationship between youth empowerment and knowledge localisation; and the higher the level of youth empowerment, the more knowledge localisation operations are facilitated. Based on this, the UAE has given great importance to the empowerment of the youth and equipping them with science and knowledge. It has put these goals at the top of its priorities and concerns, based

While discussing the economic, political, cultural and technological situation in UAE, it seems clear that the horizon for the transfer and localisation of knowledge, leading to the establishment of a knowledge society and knowledge economy, has strong potential in terms of the availability of requirements

#### Box 3.13

##### Leading Institutions in Youth Empowerment

###### The Khalifa Fund and The Mohammed bin Rashid Al Maktoum Foundation<sup>92</sup>

"The Khalifa Fund for Emiratisation Empowerment," which aims to provide the necessary financial resources to support programmes and policies that encourage Emiratis to join the labour market.<sup>93</sup>

1. Emirates Foundation for Youth Development, the vision of which is represented in working to inspire, guide and empower young people in the UAE to contribute to building a sustainable future for the country. One of its main work areas is considered to be in the field of leadership and empowerment, through launching national talents and the provision of a new range of learning and skills development opportunities.<sup>94</sup>
2. Mohammed bin Rashid Al Maktoum Foundation: it is a quality initiative launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President, Prime Minister

and Ruler of Dubai. Through this initiative, His Highness allocated USD 10 billion to establish a solid knowledge base in the Arab region. The foundation aims to nurture and develop a generation of future leaders to be the human capital representing the main engine of development, especially in light of the low level of intellectual and scientific activity in Arabic, both produced and translated, which is considered one of the lowest levels in the world. The foundation serves the community of youths, intellectuals, cultivated people and writers. Its mission is "to provide opportunities for the Arab youth and prepare them to lead their region towards the knowledge-based economy by encouraging entrepreneurship, research and innovation; promoting access to quality education and quality professional development; and supporting the production, acquisition and dissemination of knowledge sources in the Arabic language."<sup>95</sup>

## Sectors and Institutions of Knowledge Transfer and Localisation in the UAE

The UAE seeks to achieve the transfer and localisation of knowledge in different sectors in the country, i.e. the modern scientific sectors, especially those with high added-value of knowledge. The following is a discussion of the most important of these sectors and institutions that sponsor the transfer and localisation of knowledge.

### 1. Mubadala Company and the Aviation Sector

Local parties that are subsidiaries of the “Mubadala Development” Company, and entirely owned by the government of Abu Dhabi, have cooperated with global parties to manufacture the first airliner in the UAE within a period of 10 years, i.e. by 2022. This aircraft will operate on the future technology of this industry. The company is currently manufacturing parts of this aircraft, maintaining and repairing them, in addition to training pilots. It also currently supports and develops the local skills and competencies working in the aviation industry. Work is currently underway in the first stage to establish Al Ain Aerospace Park.<sup>96</sup>

### 2. Sector of Nuclear Energy for Peaceful Purposes

Due to increasing demand for energy in the UAE, the country has developed a programme to provide safe, economical, efficient and environment-friendly nuclear energy by 2017. This is to be achieved through building nuclear power plants based on the highest international standards for safety, performance and environmental impact. Four units of the nuclear power plant are currently being built in partnership with South Korea, and the first is expected to be linked to the electricity grid in May 2017. The other three units will be run one after the other until 2020.<sup>97</sup>

### 3. Masdar Company

Masdar Company was founded in 2006 as a fully-owned subsidiary of “Mubadala Development Company” owned by the government of Abu Dhabi. The company operates in the context of the overall vision of Abu Dhabi. This vision is aimed at development in all areas of renewable energy and sustainable technologies to ensure energy security, the diversification of the economy and the transition to the knowledge economy,<sup>98</sup> in addition to determining a course of action to address challenges in this area. The vision of Masdar Company is to stabilise Abu Dhabi’s position as a leading centre of knowledge in renewable energy, its development and its application, and a global model for sustainable development.

#### First: Masdar Institute

It is an independent university for postgraduate studies concerned with research,<sup>99</sup> developed in collaboration with the Massachusetts Institute of Technology. The Institute focuses on the science and engineering of advanced alternative energy, environmental technologies and sustainability. It is considered the core of the local research and development complex in Masdar City.

#### Second: Masdar Capital

“Masdar Capital”<sup>100</sup> seeks to build a portfolio of major renewable energy companies promising clean technology, and targets investments that have the components of success on global and local levels. It particularly focuses on the sectors of:

Clean energy: including the technologies of power generation and storage, transport technologies, technical innovation/clean energy and sustainable bio fuels.

Environmental sources: including technologies of water and waste management and of sustainable industry.

Efficiency of energy and materials: The development of the efficiency of modern materials, the efficiency of energy networks and supporting technologies.

Environmental services: Environmental protection and business services.

#### Third: Masdar Clean Energy

The unit “Masdar Clean Energy”<sup>101</sup> works on the development and operation of power generation projects from renewable sources, through building a portfolio of strategic projects at the service level. Masdar Clean Energy directly invests in individual projects within the areas of renewable energy, with a focus on concentrated solar power, solar PV and wind energy.

#### Fourth: Masdar’s Carbon Management Unit

“Masdar’s Carbon Management Unit”<sup>102</sup> works on the management and operation of the projects that reduce carbon emissions by promoting energy efficiency and waste heat recovery, as well as carbon capture and storage. The unit provides an exceptional value to the owners of industrial assets through the purchase of carbon emissions under the UN’s “clean development mechanism” and other feasible business plans linked to global climate, and also through the provision of integrated solutions to achieve these goals, i.e. by funding the carbon credits, identifying and managing projects and analysing the projects of technology sources and registering them with the UN.

#### Fifth: Masdar City

Masdar City is considered one of the world’s most sustainable cities. It is a rising global complex for clean technologies and will allow companies headquartered there to be close to the centre of the development of renewable energy and clean technologies. Masdar City is located 17 kilometres away from Abu Dhabi’s city centre, and encourages transport by walking or biking. It also constitutes a platform to showcase the renewable energy of the future and the clean technologies, to conduct research on them, and to develop, test, apply and market them. The city will provide a platform for all the stages of development of renewable energy and sustainable technologies in an integrated complex for housing and work.<sup>103</sup>

on its belief that young people are the foundation of society and its vital cord, being the efficient and driving force behind any potential development and evolution of the country. The more these young people are qualified and possess the scientific skills associated with the knowledge economy,

the more they will be able to attain the objectives of the country. This is embodied in the UAE’s various initiatives and orientations that target the good formation and preparation of the youth to actively participate in the development of society and its evolution.

## Conclusion

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The enabling environments in the UAE, present a great opportunity and play a substantive role in the transfer and localisation of knowledge in the UAE. These environments and their fellow institutions are considered incubators for the members of society, especially young people, and thus contribute to building the knowledge society. Yet, many of these institutions need a comprehensive vision directed towards the establishment of the knowledge society in order to enable young people to access it. And in order to do so, they must focus on their orientation and steps so that their basic tasks revolve around the access of knowledge and its localisation; the generation, dissemination and employment of new knowledge; and an increased contribution to strengthening the capacities of young citizens to transfer this knowledge and localise it.

Increasing coordination between these initiatives and institutions is a must, as to ensure its harmonious operation as a single and comprehensive system that connects them, or more precisely on setting a goal that unifies all of their efforts. In many cases, each institution or enabling environment operates separately, which leads to some inconsistencies and redundancies between the goals of some of these institutions and their activities. Therefore, one party sponsoring the knowledge project should be assigned to take charge of coordination between all of these institutions in the country. This party

shall develop, set strategies and distribute tasks to different enabling environments that will achieve the goals, each according to its mechanisms, specialities and nature.

Following the establishment of knowledge as a central point in these institutions' various objectives and strategies, and the designation of a specific party to foster the coordination and harmony among them, the responsibility would rest on the shoulders of young people to participate and efficiently benefit from them. Several key questions emerge in this regards: How can the UAE adopt serious policies and strategies that promote knowledge localisation systems through young people? How can the country turn the wealth of youth into an opportunity to achieve knowledge-based human development? How can the policy of qualifying the youth and integrating them in the process of the transfer and localisation of knowledge be successful and bring about the desired social and cultural change and economic growth in which these young people become a productive force of knowledge within the framework of these enabling environments? These and other questions will be addressed in the final chapter of the UAE case study.

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The enabling environments in the UAE, present a great opportunity and play a substantive role in the transfer and localisation of knowledge in the UAE

## Endnotes

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- 2 Report team calculations based on data from the Emirati National Bureau of Statistics 2014a. (Reference in Arabic)
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- 4 Report team calculations based on data from the UAE National Bureau of Statistics, 2014a. (Reference in Arabic) Kindly refer to the Annex for statistics on the number of national and expatriate students by specialisation and statistics on graduates for the years 2010/2011 and 2011/2012.
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## Introduction

In order to draw a more accurate understanding of the cognitive skills of the Emirati youth, extensive field studies were carried out by the Arab Knowledge Report team in 2013. The studies sought to examine the status of enabling environments, both at university and in general. It also examined the values held by the youth as well as other key elements of the active participation required in the processes of transfer and localisation of knowledge (see Chapter 2). In this context, this chapter will present first the results of the field surveys conducted on a selected sample of young Emiratis at the final stage of undergraduate study. It will then present the results of focus group sessions conducted on a selected sample of young Emiratis who have entered the labour market. Finally, the results of a brainstorming session that was held with experts and representatives of relevant stakeholders, including the government, academic and civic sectors will be presented. These combined results draw a more complete picture of the status of young Emiratis and their skills, as well as their ways of thinking and orientations. The results of the field study also offer an overview of the opinions of Emiratis on the topic, which shall help Emirati decision-makers and planners in finding the most appropriate approaches and the positive interactions to achieve a successful youth integration in the transfer and localisation of knowledge.

## Study and Field Surveys

Previous Arab knowledge reports had defined the concept of the knowledge society, the current stage of human society, as one characterised by knowledge-intensive production, diffusion, and employment. It is a society where individuals are distinguished by their special cognitive, behavioural and value characteristics that interact in social, political and cultural environments to nurture and promote them and support creativity and innovation among individuals.<sup>1</sup>

In this context and in line with the adopted conceptual models, the field study aimed

at exploring the most important aspects directly related to the stimulation and increased integration of the Emirati youth in the transfer and localisation of knowledge and in benefitting from the outcomes. These benefits can be attained by making use of knowledge for development purposes in the interests of the Emirati youth and the social and economic development in the UAE in general.

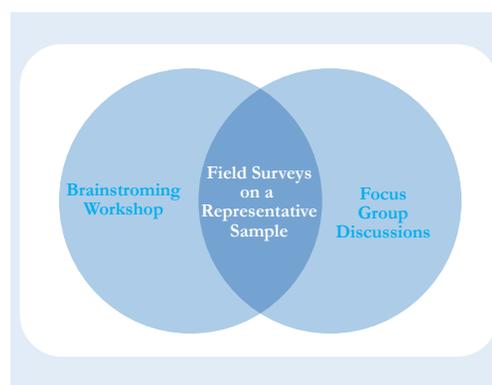
Getting to know the views, perceptions and expectations of the youth on this topic is essential to shed light on their beliefs the transfer and localisation of knowledge. Making the target group realise the importance of this subject is essentially the beginning and a foundation for active integration in these processes. Young people cannot be expected to interact with any process without believing in its importance, whether on a personal, or at a national, public level.

The field study attempted to explore the familiarity of students with the concepts of knowledge, its transfer and localisation. The survey also captured the opinions and perceptions of the Emirati youth regarding the most important incentives in the transfer and localisation of knowledge and associated challenges in the United Arab Emirates. Based on the conceptual model of this report that highlights the importance of providing the youth with the necessary skills to actively participate in the transfer and localisation of knowledge, the field survey also included specialised exercises and questions to assess the

The field study attempted to explore the familiarity of students with the concepts of knowledge, its transfer and localisation

Figure 4.1

### Field Studies



cognitive skills of the Emirati youth. These included problem-solving skills, information processing skills, skills of using technology, and written communication skills in both Arabic and a foreign language (English). Yet, possessing the necessary skills will not fulfill its role unless coupled with, and used in the context of, suitable societal values that are embodied clearly in societal practices. Thus, the field survey also aimed at exploring relevant values and beliefs among the Emirati youth, including views and practices related to citizenship, belonging and openness to the world, communication and social justice, as well as cultural, social and economic effectiveness. Together with skills, these constitute the required catalysts for the effective integration of the youth in the processes of the transfer and localisation of knowledge.

The field survey also aimed at exploring relevant values and beliefs among the Emirati youth, including views and practices related to citizenship, belonging and openness to the world, communication and social justice, as well as cultural, social and economic effectiveness

To obtain this data, the study used a tool that was designed by a specialised team and consisted of two parts: the first was a set of various cognitive exercises which respondents had to complete in the suggested order, and in such a manner as to enable respondents to answer them all on a particular time. The second part presented participants with a set of questions on their views on a number of topics, notably in relation to enabling environments as well as matters relating to the higher education system and to the availability of the needed components for the transfer and localisation of knowledge in their community. Next to each exercise/question, there was an explanation on how to complete/answer it, since there were various types of exercises and questions in English and Arabic. They included multiple-choice, open-ended questions, classification and ranking, problem-solving, deductive questions and assessment of students' perspectives and visions. To ensure neutrality and complete freedom in order to obtain the most accurate and sincere answers, the ethical principles of the study were established. The team confirmed to the participants both verbally and in writing that their participation was voluntary and that it would not affect their scores or results in official exams, that

their identity would remain anonymous, and that their data would be treated with confidentiality and would only be used for the purposes of scientific research.

### Description of the Representative Sample

The representative sample consisted of young Emiratis in their senior year from all public universities in the UAE. Given that knowledge is not limited to applied sciences but also comprises humanities – social, economic and administrative – the sample included male and female students from four specialisations: engineering sciences (all engineering branches, IT), medical sciences (medicine, nursing and biology), administrative sciences (management and economics), and humanitarian sciences (education and social studies).

Table 4.1

#### Composition of the Representative Sample by Gender

	Frequency	Percentage (%)
Male Students	653	30.5
Female Students	1,489	69.5
Total	2,142	100

The sample included 2,142 students distributed in a way to best reflect enrolment patterns at these universities (Table 4.1). As demonstrated in the composition of the sample, the percentage of female students outweighs that of males at almost 70%, a pattern that is not surprising in the Emirati society where there is a relative reluctance among young males to enrol in university education. Based on several general observations, many male high-school graduates prefer early employment in the public sector, especially in military schools, the army and civil police, given the salaries and job security they offer, which are attractive to young Emiratis at this age. On the other hand, there is a remarkable inclination among females to enrol in higher education, reflected in the high female enrolment rates in the UAE as shown in Chapter 3.

Table 4.2

Composition of the Representative Sample According to University, Branch and Gender

University	Branch	Male Students	Female Students	Total
United Arab Emirates University	Al Ain	170	491	661
Zayed University	Abu Dhabi	28	166	194
	Dubai	9	190	199
Higher Colleges of Technology	Sharjah (2 branches)	38	152	190
	Dubai (2 branches)	164	177	341
	Abu Dhabi (2 branches)	163	87	250
	Ras Al Khaimah (2 branches)	28	45	73
	Fujairah (2 branches)	22	50	72
	Al Ain (2 branches)	29	71	100
	Al Ruwais (2 branches)	5	5	10
	Zayed City	-	8	8
	Khalifa City	-	44	44
Total		656	1,486	2,142

The increase in the proportion of female enrolment in higher education is a notable trend that requires special attention. Whilst some interpret it as a form of self-fulfilment sought by young women in a conservative patriarchal society, others argue that it is more simply related to the fact that male Emirati youth are offered ample safe employment opportunities, which weakens their motivation to enrol at institutions of higher education. All of the above deserve a more thorough examination and consideration, especially when working towards active integration of young Emiratis, both males and females, in the transfer and localisation of knowledge.

The representative sample of male and female students was selected from the students studying at the three universities supported by the federal government, i.e. public universities. These are the United Arab Emirates University, the first

university in the country, established in 1976 in Al Ain, which currently has 13,000 male and female students; Zayed University, established in 1998 with two branches, one in Abu Dhabi and another in Dubai; and the Higher Colleges of Technology, first established in 1988, which currently has 16 campuses across the country with almost 19,000 male and female students. Table 4.2 depicts the breakdown of the representative sample by university and branch.

### Results: The Knowledge Capital

#### Overall Result on Cognitive Skills

These skills include problem-solving, writing and communication in Arabic, information sourcing and processing, the use of technology and English language. The student's scores ranged between 39.51 and 87.80; meaning that the highest score was almost 12 points below the

The increase in the proportion of female enrolment in higher education is a notable trend that requires special attention

Table 4.3

Overall Result on the Cognitive Skills Combined

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
66.08	7.62	39.51	87.80

Scores are on a scale of 0-100.

maximum possible score. The arithmetic average (mean), which indicates the average performance of all students participating in the questionnaire, was 66.08 points. Assuming that the minimum score indicating the possession of skills is 50 out of 100, we conclude that the performance of the participating students in the sample was generally good. The results in the upper and lower quartiles reinforced our conclusion as the percentage of individuals who scored at least 50/100 was 2.3%, while 12.4% of the students obtained scores of 75 points or higher. However, we notice that the proportion of students with “very high” cognitive skills was relatively small. This is a cause for concern, as these cognitive skills are necessary for a higher potential for innovation and creativity among the students. Meanwhile, the standard deviation shows a certain degree of homogeneity in the results, as the variation of the sample was not large.

The performance of the participating students in the sample was generally good

The good average scores obtained by the student sample on their cognitive skills reflect the quality and effectiveness of the enabling environments provided at these public universities. These enabling environments equip the students with such skills through plans, programmes and teaching methods that enhance cognitive skills.

These results acquire important dimensions once compared to those of the previous Arab Knowledge Report (2010/2011),<sup>2</sup> which included a field study of a sample of students at the end of secondary education/pre-university. This comparison shows significant progress in cognitive skills among the students at the end of their university studies. The performance of students in secondary education, as demonstrated by the results of the previous Arab Knowledge Report 2010/2011, pointed to a lack of readiness to engage in the knowledge society - at least in terms of the cognitive skills they possessed. The results pointed to a deficiency in the pre-university education system that was unable to create an environment promoting the acquisition of cognitive skills required to

promote a knowledge-based culture among the students and heighten the value of knowledge. However, the student results at the end of university, as presented in this report, showed a significant positive difference in the acquisition of cognitive skills (the scores for knowledge skills in the secondary educational stage ranged between 3.61 and 72.45, with the highest score about 27 points below the maximum and with an average of 32.91. This is compared to a score of 12 below the maximum possible score for students at the end of university studies, with an average of 66.08).<sup>3</sup> It is to be noted that the tools used in both surveys varied to suit the academic level and age group of the participants for each of the two questionnaires (secondary vs. university). This marked disparity in cognitive skills for university students can be attributed to a number of factors, such as the fact that students who reach the final stage of undergraduate studies usually have better personal capabilities and greater motivation. The results may also show that UAE’s public universities have educational environments that promote the acquisition of cognitive skills. Other reasons explaining the youth’s acquisition of cognitive skills at this level could also include the nature of the university curriculum and courses, which are mainly built along the lines of the latest global courses. Meanwhile, in all three state universities, the scientific departments must seek guidance from foreign curricula that offer the latest topics and latest practices in each specialisation.

## Detailed Results

### Problem-Solving Skills

Table 4.4

#### Problem-Solving Skills

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
15.10	4.55	0.00	20.00

*Scores are between 0 and 20.*

The results showed that 65 students received a score of zero (3% of the total sample), while 591 students obtained a score of 20

(27.6% of the total sample). The arithmetic average (mean) of the students stood at 15.109, which is 5 points higher than the minimum required level (10 points over 20) for having problem-solving skills. Therefore, we concluded that the overall performance of the sample students in problem-solving skills was good. As indicated by the standard deviation, the relative variation in scores shows a difference in the performance of students in this skill.

The satisfying levels achieved by young Emiratis in one of the basic cognitive skills, i.e in problem-solving, constitute a positive and notable result. These levels may be traced back to the continuous and various courses offered during their university years and the accumulation of a set of cognitive skills. The students' ability to solve daily problems encountered can be traced back to several reasons. One of them is the fact that as university students, they are required to rely on themselves in various situations. University life offers students a variety of skills including that of problem-solving, be it through learning from teachers or from one another, while academic courses also play a role in developing their ability to use scientific methods and reasoning when solving problems.

### ***Written Communication Skill in Arabic***

**Table 4.5**

**Written Communication Skill in Arabic**

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
11.09	3.35	2.19	20.00

*Scores are between 0 and 20.*

The results of the analysis showed that the scores of the sampled students ranged from 2.19 to 20. Two students obtained the maximum score, representing 0.1% of the total sample. Meanwhile, the arithmetic average of 11.09/20 indicates that the general performance of students in this skill remained within the average.

Written communication is an important skill required for the transfer and localisation of

knowledge. The results clearly indicated the medium level of this skill. This is due to several reasons. First, we must not overlook the level of these skills among students who have graduated high school. The results of the Arab Knowledge Report 2010/2011 indicated that written communication skills were very low among high school students, and its average was the lowest among the cognitive skills, standing at 5/25. This was attributed to a lack of attention in training students on different types of writing, a curriculum that leaves no space for emphasis on writing and an educational system based on memorising, which is adopted by the majority of teachers.

Secondly, despite a change in the academic environment at university and the importance given for student assessment through their own writings and projects, there is a general impression that writing is not given the required attention and follow-up it deserves for students who show a weakness. Students are often not given detailed feedback to help them improve. This may be due to the work-load carried by the teacher. The excessive attention to scores obtained by the students after correcting their work does not provide the required motivation to improve despite the existence of writing centres at the three universities to help students.

It is noted that although the performance of young people in the written communication skill was at a medium level and around the minimum required, only two students out of more than two thousand obtained the highest possible score in this skill. This is a cause for concern, since it reflects an unwillingness among the youth to write on topics outside the framework of their studies; it is established that free writing enhances written communication skills. Also to be noted is a general lack of interest in reading among university students. All of the above strongly calls for the need to work on developing the written and communication skills of young Emiratis, not only at the university level, but also more essentially during the earlier fundamental stages.

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Written communication is an important skill required for the transfer and localisation of knowledge. The results clearly indicated the medium level of this skill

### **Skill of Searching for and Processing Information**

**Table 4.6**

#### **Skill of Searching for and Processing Information**

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
14.67	3.51	3.33	20.00

*Scores are between 0 and 20.*

The skill of searching for information and processing it is among the core components that increase an individual's knowledge and is important for the transfer and localisation of knowledge and for the establishment of the knowledge society

At university, it is expected that all students are able to research and dig out information given the nature of university studies. So there is a need to strengthen this skill to ensure all university students acquire and practice it

The arithmetic average (mean) for this skill was 14.67 for the total number of senior year students participating in the questionnaire and majoring in science, medicine, engineering, management or humanities. If we consider that the minimum score required to indicate the possession of this skill is 10 out of 20, we can conclude that the overall performance of the student sample was good as it exceeded this threshold by 4.5 points, i.e. about 75% of the total score. Our conclusion is reinforced, as 72.7% of the participating students obtained scores higher than the minimum requirement (scoring higher than 50%), demonstrating their acquisition of this skill.

The skill of searching for information and processing it is among the core components that increase an individual's knowledge and is important for the transfer and localisation of knowledge and for the establishment of the knowledge society.

Modern technology has made it possible for all students to access information at any time. The results of the field study indicate that university Emiratis are able to search for a given piece of information and properly source it. This may be due to the nature of undergraduate study, which requires students to search for information and discuss it, contrary to pre-university education. In the three universities where the field survey was conducted, the assessment of the students is done through assignment and homework during the semester in addition to final exams. Student assignments often require students to search for information, reflect on them and submit reports.

One of the reasons for possessing this skill is the youth's ability to use the internet and its availability either at university or at home. There is no doubt that the three universities have a highly developed technological infrastructure and laboratories in all faculties, not to mention the opportunities for students to own their own computer or even iPads. Yet, despite young people's acceptable skill level for searching for information and given the highly technological environments available to access information, the question remains: why were the scores not higher? At university, it is expected that all students are able to research and dig out information given the nature of university studies. So there is a need to strengthen this skill to ensure all university students acquire and practice it. However, the successive field research of the Arab Knowledge Reports is reassuring. Improvements have been detected among undergraduate students compared to the results of Emirati students at the end of secondary school, which were less than average; as concluded by the Arab Knowledge Report 2010/2011.

### **Skill of Using Technology**

**Table 4.7**

#### **Skill of Using Technology**

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
13.39	1.80	6.67	18.97

*Scores are between 0 and 20.*

The use of technology is one of the basic skills required for the effective integration of young Emiratis in the transfer and localisation of knowledge. The results of the field research for the use of technology ranged between 6.67 and 18.97, with an arithmetic average (mean) of 13.39/20. Assuming that a score of 10/20 is the minimum level required for the acquisition of this skill, then the overall performance of the sampled students is within average. It is important to note that 3.3% of the students did not obtain the minimum required level (50%), while 16.9% obtained a score of 15 points or above. The value of the standard deviation reveals that

the sample is homogeneous, i.e. there is no significant variation among the tested students. This result might look lower than expected, due to the high prevalence of technology and its daily use in the UAE, but this average performance can be explained by the quality of the questions in the survey. These questions do not measure the normal daily use of technology, but rather focus on its advanced use in searching for and developing knowledge.

These results, when combined, reflect an acceptable skill level for using technology. However, a better result was expected, since the three universities involved in the survey have an advanced technological infrastructure and motivate students to use new technology and applications, disseminating knowledge among them so they are better able to use the technology in searching for information. This requires greater attention and focus for strengthening this skill to deeper levels.

**Skill of Using Foreign Language (English Language)**

**Table 4.8**

**Skill of Using Foreign Language (English language)**

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
11.81	3.74	1.25	20.00

*Scores are between 0 and 20.*

The use of foreign language is considered one of the necessary skills for young people, especially for achieving the most important element of this distinct knowledge era, where it is crucial to maintain openness and intercommunication with other civilisations and international scientific achievements. The overall performance of young Emiratis in this skill was average (11.81 points), as it stood near the minimum acceptable score of 10/20.

It should be noted that the percentage of those who did not achieve this minimum level stood at 32.2% compared to about 18% who obtained a score of 15 points

or above. This indicates that the sample group clearly lacks fluency in understanding and writing in English. The value of the standard deviation also reveals a relative variation between the sampled students.

The use of foreign language, primarily English, as it is considered the most widespread worldwide, is a very important issue in building the knowledge society and in the transfer and localisation of knowledge. English is widely regarded as the language of science and knowledge in the current era. Therefore, university students must possess relevant language skills, in terms of speaking, writing and understanding, if they wish to achieve effective openness to other cultures and to the international spheres of science and knowledge. However, this issue is not simple since it is related to the preparation of the students at the pre-university stage. The first annual report on school supervision in Dubai, released in 2009, also confirm our conclusion as the report revealed a need to improve English language skills in speaking, reading and writing among students at public schools.<sup>4</sup> Graduates of public secondary education are often unable to join university directly as many require a constituent year during which they study basic English, computer use and analytical thinking skills.

It seems that the lack of English language skills is normal in the sample as education at various stages, especially in public schools, is largely provided in Arabic. Despite the fact that English is taught from primary school, many students do not master it. This leads to the conclusion that the problem of poor skills in the use of English accompanies the students from secondary school to university, where all courses are provided in English. Consequently, undergraduates face difficulties and are obliged to retake many courses. In some cases, this leads students to abandon their studies completely.

**Analysis of the Differences between the Cognitive Skills**

Analysing the results of the various skills under study shows significant statistical differences between the skills.

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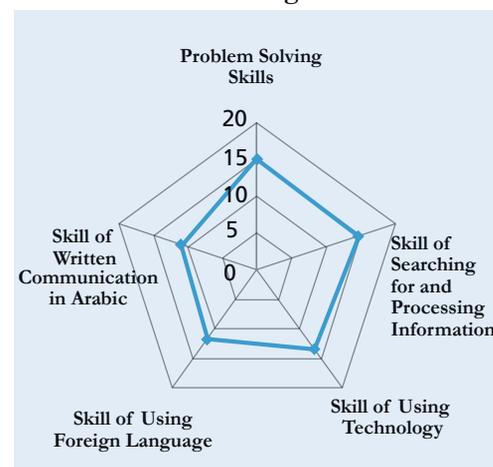
The use of foreign language is considered one of the necessary skills for young people, especially for achieving the most important element of this distinct knowledge era, where it is crucial to maintain openness and intercommunication with other civilisations and international scientific achievements

The following ranking classifies the skills in descending order according to the level of acquisition by the students:

- Problem solving skills
- Information sourcing and processing skills
- Technology use skills
- Foreign language skills
- Arabic written communication skills

The above results indicate that the Emirati youth possess a reasonable capacity in the areas of problem solving and information processing which is a positive indication that should be emphasised as these skills are essential for enabling the youth to proceed towards the knowledge society. The performance level in the use of technology skills is also good, although it could be highly attributed to the wide availability of information and communication technology. Yet, what should be seriously addressed is the large gap with regards to language skills, including the mother tongue (Arabic) and foreign language skills (English). Other skills, such as problem solving or information sourcing and processing remain short of empowering the youth to positively engage in processes of establishing the knowledge society if the youth are unable to communicate clearly and effectively through language. Language, as emphasised earlier, is the medium that essentially embodies culture and knowledge.

**Figure 4.2**  
**Results for Students' Cognitive Skills**



results indicate that the Emirati youth possess a reasonable capacity in the areas of problem solving and information processing which is a positive indication that should be emphasised as these skills are essential for enabling the youth to proceed towards the knowledge society

Upon interacting with university students, it was evident that many prefer to use the English language more than Arabic because it is easier to find online supporting references in English for their homework. Interestingly, the written communication skill in Arabic is at the bottom of the list of cognitive skills, and comes lower than English communication, even with the low performance in English written communication.

It seems that, writing skills among the participants in general, need greater attention. Efforts should not solely focus on acquiring the skill itself but should also focus on achieving a valid linguistic medium as the transfer, localisation, spread, production and use of knowledge can only be achieved within this framework. We should highlight here that scientific journals do not accept research articles unless elaborately written; so how can this be achieved with the obvious gaps in youth writing skills?

### Values

The field research targeted a set of values that could be presented broadly in four groups: (1) Values with a cognitive dimension (such as the love of knowledge, the preference of education over money, intellectual openness to accept new ideas and the diligence, perseverance and commitment at work); (2) values with an emotional dimension (such as self-confidence, social recognition, adherence to personal freedom and honesty with oneself); (3) values with a social dimension (such as the respect of the code of ethics, customs and traditions, the respect for others in terms of their opinions and beliefs and the will to participate in the public life); and (4) values with a cosmic dimension (such as human rights and justice).

Student scores in the questionnaire on sections related to values ranged between 44.62 and 89.23, with an arithmetic average (mean) of 71.23/100. Assuming that the minimum acceptable score is 50, research showed that 0.6% of the participants obtained less than the minimum, while

**Table 4.9**

**Values**

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
71.23	7.21	44.62	89.23

*Scores are between 0 and 100.*

99.4% of the participants obtained 50 or above. These results indicate that most of the students possess almost all the values featured in the study.

The results of the values skill – with a student average of 71/100 – indicate that students have a clear tendency to adopt the values that are featured in the study. However, we should note here that when talking about values, we are referring to what the students have declared, which may be indicative of their attitudes but not necessarily a true reflection of the values they possess or practice. Accordingly, these results should be dealt with cautiously.

Although these results could indicate a reasonable ability of the university education system to promote these values, the students’ possession of the values cannot be explained to be the product of this system only. The Arab Knowledge Report 2010/2011 indicated that high school students generally possess high level of the various categories of values. What should be emphasised here is that these values had been instilled years before university education. Also, we should not ignore the important role of the family in consolidating values among the youth, given the conservative nature and culture of UAE society. The high level of values among students and the homogeneity between males and females in their possession

of these values is not surprising. Family plays a major role in the foundation of many values among students that become instilled in their daily practice, in addition to the values the students acquire from the curriculum through various stages of education. The values that undergraduates enjoy are a true reflection of the values they have accumulated throughout their lives within the family, school and society, where the importance and respect of values, customs, traditions, and religious values is emphasised.

**Youth Effectiveness**

Before presenting the results, it should be noted that "effectiveness" in this report refers to the active and unrestrained participation of respondents in one of the below-mentioned fields. This effectiveness is the outcome of interaction between opinion and behaviour, in the sense that effectiveness is an attitude that is based on planned voluntary behaviour rather than spontaneous or implied behaviour. Keeping this in mind, cultural effectiveness was measured with questions that aimed at gauging student knowledge in terms of their country and region’s historical events, geography, names of books read, whether in Arabic or in other languages, as well as practiced cultural activities and their quality. Social effectiveness was measured by the same token through questions on participation in voluntary and community activities and their types. Economic effectiveness was measured in terms of paid work and participation in projects.

After measuring the scores of all the aspects of effectiveness, the latter were consolidated on a scale of 0-1, with 1 being the highest level of effectiveness.

The values that undergraduates enjoy are a true reflection of the values they have accumulated throughout their lives within the family, school and society

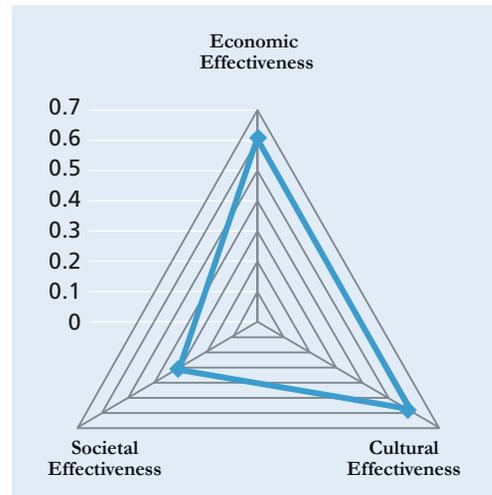
**Table 4.10**

**Student Scores in Effectiveness**

	Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
Cultural Effectiveness	0.58	0.11	0.20	1.00
Social Effectiveness	0.31	0.32	0.0	1.00
Economic Effectiveness	0.61	0.48	0.0	1.00

Figure 4.3

Student Scores on Effectiveness



low levels of cultural and social effectiveness are not a good indicator of the youth's ability to build the desired knowledge society

Table 4.10 shows that youth effectiveness levels vary from one area to another, with the lowest being community participation and the highest being economic effectiveness. As for cultural effectiveness, where the average score was 0.58/1, a greater need arises to further promote culture among the youth, especially in terms of knowledge of their country's historic and geographic characteristics as well as prominent literary and artistic milestones. The situation is worse in the students' social effectiveness and participation. On the other hand, the survey showed higher degrees of economic participation among students, with scores pointing to acceptable youth effectiveness levels in paid activities.

Student effectiveness depends on the level of awareness and understanding they possess in a given field. The low levels of cultural and social effectiveness, as reflected in the results, may be mostly due to inadequate information among students in these two fields. This calls for the need to pay more attention to this issue, whether at home or in schools, universities, civil society institutions and the media. The relatively high economic effectiveness compared to cultural and social effectiveness can be attributed to the fact that most of the students' parents engage in some kind of economic activity. Even with availability of many government jobs, many still start their own business projects, often engaging their

children as well. Students thus learn from their parents certain economic concepts and values, experiencing economic effectiveness at a relatively early age.

It is noteworthy that low levels of cultural and social effectiveness are not a good indicator of the youth's ability to build the desired knowledge society. Knowledge in a society should be diffused among all citizens, but how is this to be done amid a reluctance to engage in the country's various community activities? State institutions of all kinds should strive to raise young people's cultural and social effectiveness, as well as integrate them into community life and engage them in all its activities.

### Citizenship and Belonging

Table 4.11

Citizenship and Belonging

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
0.55	0.28	0.00	1.00

The report addressed this important aspect in the survey through a set of questions that examined opinions of the Emirati youth regarding the concept of citizenship and its main characteristics.

Analysing the answers reveals that knowledge of good citizenship principles is average among the Emirati youth, at 0.55; close to the lowest acceptable score. Upon observing the two scale ends, 8.9% obtained the lowest score (0), while 16.5% obtained the highest score (1). In other words, almost 200 respondents do not have any knowledge whatsoever on good citizenship principles, while almost 350 students of the 2,142 female and male respondents have a full understanding of such principle.

Analyses of the questions on country belonging show a high sense of belonging among young Emiratis. Most of them pointed to their clear desire either to complete their education and work in the UAE or to pursue their studies abroad and then return immediately to the country. This love and

pride felt by young Emiratis towards their country is manifested through the different activities in which they participate, such as National Day celebrations. Belonging is also apparent in the general sentiment among young people whenever the UAE competes in sports tournaments or wins the hosting of global events such as Expo 2020. This strong sense of belonging can be capitalised on by educational, social, cultural and media institutions to introduce, discuss and further promote the concepts and characteristics of good citizenship among young Emiratis.

### Openness and Global Communication

Table 4.12

#### Openness and Global Communication

Arithmetic Average	Standard Deviation	Lowest Score	Highest Score
0.30	0.11	0.00	0.75

Scores are on a scale of 0-1.

The results of the survey showed a general weakness in openness to the world, with an arithmetic average (mean) not exceeding 0.30/1. Around 96.9% of respondents scored less than 0.5. In other words, almost 2,000 student respondents did not get half the scores in terms of openness and global communication as well as the associated elements of reading of publications in foreign languages, proficiency in other languages, travel information and internet use on these topics. This result also points to a lack of engagement among the participants with regards to associations and regional and international activities, as well as a lack of communication with people from outside their own country and weak levels of participation in scientific or cultural competitions.

This result was surprising considering that the Emirati society is reputed for its diversity as people from all nationalities and cultures live in the country. These results can be attributed to the conservative culture of the UAE society where many households still prefer not to integrate and remain closed off from the outside world.

#### Box 4-1

#### Internet Usage among the Emirati Youth

The Ministry of Culture, Youth and Community Development conducted a study in collaboration with the Decision-Making Support Centre for the Dubai Police in 2012, looking into the patterns of internet usage among the Emirati youth and its impact on knowledge formation. The following are the main findings:

1. Almost 90% of young Emiratis own at least one computer, with higher rates among females between 12 and 25 years of age.
2. The percentage of internet users, both males and females, amounted to 98.3%.
3. The overall average number of hours young Emiratis spend online is 4 hours and 36 minutes per day.
4. There is a general belief among young Emiratis that internet is highly reliable as a main research source, at a rate of 61.6%. The percentage of young Emiratis who rarely or very rarely use the internet for their research did not exceed 10.7% of youth.
5. The top ten internet usage in descending order of importance were:
  - Study-related research 77.2%;
  - Checking email 76.6%;
  - Downloading and listening to music/watching movies 71.4%;
  - Searching for general information 71.4%;
  - Games and entertainment 64.6%;
  - Contribution to forums 63.8%;
  - Religious sites 62.8%;
  - Self-learning 59.8%;
  - Checking news 54.8%;
  - Chatting 54.6%.

These findings confirm that young Emiratis know how to deal well with the internet. This is a skill that should be invested in effectively and directed towards increasing their interest in learning and knowledge, and the transfer and building of knowledge.

Source: Quoting the Ministry of Culture, Youth and Community Development 2012. (Reference in Arabic)

Low levels of cultural and social effectiveness are not a good indicator of the youth's ability to build the desired knowledge society

This result was surprising considering that the Emirati society is reputed for its diversity as people from all nationalities and cultures live in the country

For instance, travelling abroad remains reserved for either business or medical purposes. One also cannot overlook the lack of participation of young people in the country's general social and cultural life as one of the factors contributing to the lack of openness. It is only natural that their openness to the rest of the world stays limited or rather humble if their cultural and social participation inside the country is already limited.

The intriguing part is that these results come at a time when the country is employing significant efforts in technology and communication infrastructure and is providing the nation with the newest and fastest technological services. It seems that the main use of this technology among the youth is for communication on social media rather than for information and knowledge that pave the way for the transfer and localisation of knowledge and the creation of a knowledge society in the country.

### Analysis of the Results according to Gender

With respect to gender-based differences among young people in terms of knowledge, values, effectiveness, skills, citizenship and openness, the results showed no statistical difference between male and female students. Generally, females were not different from males neither in terms of cognitive skills nor in terms of values and other areas of effectiveness.

### Youth Opinions on the Transfer and Localisation of Knowledge and the Necessary Enabling Environments

The report also addressed a number of indices and practices relevant to young people's involvement in the transfer and localisation of knowledge. These included accessing foreign resources and translated books related to the students' disciplines, where the analysis showed that 65.1% of participants

do not read translated books related to their discipline. This can be attributed to several factors, the most important of which being the students' exclusive focus on the courses they are taking, considering that what the university offers them is sufficient information and knowledge needed in their area of specialisation. The remaining 30.8% who reported reading foreign translated books related to their specialised subjects, resort mostly to these reference points when doing projects or homework. This shows the weak role that universities are playing in general to encourage students to research and read translated foreign books as part of the educational experience. This is also consistent with the results of the study conducted by the Emirati Ministry of Culture, Youth and Community Development on prevailing knowledge trends among young Emiratis aged 18 to 23. The study noted a reluctance among the youth to visit public libraries and access knowledge.<sup>5</sup>

The high percentage (80.4%) of respondents who reported having carried out research or presentations since starting university could be related to the nature of educational systems within universities. Most courses require students to conduct research or write reports on topics related to the subject for a certain percentage of the total course score; for example, research, projects and presentations could account for 50% of the final score. However, it is essential to note that the reports, projects and presentations

With respect to gender-based differences among young people in terms of knowledge, values, effectiveness, citizenship and openness, the results showed no statistical difference between male and female students

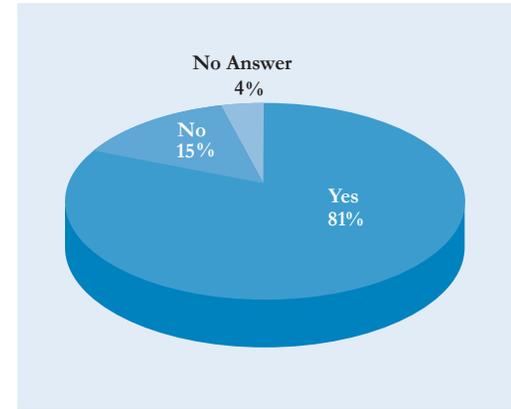
Figure 4.4

Student Access to Translated Books Related to Their Disciplines (%)



Figure 4.5

Research and Presentations in University (%)



that students carry out at this stage are mostly essays in which they express their opinions on given topics or simple research projects that merely require the collection of scientific material or a summary of literature. Outcomes of students' responses should be dealt with carefully. In light of the educational environment at the three universities involved in the study, the high percentage of positive answers to this question most probably indicates that the concept of scientific research is not clear enough among students. Most of them, based on the previous result, think that by carrying out the work required of them on the course, they are conducting scientific research. This calls for action to raise awareness of the steps, procedures and controls of scientific research and reevaluate the prevailing conditions of scientific research at university as a gateway for moving into the knowledge society.

Concerning university partnerships, 48.9% of respondents were aware of the available partnerships and agreements between their

Figure 4.6

**Student Awareness of the Existence of Partnerships and Agreements between Their University and Other Institutions (%)**



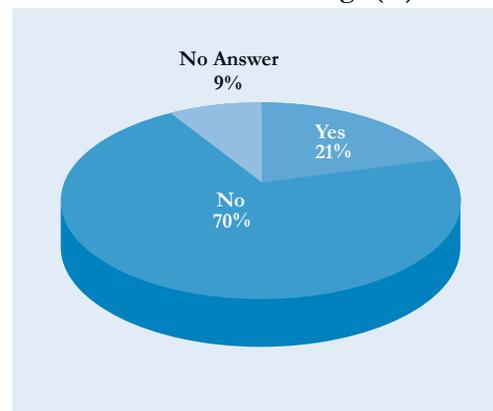
university and other institutions. This shows that almost half of the students are aware of such partnerships and realise that their faculties are using these partnerships and agreements to raise the university's standing in terms of programmes and adopted teaching methods. The universities' goal is to obtain academic accreditation and access to appropriate training related to the

specialisations they offer. However, this result also shows that almost half of the students are not aware of these partnerships and agreements in the first place. Therefore, more should be done to increase the awareness and knowledge of young people of the various institutions that support educational programmes offered in their disciplines.

Almost 70% of the participants reported not being aware of the existence of youth institutions involved in the transfer and

Figure 4.7

**Student Awareness of the Existence of Youth Institutions Involved in the Transfer and Localisation of Knowledge (%)**



Almost 70% of the participants reported not being aware of the existence of youth institutions involved in the transfer and localisation of knowledge in their country

localisation of knowledge in their country. This could be an indicator of either the lack of cultural education among the youth or their lack of interest in the pursuit, transfer and localisation of knowledge and the attempt to make it part of their lives. This result may seem understandable for two reasons; the first being that young people focus, during this period of their life, on their study and scholarly accomplishments. Therefore, they are not preoccupied with this issue as much as with other ones related to friends, family and their social life. The other reason is the lack of publicity of these institutions in the community in general, whether in media or institutions in the country. In general, these youth institutions are present and active in the country, however, their focus on the transfer and localisation of knowledge does not seem to be clear, explaining the respondents' answers. Therefore, educational, cultural and media

institutions should work to raise awareness of the existence of such institutions and encourage students to benefit from them as well as from global best practices to develop local programmes that aim at building the human capital.

### Enabling Environments in the UAE

With regard to the opinions of the students on enabling environments, the analysis showed high levels of satisfaction regarding these components and their effectiveness. The study examined the opinions of the students on the effectiveness of a number of factors in their universities in terms of qualifying students for the transfer and localisation of knowledge. Opinions of youth were investigated through 15 questions.

Most answers about the effectiveness of university were notably positive. The sample recorded high rates in areas the students considered effective (whether highly or just acceptable) in offering them the qualifications needed for the transfer and localisation of knowledge. The availability

of internet use comes at the forefront of these components, with a 97.4% approval rate (75% for high effectiveness and 20.4% for acceptable effectiveness); followed by the availability of educational equipment and tools with a 94.1% approval rate (65.8% for high effectiveness and 28.3% for acceptable effectiveness). The scientific level of university teachers came in third place, with a 92.8% approval rate (48.3% for high effectiveness and 44.5% for acceptable effectiveness), followed by the electronic interactive means that enable communication, with a 91.8% approval rate (59.2% for high effectiveness and 32.6% for acceptable effectiveness), and followed by books and references available, in fifth place with a 91.1% approval rate (51% for high effectiveness and 40.1% for acceptable effectiveness).

Other less effective elements were reported by students to the attention of decision-makers. These included aspects that were seen by a significant number of students as having weak effectiveness. Although most young people highlighted the effectiveness of the “system of material

The sample recorded high rates in areas the students considered effective (whether highly or just acceptable) in offering them the qualifications needed for the transfer and localisation of knowledge

Table 4.13

### Students' Opinions on the Effectiveness of Their University's Enabling Environment and Their Contribution to the Preparation of Youth for the Transfer and Localisation of Knowledge

	Inexistent Effectiveness (%)	Weak Effectiveness (%)	Acceptable Effectiveness (%)	High Effectiveness (%)
a- The prevailing higher education system	3.1	6.7	41.8	48.4
b- Academic research system	1.7	10	46.1	42.2
c- Teaching methods adopted in universities	1.2	9.3	49	40.4
d- Rating methods adopted in universities	3.1	12.5	42.8	41.6
e- Books and references available for students	1.3	7.6	40.1	51.0
f- Educational equipment and tools	2	3.9	28.3	65.8
g- Scientific and pedagogical (educational) level of university teachers	2	5.2	44.5	48.3
h- Physical and moral incentives system for students	8.3	19.5	37.5	34.7
i- Vocational training system during studies	5.4	16.7	43.1	34.8
j- Correspondence between the knowledge offered by the university and the requirements of the labour market	5.5	15.3	46	33.2
k- Current admissions system of the university	3.3	10.7	48.3	37.7
l- Activities held by your faculty or the university where you study	2.7	15.1	39.7	42.4
m- Internet availability and access/use	1	3.6	20.4	75
n- Interactive electronic educational means that allow remote educational communication between students and teachers	2.3	5.9	32.6	59.2
o- Financial resources to support the students' university research projects	4.8	19.1	38	38.1

Table 4.14

**Students' Levels of Confidence in the Capacity of the Following Institutions to Contribute towards Engaging the Youth in the Processes of the Transfer and Localisation of Knowledge**

	Inexistent Confidence (%)	Weak Confidence (%)	Acceptable Confidence (%)	Complete Confidence (%)
a- Civil Society Organisations	3.7	7.8	56.1	32.4
b- Media (Traditional and New)	2.8	10.7	43.5	43
c- Vocational Associations	3.9	12.2	56.3	27.6

and moral incentives for students” with 72.2% (34.7% for high effectiveness and 37.5% for acceptable effectiveness), 19.5% of them felt that the effectiveness of this component was “weak” and 8.3% said it was “inexistent”. Therefore, a total of 27.8% of young respondents were not satisfied with this aspect and its effectiveness in the transfer and localisation of knowledge. The same could be concluded for the following areas: “financial resources to support the student research projects”, “vocational training system during studies”, “link between the knowledge offered by the university and the requirements of the labour market”, and the “activities offered by the respective faculty or university”. The combined percentages of “high” and “acceptable” effectiveness for these aspects were 76.1%, 77.9%, 79.2%, and 82.1% respectively.

Comparing the components that scored high effectiveness in the sample with those deemed

available to a lesser extent, we find that the UAE has been able to provide a considerable set of material requirements such as books and references, equipment and tools and internet access; as well as professors and means of interaction and communication between teachers and students. The state, however, has not established the required culture for the transfer and localisation of knowledge at university and among the student community. The UAE has expressed a strong will to provide the components necessary to qualify students to engage in the processes of knowledge transfer and localisation. However, the three universities must provide other components needed to support these processes.

Participants mentioned that they maintain an “acceptable” or “complete” confidence in the ability of traditional and new media to contribute to the engagement of young people in the processes of knowledge transfer and localisation. This is justifiable

Table 4.15

**Students' Opinions on the Contribution of the Following Components**

	Inexistent Contribution (%)	Weak Contribution (%)	Strong Contribution (%)	Very Strong Contribution (%)
a- The contribution of the private sector to the advancement of scientific research	10.3	30.3	43.8	15.6
b- The contribution of economic institutions to the funding of research	6.9	23	49.7	20.4
c- The contribution of micro-enterprises to the effective integration of youth in the transfer and localisation of knowledge	1.8	16.6	51.1	30.5
d- The contribution of prevailing economic patterns to the transfer and localisation of knowledge	3.7	13.8	49	33.5
e- The contribution of foreign investment projects to the transfer and localisation of knowledge	4.8	18.8	44.7	31.7
f- The contribution of governments to supporting youth	1.9	10.3	35.8	52

The surveyed youth acknowledged the government's great efforts in supporting them; 52% and 35.8% of the sample claimed that the government had a "very strong" and "strong" contribution in this area

in light of the evolution of the media in the country. However, when addressing civil society organisations in the study, the proportion of young people's confidence was found to be 88.5% (32.4% have full levels of confidence and 56.1% have acceptable levels of confidence). The percentage of young people's confidence in the vocational associations came at 83.9% (27.6% have full levels of confidence and 56.3% have acceptable levels of confidence). These results indicate that the youth expressed confidence in the institutions' capacity to engage them in the processes of knowledge transfer and localisation, which is a reassuring point. However, these results should be examined carefully as many young people could have given "safe" middle-way answers, especially in light of the earlier results showing that many young people lack knowledge of cultural and social activities in the country.

The surveyed youth acknowledged the government's great efforts in supporting them; 52% and 35.8% of the sample claimed that the government had a "very strong" and "strong" contribution in this area. These

results reflect reality as several institutions, such as the Ministry of Culture, Youth and Community Development, have developed and implemented programmes and projects targeting youth engagement and motivation. Among them are the development programmes of the Ministry of Education that target young people in addition to the efforts of public and private institutions of higher education. The government's support for the youth was one of the most obvious aspects as the results showed the percentage of those who believed that the contribution was "inexistent" or "weak" did not exceed 12.2%.

As for the contribution of micro-enterprises and prevailing economic patterns for effective youth integration in the transfer and localisation of knowledge, the rates of "inexistent contribution" and "weak contribution" were low, indicating the strength of these two elements. The adoption in 2012 of a new law by the Council of Ministers on micro and medium enterprises that aims to support young people in transforming their ideas into projects and products supports this finding. Other

Table 4.16

Students' Opinions on the Processes of Transfer and Localisation of Knowledge

	Totally Disagree	Somehow Agree	Agree	Totally Agree
a- The transfer and localisation of knowledge in the Arab countries is vital for the future of the country	3.9	24.8	34.7	36.6
b- The process of the transfer and localisation of knowledge will contribute to the reduction of unemployment	3.7	19.9	38	38.4
c- The process of the transfer and localisation of knowledge will contribute to a heightened level of creativity and innovation	3	15.1	36.3	45.5
d- The process of the transfer and localisation of knowledge will contribute to revitalising the economy	3.1	17.2	32.8	46.9
e- The process of the transfer and localisation of knowledge will contribute to the diminishing borders between the world countries	7.5	24.2	36.5	31.8
f- The process of the transfer and localisation of knowledge will contribute to more dependency of the Arab world on the West	24.2	30.6	24.8	20.4
g- The process of the transfer and localisation of knowledge will contribute to marginalising local products	27.4	28.8	26.4	17.4
h- The process of the transfer and localisation of knowledge is not among the current concerns of young people	24.6	37	25.7	12.7
i- The process of the transfer and localisation of knowledge can contribute to changing societies' cultural features	7.5	36.8	32.9	22.8
j- The process of the transfer and localisation of knowledge can contribute to reinforcing the economic competition	1.7	25.1	39.7	33.4
k- The process of the transfer and localisation of knowledge can contribute to reducing disparities in society	6.3	23.8	37	32.9

initiatives also exist to support the youth such as the Sheikh Khalifa Fund supporting youth projects, the Mohammed bin Rashid Al Maktoum Foundation for young business leaders and other bodies supporting the youth at various social, educational, health, cultural and humanitarian levels.

Around a quarter of the participants considered the contribution of foreign investment projects in the transfer and localisation of knowledge as “weak” or “inexistent”. These percentages were even higher in the contribution of economic institutions and the private sector to the funding of research and the advancement of scientific research, where the rate was 29.8% and 40.7% respectively for “inexistent” or “weak contribution” in these sectors. Greater attention should be paid on these three components in future strategies on the transfer and localisation of knowledge.

Participants’ responses on issues related to the transfer and localisation of knowledge raise many issues. To start with, there is no doubt that the answers of the youth were positive in some dimensions. For example, 81.8% totally agree or agree on the fact that “the process of the transfer and localisation of knowledge will enhance creativity and innovation”. This also applies to other elements, although to lower extents, such as “the process of the transfer and localisation of knowledge will contribute to revitalising the economy,” “the process of the transfer and localisation of knowledge will contribute to the reduction of unemployment” and “the transfer and localisation of knowledge in the Arab countries is vital for the future of these countries” where the proportions of “totally agree” and “agree” were respectively at 79.7%, 76.4% and 71.3%. Other aspects registered positive feedback such as the argument that “the process of the transfer and localisation of knowledge can contribute to reinforcing the economic competition” with a 73.1% agreement/total agreement rate. All the results indicate that young people are aware of what knowledge and the transfer and localisation of knowledge can offer.

However, participants’s responses on other elements raise some concerns. For example, 61.6% of participants tend to agree with the argument “the process of the transfer and localisation of knowledge is not among the current concerns of young people,” where 38.4% of the respondents expressed their total agreement. Similar results, although at lower rates, were noted for the arguments that “the process of the transfer and localisation of knowledge will contribute to marginalising local products,” “the process of the transfer and localisation of knowledge will contribute to more dependency of the Arab world on the West” and “the process of the transfer and localisation of knowledge can contribute to changing the societies’ cultural characters”, where respondents tended to disagree with these terms with 56.2%, 54.7% and 44.3% respectively. Given these rates, we can sense some concern among the youth regarding the transfer and localisation of knowledge as a considerable number of participants feel that it could reinforce a subordination to the West and change the cultural characteristics of the UAE or contribute to the marginalisation of local products.

Although these views are marked by a lack of sufficient understanding of the nature of the transfer and localisation of knowledge, a process that can actually lead to a more competitive capacity in the global market, they also came consistent with the findings of the qualitative study highlighting that some young people and experts fear the obliteration of the Arabic language and that of the national identity. They have called, and on more than one occasion, for caution when transferring knowledge, claiming that only knowledge beneficial to the country should be transferred, without affecting its culture and identity. The country should work on clarifying these issues and reassuring young people that the processes of the transfer, localisation, production and employment of knowledge is in the interests of the society’s advancement and a necessity for this era.

In terms of catalysts and obstacles facing the integration of the youth into the processes of knowledge transfer and

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we can sense some concern among the youth regarding the transfer and localisation of knowledge as a considerable number of participants feel that it could reinforce a subordination to the West and change the cultural characteristics of the UAE or contribute to the marginalisation of local products

Table 4.17

### Students' Opinions on Motivating and Impeding Factors in the Integration of the Youth in the Transfer and Localisation Processes

	Required and Available	Required but Not Available	Not Required but Available	Not Required and Not Available
a- Social participation (such as the participation in associations...)	63.3	20.1	9.9	6.7
b- Providing/finding opportunities/places of work for young people	51.4	43.1	3.1	2.4
c- Cultural participation (attendance/participation in cultural activities, arts, theatre, poetic evenings, reading)	76.3	12.1	7.1	4.5
d- Arabic language proficiency	57	30	8	5
e- Foreign languages proficiency	65.4	24.2	9.2	1.2
f- Gender non-discrimination	72.4	15.8	7.5	4.3
g- Traditions, cultures, and common practices	80.1	14.1	3.8	2

Students' responses concerning rights and freedoms registered high rates with mostly "excellent" or "good" levels

localisation, the results shown in Table 4.17 demonstrate that students viewed cultural and social effectiveness as well as proficiency in English and Arabic languages to be among the required and available elements, though in varying levels. However, the previously presented outcomes of surveys demonstrated that social and cultural effectiveness among participating students were below the required levels. The same applies to mastering English and Arabic languages. This could be interpreted by the youth tendency to give the "socially acceptable answer" when answering these questions. Meanwhile, the other issue is that a proportion of young people have expressed concern about job opportunities. This can be attributed to the rapid changes in the labour market in the UAE that may not always be in line with the specialisations of the young Emiratis, despite the various government programmes that address

the youth and positioning them in various sectors.

Students' responses concerning rights and freedoms registered high rates with mostly "excellent" or "good" levels. Most categories exceeded 95% approval rates. In fact, the percentage of those affirming freedom of opinion and expression was 98.4% (68.6% answered "excellent" and 29.8% "good"). The percentage of affirming the freedom of principles was 98.2% (82.6% described it as "excellent" and 15.6% as "good"), and 96.4% confirmed the presence of social justice (81.4% answered by "excellent" and 15.1% by "good").

These results are indicative of a positive trend and an enabling environment that supports young people in the processes of transfer and localisation of knowledge, as there is no knowledge without freedoms

Table 4.18

### Students' Opinions on the Status of Freedoms and Rights

	Excellent	Good	Bad	Very Bad
a- Freedom of opinion and expression	68.6	29.8	1.1	0.5
b- Freedom of principles	82.6	15.6	1.1	0.7
c- Gender non-discrimination	63.1	31.3	4.6	1
d- Social justice	81.4	15.1	2.2	1.3
e- Freedom of individuals to practice their religious beliefs	78.1	20.5	1.3	0.1
f- Availability of an atmosphere of freedoms at university (academic freedoms)	70.4	24.3	4.4	0.9
g- Availability of an atmosphere of freedoms within the family	65.2	31.7	2.2	0.9
h- Respect of personal freedom in society	62.7	31.5	5	0.8

as demonstrated by the Arab Knowledge Report's triad of knowledge, freedom and development.

### Outcome of Focus Group Sessions with the Youth

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Focus groups were conducted with a number of young citizens aged between 25 and 34, with 11 males and 5 females from various emirates and various backgrounds. The sessions were designed to explore their points of view with regards to several relevant issues including the transfer and localisation of knowledge, the role of the youth, the required skills and values and the enabling environments.

#### Support for the Concept of Openness and the Transfer and Localisation of Knowledge

Participants engaged in a transparent discussion of these topics and it was remarkably active. Concerning their opinions on the transfer and localisation of knowledge, some supported the process of the knowledge transfer and regarded it as an important step that should be followed by further steps including "the adaptation of knowledge to better suit the Emirati environment in line with the society's culture and identity". Supporters of this viewpoint stressed that this process of re-drafting or the so-called acculturation or adaptation must be conducted in accordance with a scientific methodology, so that the foundations of transferred knowledge could not be lost or become ponderous. This group of participants did not see any drawbacks in the transfer of knowledge, arguing that the UAE is only 43 years old, and as other countries have progressed, it is very logical to benefit from these countries' experiences and knowledge and build on them.

A small group of participants saw that the process of transfer itself was a negative one because the process of transfer includes importing. The group feared that the country would remain in the circle of transfer and import without moving beyond

it to other stages. This group considered that the transfer presumes a lack of "knowledge" within the country, which will always make it copy from others and remain subordinate to them. This opinion was similar to that of a small group in the brainstorming session with experts on whether the transfer of knowledge was linked to dominance (which will be explained in the next section).

Participants in the focus group hoped to move beyond the transfer stage to the stages of knowledge development, advancement and export to other countries. This will take place, they claimed, only if "we consider creativity a complementary stage to the stages of the knowledge transfer"; transfer and localisation will lead to innovation or a culture of new knowledge to be later transferred. They gave examples of the country setting its own standards in roads and bridges, while benefiting from international standards and expertise. The fact that this proposal came from a group of young Emiratis strongly suggest their unquenchable desire to move towards the transfer and localisation of knowledge as well as towards its local cultivation and to contribute to the global knowledge.

As for knowledge localisation, participants noted that the concept of knowledge localisation was relatively new to them. The majority considered that the term "localisation" refers to the acquisition of knowledge by UAE Nationals, as they believed that non-Emirati residents, no matter how long they stayed in the country, would "go back to their countries". The residents, or "experts" as they were described, carry knowledge and are currently present in the country, but may not be in the future. So "in order to maintain the stability of the society on the long run, this knowledge must be transferred". Therefore, many of the participants stressed the importance of benefitting from the majority of the residents and transferring the knowledge and experiences they have, as well as "documenting" it in order to retain and accumulate it, so the state would not remain "always dependent on an external source". Some considered that the localisation of

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The majority considered that the term "localisation" refers to the acquisition of knowledge by UAE Nationals, as they believed that non-Emirati residents, no matter how long they stayed in the country, would "go back to their countries"

knowledge “contradicted” with its transfer because knowledge moves to the inside from the outside, while localisation reflects the diffusion of the knowledge among Emirati citizens. However, it should be noted here that knowledge is transferable when moving from the outside to the inside, but it must be transferred within the country as well. The establishment of a knowledge society does not mean bringing and importing knowledge then localising it within specific bodies or individuals, but rather spreading knowledge among large segments of society and renewing it with time.

As for the concept of “Territorisation of Knowledge” – i.e. keeping knowledge in a specific space, not localised among citizens – some participants viewed this knowledge as a source of pride because “the fostering environment is an Emirati environment and the product is made in UAE”. They added that the UAE has allowed many intelligent individuals and experts of different nationalities to live in the country, work on the production of knowledge and compete in the global market. Therefore, this is knowledge produced on the territory of the country, such as “the manufacturing of drones” or “alternative energy sources”. In contrast, others considered that this kind of knowledge could be affected by any shock and was unsustainable. The production factors that are based on this knowledge are currently present in the UAE for certain reasons, and once these reasons disappear, the production of knowledge could be suspended. This demonstrates that the participants’ views on territorisation were dominated by the transfer and localisation of knowledge among citizens and not just the knowledge mastered by residents only. It was clear from the discussion groups that participants were aware that knowledge was mobile, and could go wherever the facilities for its growth are located. The latter is true as knowledge is affected by many factors, including economic and political aspects, conflicts and tensions.

Another group considered that, at the very least, intelligent individuals among

Nationals must be distinguished in several vital areas. These should not be limited to transfer, adaptation and territorisation, but should also expand to creativity, excellence and pioneering at the international level, in order to gradually widen those spheres. One participant mentioned the issue of “knowledge management”, and proposed the establishment of a guide and mechanisms for dealing with knowledge, not only for a specific ministry, directorate or individual, but also at the comprehensive societal level through the establishment of a public body for knowledge. These two proposals are considered important for the UAE in its quest for the transfer and localisation of knowledge. Pioneering in specific scientific domains is recommended for several reasons, due to the small population of the UAE and the lack of specialised citizens in many domains. As a beginning, the country can focus on a few specific priorities and then expand to other areas. As for the second proposal – to establish a body for knowledge – it aims at coordinating and unifying efforts so that the concerned institutions would not experience disconnection, miscommunication, disharmony or duplication of efforts in pursuing their objectives and strategies.

In addition to emphasising the importance of embracing the issue of knowledge management as a national project, the majority of the participants tended to consider change as leadership driven through its commitment to the transfer and localisation of knowledge. This was expressed by the participants as follows: “We are tribal people who follow their leaders” and “if the leader is committed, everyone is”. These words can be explained in two ways: the first is that the leader referred to here is the leader of the country and the rulers, and there is no doubting of the commitment of the political leadership at the highest levels and its support for the knowledge transfer, localisation and production. Such commitment is most clearly evidenced through the Mohammed bin Rashid Al Maktoum Foundation, which was previously mentioned, and which will be

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As for the concept of “Territorisation of Knowledge” – i.e. keeping knowledge in a specific space, not localised among citizens – some participants viewed this knowledge as a source of pride because “the fostering environment is an Emirati environment and the product is made in UAE

addressed in some detail in the last chapter. However, the research team conjectured that the leader referred to here is the “manager” at work, which raises concern. Some young people mentioned that their managers at work were not proactive, did not take the initiative and even impeded the transfer of knowledge only because it is something new to their management style. Hence, the demands of the youth that all managers and leaders be committed to the transfer of all new knowledge to the institution should not be ignored. It was further confirmed through the brainstorming session with citizen experts that work institutions, headed by a manager, sometimes stood in the way of aspiring members of the youth who tried to bring new ideas and knowledge.

### **The Importance of Youth Participation and Formation for Building the Knowledge Society: Between Ambitions and Limitations**

Participants were aware of the youth’s important role in the transfer and localisation of knowledge. They saw that *“young people are an energy which, if not exploited positively, will turn into a negative energy”*. Accordingly, the youth should be relied on, trained and given the opportunity to lead in this role. However, the participants split into two groups when discussing the role of education in helping students and young people acquiring the knowledge and skills that facilitate their integration into the knowledge society and the transfer of knowledge. One group said that there was an imbalance between education outputs and labour market requirements; what students are learning was not significantly serving the labour market. However, the majority of the participants felt that the educational system faced real problems. This system, they claimed, should be “the source of knowledge transfer”. The problems mentioned included the limited enrolment in some majors while others were very popular, such as media and management, whereas others were non-existent. Participants recommended that universities stop flooding the market with certain majors and invest in new subjects

for students, provided they are required in the labour market. Some participants also pointed to the weak formation at university stages, to the extent that some *“reached university and cannot express their opinions or formulate their own ideas”*.

Scientific specialisation at university and for post-graduate studies is important when discussing the transfer and localisation of knowledge. A real transfer of scientific knowledge cannot take place without a considerable number of specialists. These specialists should explore new research issues and complete what specialists in other countries have started. Another controversial issue, as claimed by the participants in the brainstorming session, is that many students both female and male reach university without written communication skills. Although this may seem an opinion subject to negotiation, the field study supported it. Results showed that participants’ skills in written English and Arabic were among the weakest cognitive skills. Youth in the brainstorming session were aware and recognised these weaknesses among their peers and, therefore, their viewpoints should be taken into serious consideration.

During the focus group session, participants also expressed that students did not plan for their majors or future careers. When asked “what will your profession be once you graduate, and what will you major in?” many responded with the following: *“wherever we get to work and get the best privileges”*. Students should be better prepared to answer questions about specialisations while still at school, as it will help them think in different ways that are not solely focused on salaries. However, the reality of schools today does not allow students to do so. Once again, there seems to be a problem with young people’s vision of the future. They are dominated by material considerations and the value of the salary. The importance of the salary in building and securing a young person’s future and needs cannot be neglected, but the over-emphasis on income and the refusal to practice a certain profession

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Some young people mentioned that their managers at work were not proactive, did not take the initiative and even impeded the transfer of knowledge only because it is something new to their management style

because of its income undoubtedly show that professions have turned into products (as the theoretical study indicated). On the other hand, we must not discriminate against a person who chooses the profession or job with the highest salary as family, society, school and university push students to do so. However, the country must not stand idly by on this issue but should raise the value of the professions related to knowledge, sciences and scientific research. Only then will larger domains of future careers be open to young people who will have the chance to actively participate in the establishment of the knowledge society and benefit from its outputs in the UAE.

### **The Development of Skills: An Important Necessity for Knowledge**

Some participants pointed out that students were in dire need of learning new skills. Such skills would help them in the future to continuously learn and develop their knowledge, transfer and localise it. Among these are also the skills of critical thinking and social intelligence. Supporters of this opinion pointed out that the students are not empowered to create their own line of thought as students are taught that *“his or her opinion should be that of the book... and what is written in the book is right... we even memorised mathematics lessons!”* This group noted that *“the child is exhausted by routine, and grows up hating books until they become the enemies”*. And this is apparent with university students, because they *“do not read books, but memorise parts from the summaries and the presentations of the professors”*. The establishment of the knowledge society will not take place without reading, instilling a love to read, and without making reading a part of children and the youth lives. The child or young person who has the same opinion as the book will not be able to produce new knowledge. Herein lies the importance of changing education views and teaching methods which is a complex issue not only restricted to the UAE, but to all other countries adopting relative standardisation in education. Educational systems following standard criteria, where both the

teacher and the student are evaluated, will inevitably lead to a greater focus on the achievement of the teacher and the student who currently rely on memorisation to obtain recognition and scores and prove their achievements. The final chapter will discuss a proposed vision for dealing with this problem in the Emirati educational system.

An important way to help the youth master learning and thinking skills, in a manner that would enable them to transfer knowledge, is by cultivating an interest in reading. This is the priority for critical thinking. However, according to some participants, schools fail to take this into consideration. Throughout their years of study, students do not have the opportunity to bring new knowledge in, so how can they bring it in after working in a certain profession? As one expert puts it: *“restricting students’ intellectual abilities and defining their lines of thought hamper their ability to innovate and transfer knowledge and limits their future success”*.

One group of participants also pointed out the deficiency in student counselling services and the lack of sufficient awareness to help them in determining their *“personal will”* and *“choices”*. Some also expressed the need to nurture the will and curiosity in children and teach parents about the importance of reading and providing children with opportunities to express their ideas, discuss them and develop their cognitive intelligence and foster their creative ideas.

Some participants noted the deficiency in national competencies in the fields of sciences and scientific research, adding that they do not imagine any knowledge transfer and localisation without national researchers and scientists. They noted that many citizens obtain high scientific degrees, such as PhDs, but then stop learning. They regard the degree as the end of the road and a qualification for a position. They also noted that there was a serious shortage of research centres as well as a general trend towards steering away from these domains.

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The establishment of the knowledge society will not take place without reading, instilling a love to read, and without making reading a part of children and the youth lives

## Criticism of the Successive Educational Plans

Some participants feared that the educational system might give the impression that it is improving, while its outputs cannot compete with people who have received their education abroad. Nothing is more indicative of this than the adoption of successive initiatives, where some of these initiatives are even launched before the others end, and without carrying out an assessment that shows the impact, success or failure of its predecessor. This will be more evident when we discuss the brainstorming session with experts.

## The Important Role of the Media

Some participants viewed media as one of the enabling and supporting elements for the dissemination of the knowledge-based culture in the country. According to them, the media plays an important role in shaping the mind-sets of young people. Some participants criticised the fact that the media copies American programmes, immersing young people in American culture, for example, more so than the Arab culture. Broadcasting programmes similar to Western ones is nothing more than a “copy and paste” process that will not contribute to breeding new knowledge and skills. Moreover, the content of these programmes is alien to the Emirati environment. Participants suggested reconsidering the media industry in the country, so that its role becomes more involved in motivating citizens to learn, highlighting the value of scientists and innovators, and presenting role models. Some participants also pointed out the issue of instilling patriotism in the hearts of young people through the media: *“Young people must maintain the achievements of their country... each individual should feel that he or she is an integral part of the development of the country as a whole”*. Moreover, some considered that the role of the youth in the transfer and localisation of knowledge is linked to citizenship, patriotism and the sense of belonging to the homeland. One participant even considered that enabling

emanates from being loyal to the homeland and aware of the future. Participants demanded that there be incentives for anyone who masters a particular domain in order to set an example for other citizens.

## Activating the Role of the Private Sector

Some participants considered that private sector is required to integrate young people in companies and give them the opportunity to learn new skills and gain experience. Also, localisation in professions should not be limited to a rate or a number of citizens, it should rather be expanded to enable the transfer of knowledge and expertise to citizens. Knowledge is not only limited to the public sector or the private sector; there must be an intersection between the two sectors with regards to the transfer, localisation and production of knowledge. Non-governmental institutions in the country, or what is referred to by some as the “civil society”, are also important in the transfer and localisation of knowledge.

## Outcomes of the UAE Workshop

Considering the importance of the efficient integration of young Emiratis in the knowledge transfer and localisation process for the community as a whole, and in accordance with participatory principle that was adopted in the preparation of the report, a brainstorming workshop was held on December 12, 2013. About 35 stakeholders attended the workshop, including decision-makers and representatives of the sectors of civil society, the government and academia. A number of Emirati youth and experts also participated in the discussions and the workshop, in addition to a group of experts working in the field of knowledge and the knowledge economy.

Debates and discussions were focused on the most important related issues. Concerning the concept of knowledge localisation, participants felt that the issue should be regarded as a large system to be achieved within the community on many levels and by many institutions, including the Ministry of

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### Ministerial Proposals to Raise a Generation of Good Citizens Who Are Confident of Their Abilities and Able to Work in the World of the Future

During the workshop conducted for this report, His Excellency, the UAE Minister of Education, stated that His Highness Sheikh Mohammed bin Rashid Al Maktoum wanted the Mohammed bin Rashid Al Maktoum Foundation to be an incubator for the creativity of sons and daughters in the Arab region, and a platform towards the knowledge society, HH the Sheikh had requested more focused efforts in the area of empowering the younger generations to master and employ knowledge, and innovate sustainable solutions to face the challenges of knowledge in the Arab world. The Foundation stresses the importance of empowering the youth, by offering innovative initiatives to contribute to the preparation of a generation of future leaders and raise the aspired-for generation of knowledge-makers.

His Excellency the Minister stressed that with the “UAE Vision 2021”, the Emirati people are looking for an even better future, with reference to the importance of bringing up a generation of good citizens who are confident of their abilities and able to work in the world of the future. The minister cited a series of proposals to achieve this goal, including:

- Providing advanced national curricula that go beyond the prevailing stage to the thinking stage and that promote higher skills and knowledge required for the future, while confirming that these curricula emphasise the Emirati values of national identity and social traditions;
- Providing the latest and most powerful scientific series in the courses of sciences and mathematics;
- Providing the latest technology, modern techniques and teaching methods associated with them;
- Continuing with disseminating large-scale implementation of the Mohammed Bin Rashid Smart Learning Programme, in accordance with a five-year plan. The Programme is currently being applied in 123 schools. The ministry counts a lot on this programme to enable the Emirati people to master the language of this era, which would enhance their role in building the knowledge society;
- Developing the academic and professional advising programme and developing a curriculum to enable young people to choose the right direction towards university and beyond. Raising awareness among young people with regards to the requirements of the knowledge society and the needs of the labour market, while showing them their responsibilities and their expected role in the sustainable development path of the country;
- Emphasising on the national identity in education, consolidating the Arabic language in the teaching methods, and nurturing pride in the heritage, culture and traditions;
- Partnering with various educational boards and relevant ministries and institutions concerned with the youth towards raising a generation of citizens who will lead the country to the knowledge society.

Education, the Ministry of Information and other community institutions. All of these institutions must work together in harmony to qualify young cadres of citizens to gain knowledge and then use it in the optimal way, disseminate it in the community, employ it and develop it. Perhaps this supports one of the intellectual foundations that we discussed in the first chapter of the report, i.e. that the transfer and localisation of knowledge should be regarded as a national project. The way expert citizens think with regards to the implementation of this project will become apparent later in more than one instance, through their proposal to

establish a body that sponsors knowledge in the country and identifies the corresponding national priorities.

### Clear Perceptions on the Subject of the Transfer, Localisation and Employment of Knowledge

The discussions noted that knowledge has complementary and cumulative properties, in the sense that the knowledge of other countries must be built on and benefited from. “*Cultural cross-pollination is important, and human beings have always worked on the transfer and exchange of knowledge through translation and exchange of scientists*”. However, the process of the transfer of knowledge from other countries should be directed in favour of the production of a new knowledge specific to the society. This is when the process of localisation and employment takes place. The process of knowledge transfer must first satisfy the needs of the society and emanate from its culture, and then the localisation of knowledge would take place. After that, focus should be on the knowledge associated with the cultural context of the society and society should establish its own distinctive knowledge. If this does not occur, the community will remain in the orbit of other societies, looking at others, copying from them and regarding them as models.

In addition to the awareness expressed of the importance of knowledge, participants were also conscious of the link between knowledge and the economy, as well as the importance of diversifying the country’s economy, without restricting it to the returns of petroleum products. They claimed that: “knowledge employment and production would entail a diversification of the economy, which should not depend on oil or other traditional resources. If this happens, the country would witness development in various fields, and will no longer absolutely rely on others, but will deal with them cautiously because it will have its own distinctive knowledge”. The idea of cautiousness in economic dealing carries the meaning of economic competition. This is one of the development requirements and competition will not occur unless the UAE

is able to have something to add to the production of knowledge.

### **The Most Important Skills and Required Elements**

Concerning the means of production of new knowledge for society, the discussions construed a framework based on strengthening five competencies in children and youth. These competencies would help them effectively integrate into the knowledge society so that they could contribute to the production process. When we examine these competencies, we find that they are a detailed review of some of the most important drawbacks that children and the youth in the UAE should dispose of to be able to move towards building the knowledge society. All concerned institutions (or the so-called enabling environments) should help them achieve this. The first competency is promoting the love of knowledge and the culture of achievement. Participants said knowledge is power, and those who possess knowledge have power; indicating their awareness of the issue of knowledge, its possession and production. *“Natural resources deplete, but knowledge is an inexhaustible wealth”*. And the employment of this knowledge is what leads to the achievement. *“Today, I do not need a student graduating with honours if he or she does not know how to think... We want young people who enjoy knowledge and the ability to employ it, and if they do not know how to employ this knowledge, it will remain abstract and impossible to use. However, if the young individual was able to employ knowledge, he or she would be able to face the world at this stage”*.

To achieve the knowledge skill, participants highlighted the necessity of promoting a culture of achievement among children at a young age. This means *“that we teach children how to set goals for themselves and strive to achieve these goals, without waiting for such things to be accomplished for them or for an adult to do them on their behalf”*. The promotion of the culture of achievement is very important in the Emirati society, especially among school and university students. Participants felt that people in charge of education should consolidate a culture of achievement

among students at a young age and lay the foundations of pride in the individual and collective accomplishment, regardless of the quality, which will come at a later stage. They asserted that the lack of confidence among some students in their ability to accomplish anything in Emirati society was linked to the students' love for scores and their tendency to obtain high scores, regardless of the means of doing so. For example, some pointed out that, in some student circles, the phenomenon of resorting to private commercial services to assist students in writing their research and projects was spreading. As such, how can the youth get motivated to work seriously on knowledge when such offices write their homework and assignments?

The second agreed-upon component in supporting the production of knowledge was the skill of social networking, “because whatever the knowledge you possess without social networking, it will not do you any good unless you can deliver it”. A real cross-pollination of knowledge cannot occur without communicating and interacting with others or without understanding their different viewpoints and frameworks and accepting them. The skill of social networking is important in order to establish the knowledge society, and this is clearly obvious at university level. There is less social interaction between students and professors for many reasons. These could be due to the lack of self-confidence among some Emirati students or to the fact that teaching is often conducted in English, or for other reasons. This dimension also shows the importance of openness and acceptance of different points of view. And this is one of the skills required for the exchange of knowledge. The study showed in the first section of this chapter the extent of young people's need for these skills.

According to the discussions, third among the components of the knowledge production and the establishment of the knowledge society was the promotion of labour-related values. These values are highly desirable among citizens. Participants in the workshop pointed out that the values

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A real cross-pollination of knowledge cannot occur without communicating and interacting with others or without understanding their different viewpoints and frameworks and accepting them

that govern citizens' work in developed countries have been a powerful factor in the rise of these countries. Some noted that young people take their monthly salaries for granted whether they work or not, and without any link to the level of productivity, and "therefore there is no incentive to work hard and no assessment of the efforts or a reward for diligent individuals". The latter is one of the arguments that do not call for work and for upgrading the knowledge and skills of workers. Young Emiratis should know that "institutions do not only exist so people work in them and get a job, but also for human beings to develop to achieve the bigger goal, i.e. the development of society". Participants noted the need to instil this value through universities, media and various institutions in society.

The fourth component is related to the value of the cultural identity. External knowledge cannot be localised per se, because it embodies components of foreign cultural values. According to participants: "Knowledge is a cultural product and it is not value-free". If the values carried by the knowledge are good and suitable for society, meaning if they are related to sublime human values, then there is no harm in applying them. "But if knowledge carries values that are hostile to the culture of a society and threatening to it, then we should be careful in transferring it, because this would be a threat to cultural identity. And just as we should open ourselves to the world, move within the framework of globalisation and keep up with development, evolution should not sweep away our culture and identity", and a balance must be established between the act of transfer and the culture and identity of society.

According to the participants, the last component required for proceeding with the processes of knowledge transfer is disabling the destructive social values that hinder it. Prevailing lifestyles in the Emirati society reinforce some negative values among the youth, such as materialism and consumption at the expense of other more humane values. For example, "we often face

ads that promote consumption in search for quick wealth, such as winning a luxury car. How can we ask the youth to work and persevere on knowledge, while these ads tell them that they could collect quick money without getting tired or *working*? *If you foster a culture of quick profit, consumption and wealth without effort... this would not be in favour of the knowledge project*". The transfer, localisation and production of knowledge require time and great effort, and such negative values do not help young people; it is as if "*you are telling young people to move away from domains that require effort and time*". Hence, decision-makers should emphasise that work must be the basis of a decent life in the country, and knowledge should be the basis for development. Lifestyles of the youth should be more supportive and propel towards increased efforts and diligence. Media outlets should play a constructive role by not showing these negative values and supporting values of respect to knowledge and knowledge workers. "*Media outlets in their present state do not help in the transfer or dissemination of knowledge*". The process of knowledge localisation and production must be conducted in an integrated manner with the contribution of all institutions.

### **Fear of the Potential Negative Consequences of Openness and the Transfer and Localisation of Knowledge**

The discussions revealed an evident issue, shared by some participants, regarding the nature of the knowledge to be transferred. Moreover, some participants were extremely worried about "domination" in the name of development or the transfer of knowledge. Meanwhile, some attendees expressed fear over the possible negative consequences of calling for openness and the transfer and localisation of knowledge. An attendee expressed this by saying: "*talking about development presupposes the existence of societies that need intervention in order to be put on a roadmap so as to move towards development... and this entails an assumption that these societies do not have knowledge, and that the major powers are trying to make them adopt a different "knowledge"*". People who share

this opinion fear “cognitive domination” or domination in general under the name of knowledge transfer. Another important point, according to one participant, is the emphasis on the fact that *“we cannot assume that the Arab world does not have knowledge. We have a deep cultural and intellectual stock and we should not look at knowledge as a material that can only be transferred, but as moral ideas”*.

However, on the other hand, some noted *“there are cognitive gaps in the Arab world that must be bridged”*. Such gaps include those related to scientific research, publishing and patenting inventions. Speakers pointed out that the amount of money spent on scientific research was very low and not commensurate with its role in the development and employment of knowledge to improve the community. In this regard, some attendees noted that cultural heritage exists, *“but we do not produce knowledge”*; the publications from the Arab countries, books and research combined, are not equal to the publications of one developed country. *“Scientific research is underdeveloped, the amount spent on it is little, and this indicates that we can neither produce science nor knowledge”*. Efforts shall therefore be maintained in this regard without fear of domination, because the transfer and localisation of knowledge, as participants previously noted, should go in accordance with the cultural trends and communal conventions.

Previous reports on Arab knowledge as well as international reports and local writings have pointed to the fact that there are many gaps in education and scientific research, which limit the ability of the Arab countries to transfer and localise knowledge. This was discussed earlier upon analysing the status of education and scientific research in the UAE. However, this does not mean that we are assuming that the Arab world does not have knowledge. It means that there is a clear gap that requires bridging through being open to others and learning from the experiences of developed countries in the fields of education, scientific research, knowledge production and the establishment of the knowledge economy.

## Fear of Cultural Consequences

Also obvious among participants was the concern related to the transfer of knowledge in the humanities and a fear that this would infiltrate and threaten the cultural fabric of society. Some participants even exaggerated their fear, claiming that there were ideological prohibitions against the transfer of knowledge, or against new ideas sometimes, because *“they might change our children’s system of thinking, or threaten faith and promote a culture of violence, consumption; and/or laziness and lethargy among our students. Such new ideas might even call for disobeying the authority of the parents and the father’s will, leading to unhealthy behaviours”*. One attendee felt that transfer of knowledge should not be limited to science and technology. *“Architects can build houses and buildings, but cannot build intellect... humanities are also the basis of progress in societies and the evolution of thought, not only applied sciences. Thinkers are the ones who teach the concepts and ideas that shape the society and draw its map. There is no harm in studying humanities and transferring them”*. Another participant discussed the importance of universities accepting students in humanities based on their high school grades equivalent to that required for applied sciences, such as medicine and engineering. He argued that when they are accepted with lower scores than for other sciences, this contributes to the perception of inferiority to these disciplines despite their importance.

Fear of the knowledge effect on young people was mentioned more than once during the discussion and in several ways. There were also clear responses to this concern. For example, one participant said: *“this generation is open to knowledge which reaches it in various fields, so how can we supervise this matter so knowledge does not dominate our traditions and customs?”* Being over-cautious with regards to customs and traditions is understandable, but, according to one of the speakers, *“I am convinced that we have the most powerful religion and this religion constitutes a protection. If the true religion is instilled in young people with freedom, we must not be worried about them. Islam is tolerant in its values and practices, and helps in facing difficulties and challenges, whereas over-cautiousness and the*

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*permanent ongoing monitoring process is impossible and might backfire. We should not push our children to fear knowledge because they will integrate into the knowledge society whether we like it or not".* Another speaker said that *"Arabs relied on other civilisations and the West copied from Arabs... so the enthusiasm for the transfer of knowledge should not be scary. Transfer is the axis of evolution in all civilisations, and nations cannot evolve without copying from one another; transfer is a goal that we must seek."*

### **Disagreement over the Nature of the Required Knowledge**

Discussions showed a disagreement among participants over the nature of the knowledge to be transferred and localised. One of the attendees, a researcher in the field of knowledge, saw that the knowledge to be transferred and localised is one that is specialised and advanced, and not the prevailing knowledge provided by the curricula set by the Ministries of Education or Higher Education. It is rather the modern knowledge related to sciences, mathematics and manufacturing and production technologies. As for humanitarian or social knowledge, and in particular, knowledge that interferes with customs, traditions and culture, it already exists in society, and no cultural values should be transferred to it from the outside unless they promote the existing ones. This would take place by promoting for instance specific values that serve the establishment of a knowledge society, such as values of punctuality, professionalism, perseverance, accomplishment and social values that improve human behaviour, and promote tolerance, interaction, expansion of horizons, and acceptance of the views of others.

It must be noted here that knowledge, in the broad sense of the word as adopted in this report, is part of a society's culture or, alternatively expressed, creates a knowledge society not only at the science and knowledge level, but also at the level of values and skills related to the acquisition, transfer and employment of knowledge. This does not mean denouncing cultural heritage; if we are to localise new knowledge and related

values, we must have "firm ground" to build upon. This also does not mean denying the existence of values in society. However, these values are not as evident, as they should to support the establishment of a knowledge society. What is meant by "ground" here is of course the prevailing customs, traditions and culture, which are to be enriched with new and virtuous cultural notions that advance them and society, notably in terms of work and production. Thus, the transfer of knowledge can be seen not only a transfer of sciences and technologies in all fields related to industrial development and production, it can also be seen as a transfer of social values that help and motivate people to work and be productive for this knowledge to become ingrained in society and in the minds of citizens themselves.

### **Arabic Language: The Incubator of Culture and Knowledge**

The issue of language was brought up during the brainstorming sessions as well as during focus group discussions with the youth. Many participants argued that the localisation of knowledge cannot be accomplished without the native language, as many believe that people are capable of *"absorbing knowledge in their mother tongue more than in any other language, and no real transfer of knowledge can be made unless students learn it in their own language. Countries that have evolved were not hampered by their language"*. In the same context, one speaker wondered, *"how can we build a knowledge society when we make young people look down on their language? An inferior look to the Arabic language does not serve the creation of a knowledge society, and the English language should not be given more importance than one's native language. The more our youth respect themselves, their country and their language and arm themselves with the appropriate knowledge, the more we would be respecting others. However, if we distort citizens' ideas, impose on them cultural masking, and bring them a knowledge other than their own, what would it be like then?"* However, agreeing on this point should not drive us away from helping children and young people learn and use other languages. Learning languages means opening up to and communicating with new cultures and knowledge, which is

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An inferior look to the Arabic language does not serve the creation of a knowledge society, and the English language should not be given more importance than one's native language

absolutely essential for the Emirati society in order to transform into a knowledge society.

### **Reproaching the Educational Institutions**

Some attendees considered that ever since the Ministry of Education was established to replace the Knowledge Authority, knowledge and its presence in the community has been neglected. They suggested the establishment of a special committee or body for knowledge as in the past. This is an essential point, because if we look at the transfer and localisation of knowledge as a national project, which institutions would be responsible for leading this project? What would be their role? In other words, if we leave the various institutions with their efforts uncoordinated, these efforts will be scattered and there will be more division than common ground for the transfer and localisation of knowledge as a first step in producing and putting knowledge into use and creating a knowledge society. This underscores the need to establish an authority for knowledge management at the government level to coordinate the efforts of all institutions and shape the relationship between them as will be discussed in the final chapter of this report.

The attendees reiterated the importance of education, which, once reformed, can help the whole society. They also expressed their rejection of the many pedagogical experiments that surprise them every year, which may not fit with societal values and which are carried out, in some cases, without adequate study or knowledge of what the other initiatives achieved. New pedagogical experiments are launched without conducting a prior objective evaluation of previous experiments in order to determine their strength and weakness points and learn from them, to the point that education in the country has become, according to them “... a testing ground. We often adopt initiatives to make a reform in the education sector and copy other countries’ experiments without first conducting evaluation studies to assess the other experiments to see whether they succeeded in enabling the youth to deal with knowledge and learning

requirements”. This group of attendees also criticised a specific initiative that was launched without enough preparation, namely the use of iPads in schools. The discussants wondered about whether educators were prepared and trained to deal with new technologies. “Educational Fashion”, as some of the attendees called it, is not enough by itself. Educational development should rather be built on new plans and studies. One of the discussants noted that “*the iPad issue is being given more attention than it should. The iPad is just a tool like books, and should be regarded exactly as our ancestors had regarded books; a way to facilitate learning, make it more available, and achieve more communication and information, and not as a substitute for classrooms and teachers. If we continue using the same teaching methods, even with the iPad, learning will not be achieved*”. What matters here is to adopt new teaching methods that allow students to express themselves. “*Many students are frustrated because teachers do not accept their opinions, suggestions and questions. This leads to their capacities being wasted and to them not learning creative self-expression*”. The participants’ enthusiasm when talking about education is understandable as the Minister of Education said, education has many concerns that should be addressed and which are magnified when education is linked to the establishment of a knowledge society.

### **A Call for Better Organisation of Relevant Institutions**

In addition to the big role that education plays in the establishment of a knowledge society, the contribution of the various institutions involved in the transfer and localisation of knowledge is a very important topic. The process of transfer and localisation of knowledge should not be addressed without considering the role that various types of institutions play. These are the institutions which are to put the knowledge outcomes to use and contribute to the introduction of new types of knowledge. And the question posed here is: how can these institutions contribute to the transfer and localisation of knowledge when each institution is working alone in isolation of others? Moreover, many of

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The discussants raised an important point, which is that the current labour market hinders the transfer and introduction of new knowledge

these institutions are highly bureaucratic as many participants noted. Some participants suggested that a defined strategy be developed for the coming years, with clear objectives, to be followed and implemented by the various institutions. This suggestion confirms the importance of setting general national objectives and strategies for the transfer and localisation of knowledge, where all educational, research, cultural and media institutions as well as other State institutions have their share of objectives which they should strive to achieve. As such, all institutions work together to nurture Emirati citizens. This suggestion, no matter how reasonable it sounds, reflects the centralised nature of the State which watches over citizens and their future, as most of the participants believe that everything must begin with the State. There is no harm in the State developing a strategy and goals in order to unite efforts. However, there must also be initiatives and contributions from the various society institutions in the process.

### **Creativity, Transfer of Knowledge and Labour Markets**

The discussants raised an important point, which is that the current labour market hinders the transfer and introduction of new knowledge. Some attendees noted that the labour market *“imposes on us what to specialise in and what to do for a living... thus we cannot offer the knowledge we are capable of producing, because we are bound by the labour market and by working day to day.”*

Some of the attendees pointed out that institutions and the work culture represented an obstacle to creativity and new ideas. Whatever employees are used to doing is considered the path to follow, and it is very hard to break this cycle. The discussion pointed out to a fear of young people in general and of their ideas. Managers fear being replaced with young people and therefore see their new ideas as a threat. *“Many institutions that claim to support young people are highly bureaucratic and deal with the youth in a frustrating and conventional manner. As a result, those young people’s ideas are not taken*

*into consideration and their potential is smothered.”* Some of the attendees, especially the younger ones, noted that the “conventional” work environments in various institutions were preventing the transfer and production of knowledge. The problem facing the youth, as they put it, was that they cannot make their voices heard professionally by their superiors. Many stated that *“young people need to make their voice heard by superiors, just as was the case in the brainstorming session that was held in preparation for this report. Young people’s ideas need to be nurtured, just like a seed: if you do not give it the care it needs, it will die”*.

It was apparent from discussions that the institutions’ negative role did not encourage the youth to innovate or to abandon traditional labour methods. *“When presenting any new idea [to your superior], you are faced with rejection. There is no promotion of cultural and scientific exchange through the encouragement of personnel to attend conferences and work with external or internal partners. Managers regard new ideas as though they have nothing to do with work. They have no desire to start anything new, and only encourage professional development in old traditional ways”*.

### **Scientific Research and Entrepreneurship: Issues of Vision, Supporting Political Will and Hesitation in Practice**

One of the discussants, a former professor at the United Arab Emirates University noted that *“organisers of technological and scientific research initiatives lack clarity in their vision when it comes to the success and failure of a business. Failure for them is both improbable and unacceptable”*. As for entrepreneurs, *“success comes out of failure”*. The issue, as he said, is not about funding, but about an integrated system for the establishment of a knowledge economy. *“Funding was not the main factor for success in the West, but the fact that the Western environment understands the nature of work in the fields of technology and scientific research. Here, we always go for extremes in our choices. We want either complete openness or complete radicalism”*. Another point is that there is a gap between decision-makers and citizens. *“Leaders and decision-makers have an entrepreneurial spirit and*

*a desire to develop and take the society to whole new levels. However, executives and CEOs who come second or third in the hierarchical order have a fear of implementing decisions and having to deal with budgets and initiatives. Projects aiming at supporting the youth have a serious problem, as decision-makers are afraid of dealing with budgets".* Executives must be proactive and not let fear and dread of dealing with budgets hinder them or wait until young people's projects achieve success to give them funding. *"They do not realise that the business world is founded on new ideas, that only 20% of the ideas work, and that we learn from failures too".* The discussant called upon managers to enjoy courage and a risk-taking culture because both were crucial for creativity. Another group of attendees saw that fear, when dealing with budgets, was necessary. *"Fear from spending is rational. We should not spend money on anything, rather make sure first of all the seriousness of the idea. Budgets are controlled and are subject to evaluation. That is why we should not adopt just any idea without first conducting a feasibility study."*

One of the discussants gave an example on the lack of understanding of the meaning of scientific research and how to deal with it. *"When I received funding, one of the funds asked me to shift my company into a profitable project within two to three years. This shows how little they know about scientific research. Scientific research is a living being that requires effort, and trial and error... There are obstacles that sometimes lead to pivoting and coping with new circumstances. The process involves a lot of exploration. It is not as some people think of it, "as erecting a building and starting to make money from rent overnight. Knowledge and awareness of work in the field of scientific research is totally different in our society than that in other ones".* The discussant added that *"institutions are not run appropriately as business enterprises that evolve and compete in the market with the mentality of an entrepreneur. Rather they operate with the mentality that they are governmental institutions that do not have a motive to compete because their budgets are guaranteed by the government"*.

Several participants have emphasised the creation of a culture of support and empowerment for young people. We should not let the financial aspect and fear of failure stop us, because that will not

create a proactive and creative generation. Establishing a knowledge society requires an integrated system that excludes fear, dread, conventional norms or bureaucracy. We should know, according to the tech-firms expert, that there is a difference between the transfer and production of knowledge. *"Typical projects that rely on franchise are so easy to implement, but even with the presence of such projects, we cannot claim to be producing knowledge. This is a transfer of knowledge. The production of knowledge means adding a local character to it, in the sense of reformulating the knowledge to suit the local community. The true mark of producing knowledge is adding something to the transferred knowledge and not just transferring it and using it as is"*.

### **Youth Support Institutions**

It became clear from the conversations that there is a conceptual confusion in terms of the presence of institutions that support the youth, such as the Ministry of Culture, Youth and Community Development, and others. These institutions never had among their objectives enabling the youth to transfer and localise knowledge. However, since such institutions deal with the youth, their presence has led to some confusion with some participants thinking that they can do anything or that the transfer and localisation of knowledge should already be on their agenda. This reflects a defect in the perception and simplification of the process of transfer and localisation of knowledge. Some of the attendees mentioned that despite the presence of institutions that deal with the youth and offer them various activities, no assessment of the impact of such enabling environments exists. There is no evaluation of the impact and benefit of these institutions' various activities on the potential development of the youth.

### **Enabling and Motivating Environments**

In terms of enabling environments, participants said that financial allocations were actually present and there was no doubt about that. The UAE is a rich country; political will and clear political vision also exist therein. These two represent significant enabling characteristics of the environment

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In terms of enabling environments, participants said that financial allocations were actually present and there was no doubt about that

for the transfer and localisation of knowledge. However, attendees also cited some elements that were absent from the environment, and which were needed for the transfer, localisation and production of knowledge. This point perhaps is just a continuation of the discussion on competencies, mentioned earlier, with a focus on enabling environments for the transfer, localisation, and production of knowledge.

### Research Enabling Environment

On top of these necessary enabling environments is the scientific research environment. Discussants noted that “compared to the road infrastructure, the research infrastructure is very underdeveloped and that this is why we are running behind in scientific research. There is no body determining scientific research priorities, and despite the presence of the National Authority for Scientific Research (NASR), the State cannot carry out research in all knowledge fields. Other countries have a special Bureau for Innovation and Science that sets research priorities”.

The second enabling environment is the presence of Emirati cadres. *“Where are qualified Emirati cadres to deal with this aspect? Emirati professors barely make up for 5% of foreign professors in the country in tertiary and university education. What role do qualifications and incentives of the national cadres play in making our youth pursue this direction, especially since many graduate study researchers fall within the age group 19-29?”*

The third issue is scientific publications, which is a very important issue. *“Where are our distinguished scientific journals which address important topics in the country and deal with its issues?”* Scientific output is low in general. Then comes the issue of scientific publications. Research can barely be useful if not published and transformed into beneficial products. In this respect, one of the participants wondered, *“Where are the institutions that are concerned with research outcomes and that work on turning them into products? All*

*around the world, civil society institutions and companies are in charge of this task, where after research is carried out and published, the society starts benefitting from it. However, the civil society and its role in this regard are fully absent. The State does not have any institutions whose role is to take research findings and turn them into tangible products that serve the community.”* In return, others believed that there was nothing wrong with scientific research and that the State produced good research. This might be due to the good financial situation of the State. Some assume that since the government is rich and can fund scientific research, then there is no problem in that regard or that the problem, if any, is simple and easy to solve.

### The Weak Role of Civil Society

There is no doubt that the government has a role to play when it comes to the transfer and localisation of knowledge, as evidenced by the views of the discussants. Knowledge and its transfer, however, as some explained, form an integrated scientific system that serves the interest of society as a whole. Enabling environments, legislations and regulations should come together in this regard. *“However, civil society and its engagement with the public sector should also be given adequate attention. In other countries, civil society, with all its different institutions and associations, plays a primary role in this process; universities, R&D centres and companies are all part of this civil society. Civil society is extremely important since the public sector is always less capable than the wide civil society. Moreover, we can't rely solely on the government to do everything and neglect the civil sector”.*

What can be deduced here is that professional civil institutions should be established to allow scientific and cognitive systems to develop. They should be supported by a set of legislations and regulations on work with knowledge, research and sciences. At the same time, we can see that the government has an important role to play here in drafting legislations, laws, rules and regulations that guarantee the availability of financial resources and the continuity of the process of the transfer and localisation of knowledge. The civil society issue is very important. The results of the quantitative

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Discussants noted that “compared to the road infrastructure, the research infrastructure is very underdeveloped and that this is why we are running behind in scientific research

study show a lack of awareness among young people concerning the role of civil society and trade unions in creating a knowledge society as well as in the transfer and localisation of knowledge.

### **Investment in the Current Enabling Environment in the UAE**

In our mobilising efforts, it should be kept in mind that the UAE is naturally a stimulating environment for the transfer and localisation of knowledge, given the existence of people from all around the world. Moreover, this not mean that the process of transfer and localisation of knowledge in the country should be done by citizens alone.

On the other hand, as one of the discussants expressed, *“We should question the extent to which citizens have benefitted from the E/ smart government revolution. Their benefit from the technology and knowledge revolution is actually very limited”*. What is meant here is to question whether the benefit to citizens in the knowledge field stems from their own work. “We are talking here about using applications developed by the society, rather than consuming imported technologies. There is a call for a law to be passed that empowers citizens cognitively so that they play an effective role in society, or for a national committee to be formed that works on two aspects. It should first focus on playing the catalyst for motivating citizens to benefit from knowledge and come up with products that draw from it. On the other hand, it should provide care and guidance to support citizens in their knowledge production”. Finally, citizens must embrace knowledge and support the government. The idea that the government alone supports citizens and goes to them in everything will not establish the world of knowledge, for *“the government cannot spoon-feed knowledge to citizens”*.

### **Conclusion**

Based on the quantitative and qualitative field studies presented in this chapter, the following important points can be concluded:

- Emirati youth possess good levels of

cognitive skills that enable them to actively integrate in the transfer and localisation of knowledge. This was reflected in the increasing average of the overall score that participating students from both genders received in the cognitive skills, achieving good scores in most of them. However, there were some discrepancies in the main components of this important indicator. Whilst the overall performance of the sample population was fair or even good for the skill of solving daily problems and searching for information, their performance in the written communication skill was within average, despite the great importance of the latter in achieving an active youth integration in the knowledge society. The technology use skill ranged between good and fair. The overall performance of the youth in the use of a foreign language (English) skill was average, denoting a shortage in the command of that skill in understanding and writing. The same applies for the use of the Arabic language, but to even greater extent.

- The sample representing the Emirati youth also expressed high possession rates for most of the values essential for active integration into the processes of the transfer and localisation of knowledge. Despite the need to carefully address this score as it might represent the values that the youth aspire to, and might not necessarily reflect their practices and behaviours, it still is a reason for true optimism. This might even be capitalised on towards enhancing the values orienting the youth’s behaviour, in a way that serves the higher cause of achieving the active integration of Emirati youth in the processes of the transfer and localisation of knowledge.
- In parallel, the analyses showed a weakness of the youth in social and cultural effectiveness. The rate however was acceptable in the field of economic effectiveness.
- The focused work sessions and the brainstorming workshops have shown a clear enthusiasm of the youth in belonging, citizenship and pride in UAE and its achievements. This impression was

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In our mobilising efforts, it should be kept in mind that the UAE is naturally a stimulating environment for the transfer and localisation of knowledge, given the existence of people from all around the world

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The youth believes the government is making huge efforts in supporting them; most of the participants in the sample indicated that the government has made “a very big contribution” or “a big contribution” in this field

also enforced in the field research which came to the same results, and in rates higher than the rest of the participating Arab countries.<sup>6</sup> This enthusiasm and belonging can be built upon, particularly with respect to instilling the concepts related to the foundations and practices of good citizenship (their scores were average, in the range of 55% of the final score), and in what strengthens to a great extent the possibility of active integration based on good citizenship and the rights and obligations it entails.

- The analyses also showed that the level of youth openness globally (reading, travelling) was weak, where the average score of students was in the range of 33% of the final score. Also, 65.1% of the sample said that they are not exposed to the translated foreign books relevant to their specialties, which indicates a topic that should be addressed with greater efforts, whether by the development decision maker, or the youth themselves. It was also striking that 70% of the participants in the sample indicated that they were not aware of any existing youth institutions related to the transfer and localisation of knowledge. This indicates the necessity of expanding the promotion of programmes and institutions for the youth in the UAE, so that they can benefit from the tremendous opportunities the state is offering them.
  - As expected, impressions of Emirati youth regarding the enabling environments were excellent in general. More than 95% indicated that providing the opportunity to use the internet contributes, with an acceptable or great effectiveness, to the youth preparation for the transfer and localisation of knowledge. The same applies for the availability of electronic interaction means (32.6% of acceptable effectiveness and 59.2% of great effectiveness). The Emirati youth also showed trust in the capacity of the working authorities in UAE, including media (43.5% of acceptable trust and 43% of full trust) and civil society organisations to contribute in integrating
- the youth in the processes of the transfer and localisation of knowledge, as well as the vocational associations. The youth believes the government is making huge efforts in supporting them; most of the participants in the sample indicated that the government has made “a very big contribution” or “a big contribution” in this field. However, this should be examined in light of the results of the social and cultural effectiveness of the youth, which were relatively low, showing that the youth might not be acquainted with the role of the civil society organisations, the associations and other governmental bodies, and therefore do not use the potential and opportunities these institutions provide, as required.
- It is remarkable that almost a quarter of the sample deemed “the contribution of foreign investment projects to the transfer and localisation of knowledge” as “weak” or “absent”. The same goes for the contribution of economic institutions to funding research and “the contribution of the private sector to the advancement of research”. These answers, which were confirmed through the brainstorming and focus group sessions, direct attention to these three important elements while planning the transfer and localisation of knowledge.
  - Responses of the youth on issues related to the transfer and localisation of knowledge raised numerous issues. These answers were positive with regard to certain dimensions, and indicative of their awareness of what knowledge, as well as its transfer and localisation, can offer. Such answers include “approving” or “highly approving” that the localisation of knowledge “will contribute to stimulating the creativity and innovation activity”, and that this will contribute to “stimulating economy”. This is in addition to acknowledging the positive impact of knowledge on important life issues such as “reducing unemployment”, and that “the transfer and localisation of knowledge in UAE, as in the Arab countries, is a vital issue for the future of these countries”, and that “this can contribute to enhancing

the economic competition”.

- Furthermore, some remarks can be examined. The explicit approval rate on the argument “the issue of the transfer and localisation of knowledge is not among current youth concerns” was 38.4% of the total sample. In addition, the focused interviews and the brainstorming session indicated the existence of some fear among the youth, and possibly to a greater extent among older participating experts, that the transfer and localisation of knowledge might entail subordination to the West or change the cultural characteristics of the UAE, including the suppression of identity or prejudice against the Arabic language. This result calls for attention and action towards increasing community awareness of the importance of constructive openness and intercommunication, and the transfer and localisation of knowledge as a developmental necessity benefitting the society, while focusing on the fact that openness does not mean the loss or suppression of identity. Focus should also be on strengthening the Arabic language as an incubator for culture and knowledge, without neglecting the importance of translation and learning foreign languages as a requirement that goes along with supporting the Arabic language, towards achieving productive cognitive openness.
- One of the most important positive issues that can be exalted, is the youth's concurrence of availability of one of the most important knowledge society pillars; freedom. The vast majority of students declared that the basic freedoms were present at a score of “excellent” or “good” (freedom of expression and opinion, 98.4%, freedom of principles, 98.2%, and social justice, 96.4%). This constitutes a positive orientation and an enabling environment that helps the youth in the transfer and localisation of knowledge. This positive orientation can also be seen in opinions about customs, traditions and gender equality. The majority of the youth considered these to be incentives for the transfer and localisation of knowledge, and believed them to be present in the

Emirati community. Concerning job opportunities for the youth, and despite their importance to the transfer and localisation of knowledge, 43.1% stated they did not exist. This situation requires attention.

Results of the focus and brainstorming sessions with experts and stakeholders supported these orientations and raised many important relevant issues. These qualitative studies revealed a number of issues whose main points can be summarised as follows:

- Concepts of the transfer and localisation of knowledge and openness were supported among the Emirati youth, who were noticeably excited about the process of the transfer of knowledge. This was considered an important step leading to “*the codification of knowledge for the UAE environment*”, in the sense of “*its modification and formulation in the local form in a way that suits the culture and identity of the society*”.
- As for the localisation of knowledge, participants expressed that the concept was relatively new to them. The majority thought that localisation here meant that knowledge would be localised to the Emirati people themselves, with focus on the importance and necessity of maximum profit from the residents, as well as the transfer of knowledge and experiences they have had; this included “documenting” them in order to preserve and accumulate them, so that the country would not remain “*always dependent on an external source*”. The youth also confirmed that citizens should excel in many vital areas and not be restricted to transfer and localisation of knowledge, and to be creative and pioneering on a global level, there after they can gradually expand in these areas. The youth stated how important it was that the topic of knowledge management become a national project, with an awareness of the importance of the participation of the youth and their preparation for building a knowledge society.
- It is to be boldly noted that the young people themselves considered youth “*an energy that, if not used positively, becomes*

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The youth stated how important it was that the topic of knowledge management become a national project, with an awareness of the importance of the participation of the youth and their preparation for building a knowledge society

*a negative energy*'. Therefore, they should be counted on, trained and given the opportunity to lead in this role. A group of them said there were discrepancies between education outputs and the requirements of the labour market; what students are learning does not significantly serve the labour market. The majority of the participants stated there were real problems in the educational system, which they considered "*the source of transfer of knowledge*". Such problems included the scarcity of some specialisations and the relative abundance of others; while others were non-existent. Some participants also noted the decline in the academic level of male and female students at university.

- The youth noted the need to develop their cognitive skills in an appropriate way for the requirements of the knowledge and globalisation age. Some participants mentioned that students were in dire need for learning new skills to help them in the future, for continuous education and increasing their knowledge, towards transferring and localising it. Many of them criticised the existing educational plans. They feared that the educational system might give an impression of progress, whereas its graduates cannot compete with those graduating abroad.
- Participating experts and stakeholders demonstrated a good understanding of issues of knowledge transfer, localisation and employment, while confirming that these issues should be addressed in a systematic and comprehensive manner and at all levels of society and through numerous institutions, including the Ministry of Education, the Ministry of Information and other institutions. All these institutions should work together in harmony in order to form the young citizen cadres to acquire knowledge diffuse it in society, and employ and develop it.
- In addition to awareness of the knowledge topic and its importance, participants have shown an awareness of the connection of knowledge with economy, the importance of diversifying economy in the state, and not being restricted to

the returns of oil products. In order to achieve the competency of knowledge, participants deemed it necessary to foster a culture of achievement among children at a young age. It means *teaching children how to make objectives for themselves and strive to achieve them, instead of waiting for things to be done for them or for adults to do them on their behalf*. "*Fostering a culture of achievement is very important in Emirati society, particularly among school and university students*".

- The second competency which participants agreed that it supports the production of knowledge is the social networking. A real pollination of knowledge can never take place without communication, interaction with one another and understanding different opinions and intellectual frameworks and accepting them. Another component of the production of knowledge and the establishment of a knowledge society in UAE – according to the discussions in UAE – is related to enhancing work-related values. Such values are in high demand among citizens. A fourth component is related to the value of cultural identity. Participants mentioned a dire need to establish a balance between transfer and the community culture and identity, along with disposing of any destructive social values that do not serve the transfer and localisation of knowledge, such as the prevalence of consumerism and materialism at the expense of human values.
- It was obvious throughout the discussions that some participants had issues regarding the nature of the knowledge to be transferred, with a strong fear of subordination in the name of development or transfer of knowledge. However, some participants considered that "there are knowledge gaps in the Arab world that have to be bridged", among which are research, publication and patent gaps.
- There was almost consensus over the necessity of strengthening and supporting the status of the Arab language as an incubator of culture and a recipient of the transfer and localisation of knowledge, while emphasising that

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The youth noted the need to develop their cognitive skills in an appropriate way for the requirements of the knowledge and globalisation age

the localisation of knowledge cannot be achieved without the mother tongue. This should not entail neglecting other languages and using them to open up to and communicate with new cultures and knowledge.

- There were also calls for better organisation of concerned institutions. The idea raised here acknowledges the importance of the existence of general national objectives, or a strategy for the transfer and localisation of knowledge. Afterwards, each institution in education, research, culture and media, as well as other state institutions should take its share of responsibility towards achieving these objectives. This way, all institutions work together to nurture the aspired-for Emirati citizen.
- Participants argued that labour markets and institutions in their current situation did not support creativity and the transfer of knowledge. Some participants pointed out that the institutions and the labour culture therein represented an obstacle to creativity and to presenting new ideas. What the workers are used to is considered the trend they should follow, and it is often hard to break the routine.
- It is necessary to work on supporting and organising research, entrepreneurship and youth welfare. It became evident that there was confusion between these roles; the hesitation in real world practices on one hand, and the vision and the supporting political will on the other. Discussions indicated a perplexity and lack of harmony across the different concepts related to the existence of institutions to support the youth, such as the Ministry of Youth, and the work of these institutions in the area of knowledge transfer and localisation.
- As far as the enabling environments are concerned, everyone confirmed their appropriateness and existence. Everyone also confirmed that financial allocations exist, as well as political support and a clear political vision. These represent important characteristics of enabling

environments for the transfer and localisation of knowledge. However, some participants indicated gaps in the research enabling environments, including support for creativity, research and publications among citizens, in addition to the deficiency in transforming research outcomes into tangible products to serve society.

In conclusion, the need to clarify the objectives and work towards the transfer and localisation of knowledge was reflected and emphasised throughout the discussions. Participants expressed this in various ways: *“For our society to be a knowledge society, we must know where it is, where we want to go and how. We must not reject opening up to others”*.

This leads us to the discussion of strategies regarding knowledge transfer and localisation. Participants deemed that any strategy for the transfer and localisation of knowledge must begin with building the human being. Education is to be given top priority; it should be the top priority of the executive authority, with the objective of raising a human being capable of dealing with the future. *“The most important factor in the transfer and localisation of knowledge is education, and the basic step in education is how to achieve balance between memorising, understanding, critical thinking and balance between the access to information, obtaining it through the internet, and the local production of knowledge”*.

“We must engage the youth in the means of knowledge transfer and in decision-making, in a sense that the youth are partners in creating the future. And we should not rely solely on the institutions working on behalf of the youth. We must believe in the youth and in their capacities and prepare them for the process of knowledge transfer and localisation.”

One of the female speakers stated that if we do not engage with and integrate the youth, they will integrate using their own means, for the youth today are an energy: “The youth have integrated without us asking them to do so, without knowing it or noticing it. ...I was chatting with a female student on Instagram. I thought she was an old lady and was talking to her in a mature way. At the end she displayed her picture and I discovered she was a child... There is an infiltration of the youth into the world of adults, we must reach out to the youth and deal with them using the logic of current times... Let the youth become partners. They are energy. If we do not reach them it will be a negative energy... We should integrate with the youth and not distance ourselves from them, nor them from us.”

*Excerpts of participants' comments during the brainstorming sessions*

## Endnotes

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- <sup>1</sup> UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
- <sup>2</sup> UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
- <sup>3</sup> UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
- <sup>4</sup> Knowledge and Human Development Authority 2009. (Reference in Arabic)
- <sup>5</sup> Ministry of Culture, Youth, and Community Development 2009. (Reference in Arabic)
- <sup>6</sup> See the General Report of the Third Arab Knowledge Report 2014, UNDP and Mohammed bin Rashid Al Maktoum Foundation 2014.





## Introduction

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Knowledge is no longer a luxury that can be ceded, as it constitutes one of the basic pillars of comprehensive and sustainable human development in this era. This report has addressed the general status of the transfer and localisation of knowledge in the UAE and the nature of youth participation in this central development process. It has built on what was adopted by the previous Arab Knowledge reports, which emphasised knowledge transfer and localisation as an entry point and a fundamental requirement for achieving human development in all its dimensions. The first chapter of this report discussed the most important concepts of the transfer and localisation of knowledge within the understanding that “knowledge” goes beyond technological realms to include science and innovation in literature, arts and humanities and accumulated human experiences. In this era of globalisation, openness and communication, human development with its various requirements and dimensions can only be achieved on the basis of the transfer and localisation of knowledge which has become, in terms of inputs and outputs, a key element in bringing about progress and human welfare. For countries aspiring to assume leading positions in the 21st Century, the transfer, localisation and employment of knowledge in human development are essential prerequisites. There is no doubt that the UAE is one of these countries. UAE’s drive towards progress to catch up with the developed countries and compete with them in leading positions is evident through many adopted policies and initiatives, including UAE Vision 2021. This represents a fundamental building block in the quest for the transfer and localisation of knowledge and the achievement of effective integration of young Emiratis in this pivotal development process.

Therefore, the conceptual model adopted in this report for the transfer and localisation of knowledge was based on the interrelationship between two foundations: “the provision of the cognitive capital,” represented in human resources capable of transferring and localising knowledge; and “the provision of

required enabling environments” including legislation and supporting institutions. The basic tools required for knowledge transfer and localisation should be provided through these two foundations, including institutional, legislative, cognitive and financial instruments. These foundations, along with their instruments and tools, will lead to the localisation of knowledge through an integrated triad at the centre of which are essential mechanisms including information technology, motivation, materialistic and moral incentives, openness and communication, global and regional partnerships, translation, as well as evaluation and follow-up. According to these concepts, knowledge transfer processes are merely a phase on the way to the ultimate goal of localisation of knowledge.

Based on the weaknesses and strengths analysis, the report identified UAE standings on the most relevant indices, particularly the Knowledge Economy Index. These indices demonstrated the relentless efforts and high levels of readiness in establishing the knowledge society. Results show that among emerging states, the UAE is one of the leading countries in terms of spending and investing in infrastructure. In a short period of time, tangible achievements have been witnessed in the country in various arenas including information technology infrastructure, which pave the way for establishing and building the knowledge society. The UAE ranked first in 2012 among Gulf and Arab countries on the Knowledge and the Knowledge Economy indices with 7.09 and 6.94 respectively, and ranked 42nd worldwide among 145 countries, going up six positions compared to 2000 rankings.<sup>1</sup> It also ranked third among Arab countries and 40th globally on the Human Development Index in the 2014 report. The UAE also ranked first among Arab countries and 14th globally on the Happiness Index issued at the beginning of 2014.<sup>2</sup> The same is true for the Global Innovation Index, on which the UAE ranked first among Arab countries and 36th globally.<sup>3</sup> These indices clearly indicate UAE’s rapid advancement towards leading positions in the fields of knowledge and development.

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Indices clearly reflect UAE's rapid advancement towards leading positions in the fields of knowledge and development

However, this progress is not devoid of challenges for the transfer and localisation of knowledge and the efficient integration of the Emirati youth in these processes. The report highlighted these challenges; in education development to align with the requirements of knowledge societies; human resources, including the current demographic challenge; the current economic structure based on the rentier economy; and finally, motivating the youth to use and to invest in available opportunities effectively. The educational challenge for the youth in the UAE is diversified and involves several key issues, including the decline in the perception of education, traditional teaching methods, the lack of diversity and balance in the selection of specialisations, as well as the weakness of the outputs of university education and incompatibility with the labour market.

As for the challenge of human resources, it is primarily associated with the small number of citizens relative to residents in the country, and citizens' preference to work in government sectors rather than in the production and private sectors. Given the strong relationship between knowledge economies and the production and economy structure in general, the continued reliance on oil as a major resource for the country at the expense of diverse production sectors with the highest cognitive added value is an important economic challenge in establishing a knowledge society in the UAE. Motivating Emirati youth to participate actively in this area is another major challenge. Despite the considerable opportunities available to them, the majority of Emirati youth prefer stable administrative jobs that provide high financial returns in the public and private sectors, with very few choosing the production sectors that are related to the transfer and localisation of knowledge, especially those related to innovation, research and technology.

### Important Results of Field Investigations

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This report is distinguished by qualitative and quantitative field surveys. These surveys

shed light on the status of young Emiratis and their aspirations and readiness to engage in the knowledge society and the knowledge economy. The representative sample of youth participants in the field surveys was selected from students in their final year of university. Participants showed enthusiasm and a clear interest in seeking to establish a knowledge society and a good level of cognitive skills in general. However, there were some gaps that should be addressed. One such gap was "written communication skills", in which students demonstrated an average level, both in Arabic and a foreign language (English).

As for values, the Emirati youth demonstrated much higher levels of readiness compared to cognitive skills, where the results of the field survey indicated positive attitudes towards cognitive, emotional, social and cosmic values. This is considered a good indicator that can be built upon, provided that these values are embodied in beliefs and daily practices that help young people contribute to the processes of transfer and localisation of knowledge and to the establishment of the aspired-for knowledge society. In contrast, analysis shed light on the weakness of the youth's social effectiveness and to a lesser extent cultural effectiveness. However, economic effectiveness was at an acceptable level. These results merit attention, given that such weakness, especially in social effectiveness, may have a negative impact on the establishment of the knowledge society. Social, cultural and economic participation are among the basic pillars of communication within society and are crucial in attempts to move towards a higher developmental stage. The perceptions of some young Emiratis seemed striking with regards to the subject of the transfer and localisation of knowledge; they stated that this issue did not fall within their current concerns. However, at the same time they acknowledged that the processes of transfer and localisation of knowledge were vital to the future of the country, and pointed out its positive effects on the economy and society, and in turn on stimulating creativity and reducing social disparities and unemployment.

Although the concept of citizenship was acceptable among students, the results indicated a need to increase efforts to instil relevant means and practices and increase awareness to strengthen the concept through realistic daily-life attitudes and practices, which were found to be insufficient among many of the participating university students. This can only be achieved through spreading a culture of positive citizenship starting from childhood. Educational and other institutions in society should be given the opportunity to exercise the various dimensions of the citizenship concept, in such a way that they become part of the consciousness at individual, social and global levels. The results of the field study also indicated a deficiency in one of the main requirements of the knowledge society and the knowledge economy; openness and communication among university students in the UAE. This result comes despite the wide use of social media and young people's possession of technological devices at university and at home. In this context, we should highlight the responsibility of the university as an institution that should connect students with social and youth organisations, such as training and capacity-building institutions and research institutions at home and abroad.

A considerable proportion of the students and stakeholders expressed low levels of satisfaction with the university education system, particularly in relation to academic research, both in terms of material and moral incentives provided to students, as well as the vocational training system and research activities during studies. These results are very important as they represent a sample of the challenges facing the transfer and localisation of knowledge and the ability of young people to contribute to it.

### Facing Challenges

There is strong potential for the transfer and localisation of knowledge in many areas for the UAE to establish the desired knowledge society and economy. There are no economic, political, cultural or technical obstacles that prevent from paying adequate attention to

this subject. On the contrary, it could be said that the UAE has a historical opportunity to confront the major challenges of developing education and scientific research, limited human resources, demographic conditions, diversification of the country's economic structure towards production systems of higher cognitive added-value, and finally to motivate the Emirati youth to take advantage of the available opportunities and efficiently integrate in the processes of transfer and localisation of knowledge.

### Facing the Educational Challenge

The educational challenge starts from the early stages of pre-university education in more than one aspect. The scores of Emirati students in international tests such as the TIMSS and PISA in reading, science and mathematics were still lower than the average scores of students in countries with an advanced economic level or even countries of an average economic level.<sup>4</sup> The educational challenge persists in subsequent stages among the youth, though in different ways.

While many countries are moving towards adopting learning approaches based on research, problem solving and critical thinking – the skills required in the knowledge society – traditional teaching methods are still prevalent in most of the country's educational institutions. Universities and higher education institutions failed to produce the required critical mass of “knowledge workers” who are able to generate knowledge products such as software or patented inventions, or publish books and conduct research.<sup>5</sup> Moreover, the outputs of the educational system do not conform to the requirements of global economic changes that require high-level skills matching the knowledge economy and globalisation.<sup>6</sup> Two-thirds of university students specialise in social and human sciences at the expense of other specialties that have direct relation with transfer and localisation of knowledge, including scientific fields and mathematics.<sup>7</sup> <sup>8</sup> Many researchers criticised the weak role of education in the country towards

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The educational challenge starts from the early stages of pre-university education in more than one aspect

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A considerable proportion of the students and stakeholders expressed low levels of satisfaction with the university education system, particularly in relation to academic research, both in terms of material and moral incentives provided to students, as well as the vocational training system and research activities during studies

Flexibility at the wider level of the educational system requires the establishment of a decentralised management system that provides the freedom of choice for teachers in what they teach, flexible training opportunities, trust between teachers, administrators and managers and the decentralisation of operations. Flexibility also includes an evaluation system that encourages competition between students. However, these processes must not overlook the standard policies of teaching and learning to increase achievement

establishing the knowledge society and the knowledge economy, as education does not encourage creativity, and the curriculum neither raises the scientific curiosity of students nor challenges them sufficiently. Moreover, communication between the teacher and the student is poor and limited to memorising and recall; the educational system is described as rigid, while the school management does not have sufficient authority to take decisions and the opportunities available for students to show their creativity are in decline. These combined hinder the establishment of the knowledge society.<sup>9</sup>

The first element in strengthening the systems of youth empowerment is providing them with the appropriate skills that match the requirements of knowledge transfer, production and employment. Therefore, the pivotal and essential role of the educational system is again emphasised. The education system must improve its performance to appropriately qualify young Emiratis and provide them with these skills. Thus, the UAE urgently needs to truly change and develop the current educational system to move from a traditional system based on rote learning to one based on the skills of creative thinking, innovation, scientific research and constructive criticism from the earliest stages of education, so the country can build a national human capital capable of the transfer and localisation of knowledge.

Despite the country's efforts to develop university education, the relationship between the needs of the labour market and the qualifications of the graduates remains an important issue. The public and private higher education system is moving towards professional/vocational programmes rather than human development programmes.<sup>10</sup> This could weaken the chances of comprehensive and sustainable human development in the country. Some negative traditions have also prevailed in university education, including a weakness in the spirit of initiative among the youth as well as their continued pursuit of secure government jobs.<sup>11</sup> This trend, by itself, is an obstacle to the transfer of knowledge. Also, most students consider education a final product and not a process. Many university graduates

do not consider themselves life-long learners, but regard graduation as the end of their commitment to education.<sup>12</sup> It could be generally said that the number of students enrolled in universities has increased, but this increase has not translated in the development of the knowledge economy or in the foundation of the generation or critical mass needed to establish this economy.

### **Orienting the Educational System towards the Knowledge Economy**

The education system in many countries moves in one of two directions: towards educational reform based on fixed standards, accountability and results, or towards a knowledge economy and economic competitiveness, which is based on flexibility, innovation and risk-taking.<sup>13</sup> The discrepancy between these two paths seems clear. The Emirati education system is inclined towards the first direction and is in line with standard global reform orientations that have not yet helped in establishing the required skills for the knowledge economy, despite many reform strategies that call for the creation of an educational model that paves the way for the knowledge-based economy.<sup>14</sup> Despite many reforms in the educational system, little has been done with regard to flexibility, innovation and risk-taking; these are the features that lay the foundation for an effective education system in the knowledge-based economy and economic competitiveness.

The right side of Figure 5.1 shows the global educational trends that emphasise introducing standards in the areas of teaching, learning and evaluation, as well as increasing accountability in the educational system and creating a more restrictive environment for teachers. The left side shows the important skills that lead to the improvement of economic competitiveness (flexibility, innovation and risk-taking), all of which require more freedom for teachers in the curriculum, teaching and evaluation. This analysis is supported by research that argues for the need to adopt the greatest possible degree

of flexibility in the education system, for innovation to prevail at the school level and for risk-taking to be carried out in the classroom.<sup>15</sup>

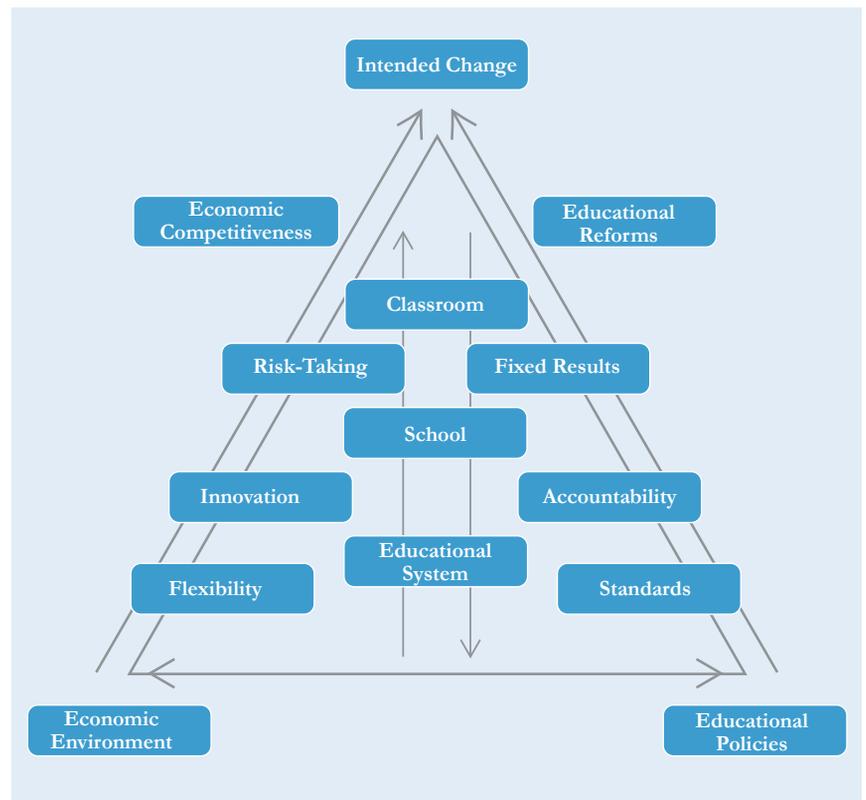
According to this model, flexibility at the wider level of the educational system requires the establishment of a decentralised management system that provides the freedom of choice for teachers in what they teach, flexible training opportunities, trust between teachers, administrators and managers and the decentralisation of operations. Flexibility also includes an evaluation system that encourages competition between students. However, these processes must not overlook the standard policies of teaching and learning to increase achievement.

In schools and universities, flexibility also involves giving teachers and lecturers more scope in assessing their teaching methods, the integrity of the curricula and its relevance to extracurricular activities and strengthening cooperation and communication between the teacher and the student so as to encourage innovation. Innovation in teaching comes through the creation of a learning community among teachers, thereby increasing the exchange of knowledge and creativity in teaching.<sup>16</sup> This contrasts with the current situation in the UAE, where teachers largely follow an imposed curriculum and traditional teaching methods that remain limited to the concept of examinations that reward student memorisation. On this issue, this report supports calls to liberate exams from their traditional format and introduce various forms of evaluation other than written tests based on memorisation. Systems of continuous evaluation must be adopted that show student progress first hand and free teachers and learners from the tyranny of the exam, enabling them to study and become qualified in the various ways that lead to innovation and risk-taking.

Teachers at all pre-school and university levels must take risks in the classroom through the use of different and new teaching methods that encourage collaboration and

Figure 5.1

**Global Educational Trends**



Source: Natasha Ridge 2010. (Reference in Arabic)

experimentation. This means creating a safe environment where students do not fear failure, so they can be open to exploring new ideas. Risk-taking is the passion of trying something new and different without the fear of success or failure. However, the extreme fear of achieving low results in the current school curriculum leads to a more general fear of failure and competition among students, which in turn becomes a disincentive to the exploration of new teaching methods.<sup>17</sup>

We conclude here that there is a need to encourage each student to be creative in the classroom and beyond, with schools and universities focusing on the development and enhancement of the culture of innovation. This culture provides teachers with the freedom to embrace new teaching methods and to stay away from the imposed textbook, whenever required. This will necessarily require a change in the evaluation system, so as to allow the greatest flexibility at all levels. Finally, with regards to the system, it is important that both teachers

Many university graduates do not consider themselves life-long learners, but regard graduation as the end of their commitment to education

Focusing on research, development and innovation is an important component in strengthening the systems of localisation of knowledge to better support young people in moving towards the knowledge society

and administrators be given the opportunity to contribute to the development of the curriculum, as this will enhance transparency and trust-building between education officials and those who work in schools and universities.

This proposal goes in line with the “UAE Vision 2021”, and is essentially at its core. The UAE vision aims to provide students with knowledge to overcome indoctrination and move towards critical thinking so they acquire the basic knowledge and skills required in the modern world.<sup>18</sup>

However, encouraging flexibility, innovation and risk-taking is a process that does not end at school or university. There is an urgent need for broader reforms to encourage research and development to create a sustainable knowledge-based economy. This will be discussed next.

### **Facing the Challenge of Research and Development**

UAE has focused on scientific research, but the status of research and development is still not much different from the rest of the Arab countries which have limited capabilities, expenditure, support and production. This represents a challenge that must be dealt with in seeking the transfer and localisation of knowledge for the establishment of the knowledge society and economy in the country. Focusing on research, development and innovation is an important component in strengthening the systems of localisation of knowledge to better support young people in moving towards the knowledge society.

This challenge is evident through several issues, including the small number of specialised research centres, the weakness of links between research centres and industrial enterprises, the connection between university research and promotion and the limited number of researchers and their mediocre levels. It is also reflected in the weakness of the products of scientific research in the country due to the lack of encouragement and necessary financial

support.<sup>19</sup> One of the challenges hindering scientific research activity in the country is the deficiency in the number of trained national cadres who are capable of enriching scientific research, reviving it and pushing it forward. In addition, and although the country ranked second among the Arab countries after Saudi Arabia,<sup>20</sup> there is a deficiency if not scarcity in patents as well as inadequate funding for scientific research and a lack of attention to scientific research in universities that focus their attention on the academic aspect. As a result, the real role of the university in serving the community in this area is overshadowed.

Some of the most important steps that can help face the challenge of scientific research and development in the country can be summarised as follows:

- Increasing the budget allocated for spending on scientific research, in government institutions as a whole and public universities. This is in addition to establishing research partnerships with private universities in the country and abroad.
- Developing a system of incentives for citizens working in the fields of scientific research and in the transfer and localisation of knowledge.
- Providing incentives for young citizens to enrol in specialisations of scientific disciplines, such as medicine, engineering, sciences, information technology and other disciplines that are important to the production of knowledge and which currently witness low enrolment rates by young citizens.
- Encouraging students to complete post-graduate study to get master and doctoral degrees, through exempting them from post-university study fees, granting distinguished students monthly bonuses and motivating them to pay attention to the activities of scientific research and the transfer and localisation of knowledge in different scientific disciplines.
- Providing additional local and foreign

grants for outstanding students to complete their post-graduate studies, especially in new disciplines that are gaining increased momentum at the global level and that enrich the process of the transfer and localisation of knowledge in the country.

- Encouraging universities and faculties to open higher education programmes, especially in new disciplines with a global future trend, along with providing scholarships for citizen students.
- Encouraging the private sector companies that work in the field of scientific research and in the transfer and localisation of knowledge in the country through offering them certain incentives, such as exempting them from renewal fees and providing them with competitive advantages.

### Facing the Human Resources Challenge

The limited availability of citizens as human resources – they constitute merely 11.5% of the total number of residents, as we have previously mentioned – is one of the challenges discussed in this report.<sup>25</sup> This requires focus on the development of the national labour force and intensified investment in the human capital to create national cadres who enjoy productive positive thinking, effectiveness, quality, competitiveness, an ability to create and innovate and high levels of professionalism. However, this report confirms that foreign labour is not to be ignored when transferring and localising knowledge for the establishment of the knowledge society. This is particularly true regarding skilled and professional workers as this would mean wasting a large cognitive power in the country, one that could help the citizen workforce to develop itself and acquire skills to strengthen the systems of knowledge empowerment. The foreign workforce in UAE is playing a major role in development in various sectors. It enjoys multiple cultures, knowledge and experiences. This is considered by itself an important resource that can be

#### Box 5.1

#### Mohammed bin Rashid Al Maktoum Foundation

The UAE recognised the need to address the issue of research, development and innovation several years ago. In May, 2007, at the World Economic Forum held in Jordan, Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President, Prime Minister and Ruler of Dubai, allocated US\$10 billion to the “Mohammed bin Rashid Al Maktoum Foundation,” to promote knowledge in the area. Although this initiative was not the first of its kind, it is considered one of the largest contributions ever to the knowledge project in the history of the region.

Undoubtedly, the establishment of the Mohammed bin Rashid Al Maktoum Foundation came at the perfect time. The announcement of the institution made it clear that it would provide a unique opportunity for the new generation to compete at the global level. What His Highness Sheikh Mohammed bin Rashid Al Maktoum said in this regard was unequivocal. He described the failures of the Arab world and pointed out that the subject of knowledge must be taken seriously, which makes it imperative for countries in the region, including the UAE, to adopt an agenda of human development totally different from what they have been used to.<sup>21</sup>

The Mohammed bin Rashid Al Maktoum Foundation aims to support the construction of cognitive infrastructure, establish research centres, grant scholarships and promote authorship and publication in collaboration with international institutions for the benefit of future generations. Mohammed, O’Sullivan and Ribière<sup>22</sup> hoped the foundation would provoke a quantum leap in intellectual assets in the region, as the “House of Wisdom” did in the 9<sup>th</sup> Century. The statement of the foundation emphasised the fact that it would work on promoting human development through the establishment and maintenance of the cognitive and cultural infrastructure, the building of communication and decision-making networks, the translation, and the development of future leaders for the region.

The foundation’s ultimate goal must be to transform the Emirati individual in particular, and the Arab individual in general, from a consumer to a producer of knowledge, or at least to an individual involved in knowledge production. The import of goods that need sophisticated knowledge without knowing the ideas behind them or behind their work hinders the progress of the region. As pointed out by Sheikh Mohammed, “the attempt to import ready-made and non-localised solutions to this part of the world is not the right way to reform the region.” This method may create more obstacles than solutions to the knowledge challenge. The knowledge society requires an education that is based on solving problems related to national objectives.<sup>23</sup>

The diversity of the workforce that comes to the UAE from different countries and with different experiences and ways of thinking is considered in itself a wealth that must be invested in and built upon. Workers residing in the country bring knowledge and can learn new skills to achieve higher levels of productivity. This sector of human capital should not be neglected, while it is also necessary to develop knowledge management strategies to transfer these skills and experiences to the UAE citizens, for future benefit.<sup>24</sup>

The Mohammed bin Rashid Foundation must try hard to achieve the objectives upon which it was established, because it is highly regarded as an important pillar and means to strengthen the systems of knowledge localisation in the UAE and the Arab world.

*Source: Mohammed et al. 2008.*

invested in for the transfer and localisation of knowledge. Communication, openness and building partnerships between local and foreign institutions, and between the workers residing in the country and Emirati nationals, should be enhanced in order to maximise the benefit from foreign expertise.

The second aspect to the challenge of human resources is the emergence of unemployment

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It is necessary to double the efforts to diversify the Emirati economy, while focusing on industries and sectors that have a high cognitive added value

among the youth. The various institutions in the country should encourage young people to work in the private sector or in entrepreneurship to maximise economic effectiveness. It is a challenge to common logic that the public sector can accommodate all graduates. Economic participation and employment opportunities for the youth are two important factors that support the promotion of youth empowerment in various fields. An important issue emerges in this regard; youth employment in the private sector. The youth are reluctant to work in this vital sector, which only employs 0.5% of citizens according to statistics from the Emirati Labour Ministry.<sup>26</sup> To be able to transfer and localise knowledge, the country should work to increase the employment rate among citizens in the private sector, because building the Emirati human capital in all sectors is an essential element for development.

It can be said that Emiratisation programmes in the private sector, in which companies are expected to employ of specific percentage of citizens, are important national programmes. But this issue must be dealt with cautiously, with a focus on upgrading the skills of citizens and enabling them to compete in the labour market based on their merits and qualifications. The country has succeeded in creating a competitive market that attracts competent people from various parts of the world, and it must push its citizens to enter and succeed in this market on their own merit. This would also better serve the aspired-for processes of knowledge transfer and localisation, which are based on young, skilled people who master cognitive skills and values.

### **Facing the Challenge of Economic Structure**

The Emirati economy, as confirmed by the data issued by the Ministry of Economy in the UAE, still depends heavily on the oil sector. This is despite remarkable progress in economic development in the UAE and major expansions in many economic sectors such as tourism, commerce, finance and industrial manufacturing. The diversification

of the economy is not limited to the direct effect on economic development, but also includes the efforts of knowledge transfer and localisation in the UAE. The prevailing economic situation is based on the extractive industry of depleted natural resources that are non-renewable and have a relatively low cognitive added value. Moreover, many of the expansions in other economic sectors, even where they included an intensive use of knowledge products, have been associated with little or no added cognitive value and do not involve real “localisation” of knowledge. Despite their obvious importance and ability to generate additional income for the country, many of these expansions – as in the case of trade and manufacturing that have a low cognitive value – do not contribute to the processes of knowledge transfer and localisation in the country. Therefore, it is necessary to double the efforts to diversify the Emirati economy, while focusing on industries and sectors that have a high cognitive added value, and building on existing efforts to qualify young Emiratis to effectively engage in the processes of economic diversification towards the establishment of the aspired knowledge society and economy.

### **Facing the Challenge of Motivating the Youth to Engage in the Processes of Knowledge Transfer and Localisation**

There is no doubt that the UAE has provided many opportunities and incentives for young Emiratis in various fields at the educational, foundational and professional/vocational levels. The UAE has also progressed in basic infrastructure, including that directly related to the transfer and localisation of knowledge, reaching a par with the world’s most advanced countries. The infrastructure of information technology, for example, is one of the best in the Arab region and the world. This is also the case for communication and transportation. The infrastructure of education and qualifying systems – installations and facilities – has progressed considerably, not to mention the education and development opportunities made available to young people abroad. These structures and systems are considered

a key element in the quest to establish the knowledge economy and society, which is a positive factor that should be applauded. The question remains about the effectiveness of these structures and systems in bringing about the transfer and localisation of knowledge, and about the effective use of the potential and opportunities brought about by these structures and environments among young Emiratis. Young Emiratis, as noted previously, prefer administrative jobs in general. A relatively low proportion choose higher education and post-graduate professional development, in a way that does not commensurate with the opportunities and infrastructure already in place. The country, in its active drive to improve economic and social equality among its population, is also required to work towards stimulating young people to work hard in development and economic, educational and research activities that have a higher cognitive added value, in a way that better serves the interests of the youth, the economy and development in the UAE. Such incentives can come in various forms and start with the formation of the values of work and belonging from an early age, to establishing systems and tools to stimulate productive work. These motivational tools can also be extended to include material and moral incentives, in addition to the establishment of systems that require capacity-based competition to secure jobs and professions. The adoption of such policies would support the engagement of young Emiratis in the transfer and localisation of knowledge for their own interest and that of their country. Moreover, the adjustment of the wages and pension systems to better encourage productive and creative activities could add a sense of value and increase the appeal among young people.

In conclusion, it must be noted that the UAE's attempt to invest in the "knowledge" future is facing a number of important problems. The culture of competitiveness and innovation requires openness and participation. The country might prefer to rely merely on citizens in its vision and orientation towards the future, but this

might weaken their potential. Despite the available incentives, the process of knowledge-making will take a lot of time and effort, especially in dealing with international companies that may control the entire process. The other problematic issue is the forms of employment in the long run.

Wealth is important for the future, as it helps to import the best companies, create the best buildings and establish the horizon of investment. However, development and prosperity need another dimension. In the absence of local capabilities to create world-class diversified economies, the community will not be able to achieve more than the import of knowledge and the construction of infrastructure. In other words, material resources alone do not make the knowledge society. They come second after human potential, and this is the real challenge.

The UAE is facing an urgent task in the processes of knowledge transfer and localisation to develop its own human capital. Otherwise, history will repeat itself in importing and attracting the best foreign expertise, building the best infrastructure, providing the best opportunity and environment for investment, and so forth.

The method used for the transfer and localisation of knowledge should also be reconsidered. This will require unified efforts from several federal and local bodies to set unified goals and strategies aiming to make the UAE a regional hub for the localisation and transfer of knowledge in certain sectors in which the country can lead the way scientifically and technologically. This should be accompanied by an increase in the budgets allocated for scientific research and encouragement to universities to focus on research activities.

There is another problem related to the role of the private sector in this process. Links between research centres and production sectors should be strengthened. Efforts should focus as well on enhancing the role of the private sector, which not only takes a negative stand but also fails to contribute

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The UAE is facing an urgent task in the processes of knowledge transfer and localisation to develop its own human capital

effectively towards the production and localisation of knowledge through supporting scientific research projects at universities or at specialised research institutes in the country. The private sector does not support or fund scientific research projects. It also fails to invest in, use or help transform the creative ideas of researchers in end products.

Scientific institutions in the public and private sector are required to take practical and concrete steps that lead to a quantum leap in scientific research activities in the country. This is to be achieved through a scientific and predefined approach, supported by allocating adequate funds for research activities and projects, in order to promote government policies on the transition to a competitive knowledge-based economy in accordance with UAE Vision 2021.

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### **Moving towards the Effective Engagement of the Youth in the Processes of the Transfer and Localisation of Knowledge**

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The methodology proposed for the future action towards the effective integration of young Emiratis in the processes of transfer and localisation of knowledge is based on four key elements: First, strengthening the systems of youth empowerment; second, strengthening the systems of knowledge localisation, including the processes of knowledge transfer and production, as well as its employment in supporting human development; third, providing the enabling and supportive environments for each of the above two components, including societal support, economic structures and institutional, legislative, financial and cognitive tools; and fourth, providing the required on-the-ground mechanisms for the achievement of positive interaction between the three previous systems, in order to effectively move towards the transfer, localisation and employment of knowledge. This would eventually lead to the ultimate goal of establishing the knowledge society and knowledge economy, and achieving sustainable human development in the country.

The mechanism of action to integrate young people in the processes of the transfer and localisation of knowledge was set in the form of a ship sailing into the future, which is the aspired-for knowledge society and economy, as a gateway to the wider levels of sustainable human development. The ship carries all that could help its passengers (the youth) reach its destination. The base of the ship represents the structures, processes and institutions essential for the transfer, employment, localisation and production of knowledge, including financial, economic, legislative and institutional instruments and community support. Young people on board are armed with cognitive skills and values; they are open to the world, belong to the country and are efficiently active socially, culturally and economically. Between the base of the ship and those on board is a range of mechanisms or means that allow and guarantee the youth to be effective in the processes of the transfer and localisation of knowledge, including financial allocations, planning, openness, intercommunication, translation, digitisation, monitoring, evaluation, global and regional partnerships, motivation and support and good governance.

This thematic vision of future actions is in line with proposed actions across the Arab region in general,<sup>27</sup> which take into account many common factors. However, translating all of the elements and details depends on the specific characteristics of each country. The following is an explanation of each element of the model proposed, taking into account the special case of the UAE, especially with regards to facing existing challenges and capitalising on successes and available opportunities.

First: Strengthening the Systems of Youth Empowerment: Figure 5.2 shows the key elements of the frameworks required to achieve the active participation of young Emiratis in the processes of the transfer and localisation of knowledge. The first element is to provide young people with the appropriate skills that match the requirements of the transfer, production

and employment of knowledge. The list of skills required extends from technical skills to those dealing with information and analysing it, in addition to social skills, such as teamwork and communication, among others. It is here that the pivotal and essential role of the education system emerges. The education system should improve to ensure the formation of young Emiratis and provide them with these skills.

Building the required skills for Emirati youth is a central element in the processes of integration. Reconsidering the enhancement of this system is a must. Due to the importance of this element in realising effective participation of the youth in transfer and localisation of knowledge, this chapter presented a detailed argument of how to overcome the educational challenge to enable the youth to acquire the cognitive skills required for accessing the knowledge society.

Strengthening economic and social effectiveness is the second element in the context required to enable young Emiratis. Such effectiveness must be reflected in increasing the rates of youth employment, providing young people with productive employment opportunities, encouraging and supporting small enterprises, promoting a culture of volunteerism and participating in civil and government organisations. These engagements, in their different forms, are important indicators that directly or indirectly contribute towards empowering young people and realising their active participation in the transfer and localisation of knowledge.

The third element to the empowerment of young people is cultural effectiveness. This involves increasing young people's awareness of the importance of reading, launching national projects related to reading, cultivating an interest in the different forms and expressions of art, such as participation in art exhibitions and the attendance of theatre plays, which are considered important practices in shaping cultural identity and building perceptions of young Emiratis for the future.

Then comes the fourth element, which relates to the values and practices of citizenship and belonging. True citizenship, which involves personal and national pride and dedication to work, can only be achieved in a societal environment that guarantees the rights and obligations of all its members, regardless of their religion, tribal affiliation or geographic location. Citizenship is also reliant on the collective commitment to a set of principles of co-existence among all citizens. True and positive citizenship is a prerequisite for the empowerment of young Emiratis to effectively engage in the processes of knowledge transfer and localisation.

Openness and global integration is another required element, since the effective integration of young people in the transfer and localisation of knowledge cannot be realistically achieved in this era without the youth possessing specific capabilities, such as openness to other cultures, mastering foreign languages – such as English, which has become the language of this era – and the use of technology and modern applications in areas of specialised knowledge. Perhaps the most important openness should be the one related to changing thinking patterns that do not accept others and refuse to positively intercommunicate with them.

The final element in the system of enabling young people is the values that young Emiratis believe in and that direct their actions and practices. It is very important and highly regarded that the youth do possess cognitive values, such as respect and appreciation of knowledge, universal human values and social values that respect community values without closure or exclusion. Such beliefs among the youth should be respected and nurtured to better empower them in the processes of knowledge transfer and localisation. Even if they enjoyed the requisite skills and were provided with the means of openness and economic and cultural effectiveness, the Emirati youth would not be able to move successfully and contribute meaningfully to the localisation of knowledge if they did not believe and function in a system of values that supports them in achieving that.

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True and positive citizenship is a prerequisite for the empowerment of young Emiratis to effectively engage in the processes of knowledge transfer and localisation

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The channels and areas of the production of knowledge include motivating and supporting the activities of scientific research and studies related to building the knowledge economy and the knowledge society

Second: Strengthening the Systems of the Localisation of Knowledge: the report on the UAE confirmed that the systems of the localisation of knowledge should include three elements that integrate with each other and complement each other. The first two integrated elements are the transfer of knowledge and its production. The report considered that the transfer of knowledge was a stage that could coincide with the production of knowledge locally, which is a necessary process to catch up with the global trends in this field. The current cognitive environment in the UAE, namely information and communication technology, provides one of the most important channels to do so in a serious manner. However, the UAE still needs to realise the other element correlative with the transfer of knowledge and represented in its use and employment, as well as its production. Therefore, it is considered that the transfer of knowledge is a positive step in the path towards its production and dissemination.

The channels and areas of the production of knowledge include motivating and supporting the activities of scientific research and studies related to building the knowledge economy and the knowledge society. It also includes supporting creativity and innovation in all forms. Such processes must be guided – both in the production and transfer of knowledge – by the principle of openness and communication with the world so as to generate benefits and contribute to global achievements. Building partnerships and productive intercommunication of knowledge perhaps represent a key step in this field.

The third and essential element in the processes of the localisation of knowledge is the employment of knowledge, whether transferred or produced, to achieve human development. Focus areas of knowledge employment should include all aspects of human development; economic, social, political, cultural and environmental. However, this may be first achieved by focusing on vital knowledge that holds

priority for the Emirati society, such as desalination research, renewable energy and agriculture. The report has touched on some of the challenges in the field of research, development, innovation, creativity and human resources in the country.

Third: Providing Enabling Environments: in the absence of a supporting and motivating environment, even qualifying young people with the skills and values they need to effectively engage in the processes of the transfer and localisation knowledge as well as for strengthening the elements for knowledge production and employment; will not be enough to bring about the desired advancement. The enabling environment and community support in all its forms and manifestations – including the promotion of the culture of work and the maximisation of the role of civil society organisations and religious institutions – represents another key requirement. Public economic structures play a prominent role as a key element in the required enabling environments, and these structures must be based on the foundations of the knowledge economy, primarily the motivation for creativity and the orientation towards the production of goods and services with higher cognitive values. The enabling environments are not limited to the support of the community, freedoms and economic structures, for they must involve influential tools that help achieve the goal of effective integration of the youth in the processes of transfer and localisation of knowledge. This requires, above all, real cognitive tools that include the development of the education system at all stages. It is also necessary to develop legislative tools that include laws and regulations to be enacted and enforced by institutions. Other requirements that should be mentioned include financial instruments, such as the expansion in funding for entrepreneurship and SMEs and providing funding opportunities for young people, allowing them to realise their potential and therefore ensure the effective integration of the youth in the processes of knowledge transfer and localisation.

Fourth: Mechanisms of the Effective Youth Integration: the interaction required

between the systems of knowledge localisation and youth qualification in the context of an enabling environment requires effective mechanisms to achieve this interaction dynamically and actively. The most important factor is establishing appropriate channels for openness and intercommunication with the outside world. This could possibly be better realised through building global and regional partnerships in the areas of knowledge transfer, production and employment. There also remains an urgent need for other

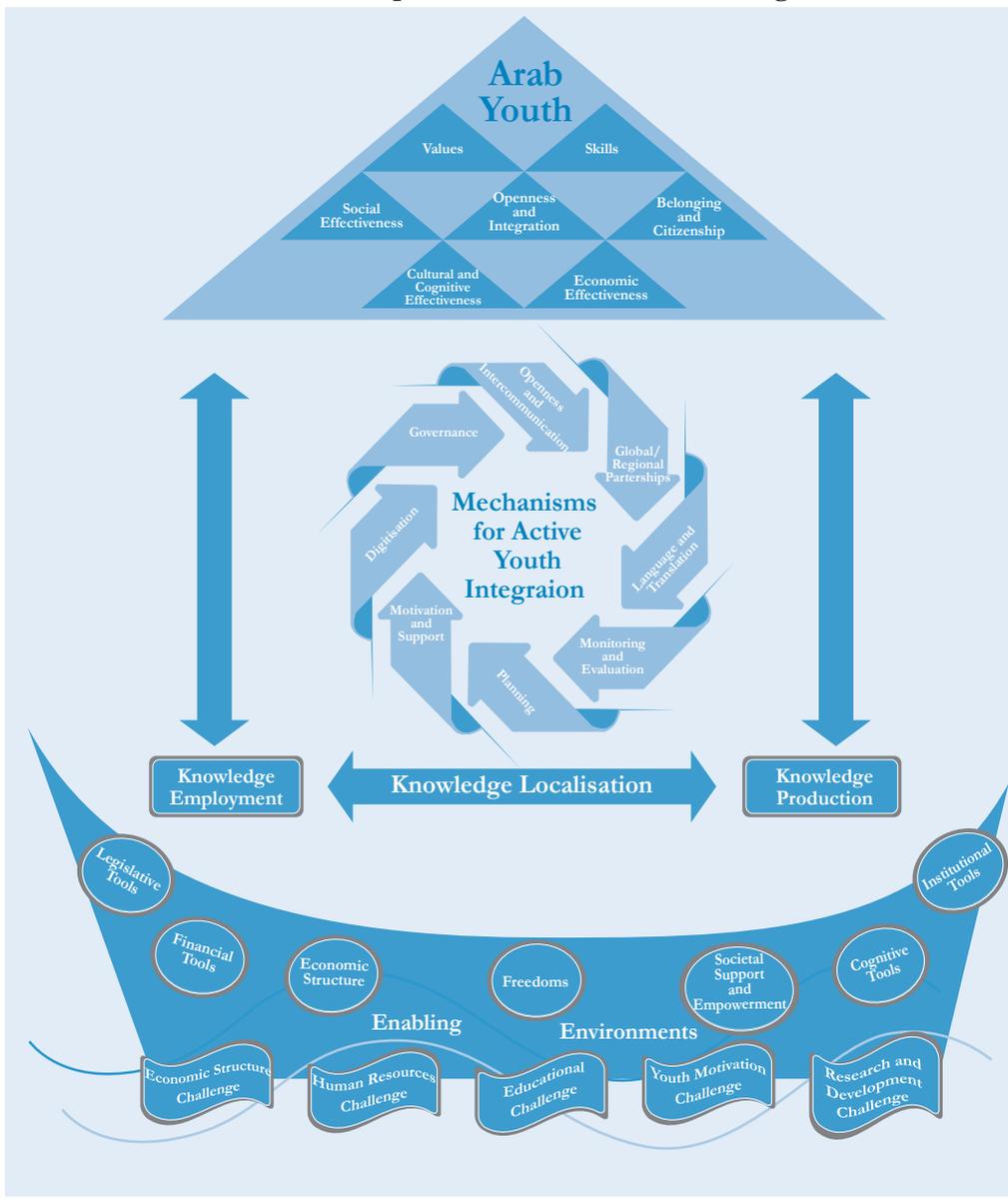
practical mechanisms – such as translation and digitisation – in addition to even-handed planning supported by continuous monitoring and evaluation mechanisms. All these processes must be governed wisely under a direct management that focuses on economic and social effectiveness. Good governance and effective management should set the general framework for the activation of all the elements of the integration of the youth in the processes of knowledge transfer and localisation.

In the absence of a supporting and motivating environment, even qualifying young people with the skills and values they need to effectively engage in the processes of the transfer and localisation knowledge as well as for strengthening the elements for knowledge production and employment; will not be enough to bring about the desired advancement

Good governance and effective management should set the general framework for the activation of all the elements of the integration of the youth in the processes of knowledge transfer and localisation

Figure 5.2

**Moving towards the Active Youth Integration in the Process of Knowledge Transfer and Localisation: UAE Specific Mechanisms and Challenges**



## In Conclusion

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The current settings in the UAE evidently confirm the availability of the main elements and requirements for establishing the knowledge society and the knowledge economy and strengthening the participation of the youth

The establishment of a national knowledge base in the UAE – one that is based on the effective integration of the youth in building it and benefiting from its products, is one of the basics for achieving comprehensive and sustainable human development. Therefore, it is important to adopt an overall future vision of the transfer and localisation of knowledge, a vision that directs efforts towards horizons that are wider than the transfer of knowledge alone, in order to develop a knowledge production process in which the youth play their desired fundamental role; not only paving the way for the production of knowledge, but also for its employment, diffusion and development. Institutional, legal and strategic frameworks must be promoted to ensure the sustainability and integration of efforts, while taking into account the absorptive capacity while drafting and implementing plans related to the transfer and localisation of knowledge. The importance of the participation of all the segments of society, especially the youth, and all parties concerned, from government agencies and civil sectors, including academia, civil society organisations and the private sector, is not to be overlooked.

The strategies and mechanisms proposed are not only viable, but also enjoy the

availability of most – if not all – conditions to their success. The current settings in the UAE evidently confirm the availability of the main elements and requirements for establishing the knowledge society and the knowledge economy and strengthening the participation of the youth. Investing in building the Emirati citizen and advancing him or her in all fields represents one of the main declared priorities and directions. Also, many of the elements of success are actually available or will be soon, for the UAE has witnessed remarkable achievements towards the establishment of the knowledge society and the knowledge economy. The country enjoys a sophisticated infrastructure and information technology system, a strong economy and a clear understanding of the importance of building the knowledge society and the need to efficiently involve young people in this central development process. More importantly, there is a political will at the highest levels, supported by sincere community will, to achieve these goals. There is also awareness of the importance of catching up with the developed countries. This will lead the UAE to sail across the wide seas of knowledge to reach the shores of sustainable human development and to realise the pride and happiness of the people of the UAE.

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- 27 See the third Arab Knowledge Report Third 2014, issued in conjunction with this report, which deals with this issue from a regional perspective covering the Arab region as a whole.



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Table A1:

## Population Distribution in the UAE According to Age Group (Mid-2010 Estimates)

Age Groups	2010		
	Males	Females	Total
(0 - 4)	63,141	60,123	123,264
(5 - 9)	60,032	57,141	117,173
(10 - 14)	61,843	57,923	119,766
(15 - 19)	63,604	60,388	123,992
(20 - 24)	58,004	60,655	118,659
(25 - 29)	45,154	47,283	92,437
(30 - 34)	29,724	30,554	60,278
(35 - 39)	23,223	24,868	48,091
(40 - 44)	16,845	18,862	35,707
(45 - 49)	14,287	15,952	30,239
(50 - 54)	11,762	11,467	23,229
(55 - 59)	9,063	7,312	16,375
(60 - 64)	7,105	5,251	12,356
(65 - 69)	6,098	3,775	9,873
(70 - 74)	4,190	3,108	7,298
(75 - 79)	1,877	1,389	3,266
(80 +)	3,157	2,837	5,994
<b>Total</b>	<b>479,109</b>	<b>468,888</b>	<b>947,997</b>

Source: National Bureau of Statistics. (2013). UAE in Figures 2012.

Retrieved on August 21, 2014 from: <http://www.uaestatistics.gov.ae/ReportPDF/UAENumbers2012-270514.pdf>. (Reference in Arabic)

Table A2:

## Distribution of the National Population per Emirate (Mid-2010 Estimates)

Emirate	Number of Residents
Abu Dhabi	404,546
Dubai	168,029
Sharjah	153,365
Ajman	42,186
Umm Al Quwain	17,482
Ras Al Khaima	97,529
Fujairah	64,860
<b>Total</b>	<b>947,997</b>

Source: National Bureau of Statistics. (2011). 2011 Population Estimates. Retrieved on August 21, 2014 from:

<http://www.uaestatistics.gov.ae/ReportPDF/%D8%A7%D9%84%D8%AA%D9%82%D8%AF%D9%8A%D8%B1%D8%A7%D8%AA%20%D8%A7%D9%84%D8%B3%D9%83%D8%A7%D9%86%D9%8A%D8%A9%202006%20-%202010.pdf>; (Reference in Arabic)

Table A3:

## Labour Market and Unemployment Indicators in the UAE and GCC Countries (2012)

	Size of Labour Force	Labour Force Participation Rate (%)			Employment-to-Population Ratio (≥ 15 Years) (%)	Unemployment Ratio (≥ 15 Years) (%)			Youth Unemployment Ratio (15-24 Years) (%)		
		Males	Females	Total	Percentage %	Males	Females	Total	Males	Females	Total
Bahrain	741,723	87	39	71	65	4.8	18	7.4	25.4	32.3	27.5
Kuwait	1,662,315	83	43	68	67	1.6	1.2	1.5	10.7	6.1	9.2
Oman	1,595,244	82	29	64	58	6.9	14.7	8.1	18.1	30.6	20.6
Qatar	1,541,663	96	51	87	86	0.2	3.8	0.6	0.5	10.4	1.7
Saudi Arabia	10,382,733	76	18	52*	49**	3.1	20.8	5.6	21.2	55.5	27.8
UAE	6,248,007	91	47	79	76	2.4	11.6	3.8	8.4	21.5	11

Source: World Bank. (2014). World Bank Open Data. Retrieved August 5, 2014 from: <http://data.worldbank.org/>

Notes: \* According to 2013 ILO estimates this ratio is 43.5

\*\* According to 2013 ILO estimates this ratio is 51.1

Table A4:

Proportional Distribution of Workers ( $\geq 15$  Years) According to Nationality, Gender and Sector

Sector	National			Non-national			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Federal government	46.9	42.6	45.8	2.7	2.6	2.7	7.2	8.4	7.4
Local government	40.3	35.9	39.1	13.5	6.1	12.2	16.2	10.4	15.1
Joint	5	8.9	6	4.1	2.6	3.8	4.2	3.5	4.1
Private	6.7	9.3	7.4	71.6	33.4	64.6	65.1	29.9	58.4
Foreign	0.4	1.4	0.6	1.2	2	1.3	1.1	1.9	1.2
Diplomatic	0	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1
Without Establishment	0.4	0	0.3	0.8	0.1	0.6	0.7	0.1	0.6
Private Family	0.3	1.9	0.7	6	53.1	14.6	5.4	45.6	13.1

Source: National Bureau of Statistics. (2014). Labor Force Survey 2009. Retrieved on August 21, 2014 from:  
<http://www.uaestatistics.gov.ae/Home/ReportDetails1/tabid/90/Default.aspx?Itemid=1847&PTID=129&MenuId=1>. (Reference in Arabic)

Table A5:

## Knowledge Economy Index (UAE and Comparison Countries)

Country/ Region	KEI					KI			Economic Incentives Pillar			Innovative Systems Pillar			Education Pillar			ICT Pillar		
	2000		2012		Change in Index (Report Team Calculations)	2000	2012	Change in Index (Report Team Calculations)	2000	2012	Change in Index (Report Team Calculations)	2000	2012	Change in Index (Report Team Calculations)	2000	2012	Change in Index (Report Team Calculations)	2000	2012	Change in Index (Report Team Calculations)
UAE	48	6.05	42	6.94																
The Arab Region		4.14		4.21	0.07	4.12	4.17	0.06	4.21	4.30	0.09	3.93	3.98	0.05	3.69	3.72	0.03	4.73	4.83	0.10
<b>Comparison Countries</b>																				
Iran	95	3.6	94	3.91	0.31	4.05	4.97	0.92	2.25	0.73	-1.52	2.62	5.02	2.4	4.42	4.61	0.19	5.1	5.28	0.18
Turkey	62	5.42	69	5.16	-0.26	5.18	4.81	-0.37	6.13	6.19	0.06	5.23	5.83	0.6	4.05	4.11	0.06	6.26	4.5	-1.76
Cyprus	32	7.53	35	7.56	0.03	6.46	7.5	1.04	7.73	7.71	-0.02	7.4	7.71	0.31	6.95	7.23	0.28	8.04	7.57	-0.47
Malaysia	45	6.37	48	6.1	-0.27	6.45	6.25	-0.2	6.11	5.67	-0.44	6.62	6.91	0.29	5.41	5.22	-0.19	7.34	6.61	-0.73
India	103	3.14	109	3.06	-0.08	3	2.89	-0.11	3.56	3.57	0.01	3.83	4.5	0.67	2.3	2.26	-0.04	2.85	1.9	-0.95
China	91	3.83	84	4.37	0.54	4.17	4.57	0.4	2.82	3.79	0.97	4.35	5.99	1.64	3.36	3.93	0.57	4.8	3.79	-1.01
<b>Countries with High Ranks</b>																				
Sweden	1	9.65	1	9.43	-0.22	9.73	9.38	-0.35	9.42	9.58	0.16	9.72	9.74	0.02	9.67	8.92	-0.75	9.79	9.49	-0.3
Finland	8	9.22	2	9.33	0.11	9.12	9.22	0.1	9.5	9.65	0.15	9.68	9.66	-0.02	8.31	8.77	0.46	9.37	9.22	-0.15
Denmark	3	9.32	3	9.16	-0.16	9.38	9	-0.38	9.15	9.63	0.48	9.52	9.49	-0.03	8.99	8.63	-0.36	9.63	8.88	-0.75
Netherlands	2	9.34	4	9.11	-0.23	9.36	9.22	-0.14	9.27	8.79	-0.48	9.53	9.46	-0.07	9.03	8.75	-0.28	9.53	9.45	-0.08
Canada	10	9.07	7	8.92	-0.15	9.21	8.72	-0.49	8.64	9.52	0.88	9.39	9.32	-0.07	9.22	8.61	-0.61	9.03	8.23	-0.8
USA	4	9.28	12	8.77	-0.51	9.35	8.89	-0.46	9.07	8.41	-0.66	9.55	9.46	-0.09	9.04	8.7	-0.34	9.47	8.51	-0.96
UK	12	8.89	14	8.76	-0.13	8.83	8.61	-0.22	9.06	9.2	0.14	9.38	9.12	-0.26	8.11	7.27	-0.84	9.02	9.45	0.43
<b>Country Ranking by Income Level</b>																				
High- Income Countries	1	8.84	1	8.6	-0.24	8.97	8.67	-0.3	8.45	8.39	-0.06	9.2	9.16	-0.04	8.81	8.46	-0.35	8.88	8.37	-0.51
Average- Income Countries (Upper)	2	5.13	2	5.1	-0.03	5.15	5.07	-0.08	5.07	5.18	0.11	5.89	6.21	0.32	4.32	4.72	0.4	5.23	4.28	-0.95
Average- Income Countries (Lower)	3	3.44	3	3.42	-0.02	3.55	3.45	-0.1	3.11	3.32	0.21	4.07	4.9	0.83	3.03	2.84	-0.19	3.54	2.62	-0.92
Low- Income Countries	4	2	4	1.58	-0.42	1.99	1.58	-0.41	2.03	1.61	-0.42	2.06	2.13	0.07	1.8	1.54	-0.26	2.1	1.05	-1.05

Source: World Bank. (2012). Knowledge Assessment Methodology (KAM). Retrieved August 5, 2014 from: <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/EXTUNIKAM/0,,menuPK:1414738~pagePK:64168427~piPK:64168435~theSitePK:1414721,00.html>

Table A6:

**Primary Education Indicators for the UAE and the Arab Region (2012)**

<b>Gross Enrolment Ratio</b>	<b>Percentage (%)</b>
UAE	91
Arab Region	88
<b>The Student-Teacher Ratio in Primary Education</b>	
UAE	18
Arab Region	18.9
World	24.2

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014 from: <http://data.nis.unesco.org/>

Table A7:

**Vocational Education Enrolment in the UAE, the Arab Region and the World (2012)**

<b>Percentage of Students Enrolled in Vocational Education of the Total Students</b>	
UAE	1.12
Arab Region	9.11
World	10.49
<b>Number of Students Enrolled in Vocational Education</b>	
UAE	3997
Arab Region	2854835
World	57858738

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014 from: <http://data.nis.unesco.org/>

Table A8:

**Number of Students in Higher and University Education (Private and Public) by Specialisation, Nationality and Gender (Academic Year 2012/2013)**

	National			Non-National			Total	Percentage of Students Specialising of the Total Number in the Category		
	Males	Females	Total	Males	Females	Total	National & Non-Nationals	National	Non-National	Total
Arts and design	34	836	870	329	1222	1551	2421	1.2	3.4	2.0
Engineering	4527	2925	7452	5882	2831	8713	16165	10.3	18.9	13.6
Information Technology	1810	2555	4365	1368	834	2202	6567	6.0	4.8	5.5
Business and Economics	8241	10362	18603	7280	6305	13585	32188	25.7	29.4	27.1
Education	164	2123	2287	259	1671	1930	4217	3.2	4.2	3.6
Foreign Languages	85	445	530	31	350	381	911	0.7	0.8	0.8
Environment and Health Sciences	115	1317	1432	461	2625	3086	4518	2.0	6.7	3.8
Medical Science	100	692	792	1047	2254	3301	4093	1.1	7.1	3.5
Communication and Media Science	2958	3348	6306	878	1625	2503	8809	8.7	5.4	7.4
Sciences	58	389	447	188	336	524	971	0.6	1.1	0.8
Shari'a and Law	6544	2775	9319	1909	1555	3464	12783	12.9	7.5	10.8
Human and Social Science	711	2226	2937	468	2038	2506	5443	4.1	5.4	4.6
Primary Education	4757	12157	16914	1000	1289	2289	19203	23.4	5.0	16.2
Food and Agriculture	40	49	89	12	6	18	107	0.1	0.0	0.1
Other	16	9	25	68	71	139	164	0.0	0.3	0.1
<b>Total</b>	<b>30160</b>	<b>42208</b>	<b>72368</b>	<b>21180</b>	<b>25012</b>	<b>46192</b>	<b>118560</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Report team calculations according to data from: National Bureau of Statistics. (2013). Higher Education 2012/2013. Retrieved on August 21, 2014 from: <http://www.uaestatistics.gov.ae/Home/ReportDetails1/tabid/90/Default.aspx?Itemid=2229&PTID=129&MenuId=1>. (Reference in Arabic)

Table A9:

**Number of University and Higher Education Graduates (Public and Private) According to Specialisation Nationality and Gender (Academic Years 2010/2011 - 2011/2012)**

	2010/2011						2011/2012						Percentage of Students Specialising of the Total Number in the Category			
	National			Non-National			National			Non-National			Total	National	Total	Non-National
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Nationals & Non-Nationals			
Arts and Design	12	111	123	29	29	146	0	98	98	19	19	163	261	0.89	1.96	1.36
Engineering	659	403	1062	613	613	899	991	516	1507	720	720	1090	2597	13.76	13.12	13.49
Information Technology	500	897	1397	277	277	485	419	1016	1435	190	190	392	1827	13.10	4.72	9.49
Business and Economics	1580	2300	3880	1318	1318	2642	1797	2782	4579	1477	1477	3028	7607	41.81	36.46	39.50
Education	13	447	460	132	132	1246	32	642	674	100	100	1242	1916	6.15	14.95	9.95
Foreign Languages	7	161	168	10	10	130	1	176	177	3	3	103	280	1.62	1.24	1.45
Environment and Health Sciences	22	205	227	26	26	298	64	261	325	60	60	331	656	2.97	3.99	3.41
Medical Science	16	84	100	57	57	227	27	80	107	70	70	253	360	0.98	3.05	1.87
Communication and Media Science	108	411	519	82	82	276	137	472	609	93	93	448	1057	5.56	5.39	5.49
Sciences	30	110	140	16	16	48	14	112	126	12	12	54	180	1.15	0.65	0.93
Shari'a and Law	229	195	424	268	268	425	531	311	842	242	242	505	1347	7.69	6.08	6.99
Human and Social Science	93	320	413	137	137	499	116	335	451	107	107	695	1146	4.12	8.37	5.95
Food and Agriculture	5	4	9	2	2	2	6	16	22	1	1	1	23	0.20	0.01	0.12
<b>Total</b>	<b>3274</b>	<b>5648</b>	<b>8922</b>	<b>2967</b>	<b>2967</b>	<b>7323</b>	<b>4135</b>	<b>6817</b>	<b>10952</b>	<b>3094</b>	<b>3094</b>	<b>8305</b>	<b>19257</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Report team calculations according to data from: National Bureau of Statistics. (2013). Higher Education 2012/2013. Retrieved on August 21, 2014 from: <http://www.uaestatistics.gov.ae/Home/ReportDetails1/tabid/90/Default.aspx?ItemId=2229&PID=129&MenuId=1>. (Reference in Arabic)

Table A10:

**Number of Scholarship Students in Higher Education and University According to Specialisation, Degree and Gender (Academic Year 2012/2013)**
**Academic Degree**

	Doctorate			Master			Bachelor			Other			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Medical Science	0	0	0	0	3	3	18	16	34	1	0	1	19	19	38
Genetic Science	0	0	0	0	0	0	2	3	5	0	0	0	2	3	5
Engineering Science	0	0	0	5	1	6	171	32	203	0	0	0	176	33	209
Finance and Banking	0	1	1	7	5	12	53	3	56	0	0	0	60	9	69
Administrative Science	1	2	3	19	5	24	56	8	64	0	0	0	76	15	91
Computer Science	0	0	0	4	2	6	15	1	16	0	0	0	19	3	22
Environmental Science	0	0	0	0	1	1	3	1	4	0	0	0	3	2	5
Sciences	1	0	1	0	0	0	12	4	16	0	0	0	13	4	17
Political Science	0	0	0	2	2	4	26	5	31	0	0	0	28	7	35
Arts Education	3	3	6	1	2	3	6	4	10	0	0	0	10	9	19
Shari'a and Law	0	0	0	1	2	3	6	8	14	0	0	0	7	10	17
Media	0	0	0	0	0	0	3	2	5	0	0	0	3	2	5
<b>Total</b>	<b>5</b>	<b>6</b>	<b>11</b>	<b>39</b>	<b>23</b>	<b>62</b>	<b>371</b>	<b>87</b>	<b>458</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>416</b>	<b>116</b>	<b>532</b>

Source: National Bureau of Statistics. (2013). Higher Education 2012/2013. Retrieved on August 21, 2014 from: <http://www.naestatistics.gov.ae/Home/ReportDetails1/tabid/90/Default.aspx?ItemId=2229&PTID=129&MenuId=1>. (Reference in Arabic)

Table A11:

## Technology Indicators in the UAE and Selected Arab Countries

Country	Households with a Computer Device (a)		Percentage of Mobile Phone Subscribers (%) (2013) (b)	Percentage of Fixed Line Phone Subscribers (%) (2013) (c)	Percentage of Internet Users (%) (2013) (d)	Percentage of Facebook Users (%) (December 2012) (e)
	Year	Percentage (%)				
Bahrain	2012	92.7	165.91	21.78	90	413,200
Kuwait	2012	82.31	190.29	15.08	75.5	890,780
Oman	2011	58	154.65	9.67	66.5	584,900
Qatar	2012	91.51	152.64	19.02	85.3	671,720
Saudi Arabia	2010	57.3	176.5	16.37	60.5	5,852,520
UAE	2012	85.2	171.87	21.32	88	3,442,940
Arab Region	...	...	...	...	...	45,805,180

Source: (a) ITU Statistics. (2014). Retrieved August 15, 2014 from: [http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2013/Core\\_Indicators.xls](http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2013/Core_Indicators.xls)

(b) ITU Statistics. (2014). Retrieved August 15, 2014 from: [http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Mobile\\_cellular\\_2000-2013.xls](http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Mobile_cellular_2000-2013.xls)

(c) ITU Statistics. (2014). Retrieved August 15, 2014 from: [http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Fixed\\_tel\\_2000-2013.xls](http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Fixed_tel_2000-2013.xls)

(d) ITU Statistics. (2014). Retrieved August 15, 2014 from: [http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Individuals\\_Internet\\_2000-2013.xls](http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Individuals_Internet_2000-2013.xls)

(e) Internet World Stats. (2014). Retrieved August 5, 2014 from: <http://www.internetworldstats.com/stats1.htm>

Table A12:

## Networked Readiness Index for the UAE and Selected Arab Countries

Country	Index Value (2013)	World Rank (138 Countries) (2013)	Index Value (2014)	World Rank (148 Countries) (2014)
UAE	4.8	24	5.2	24
Oman	4.25	40	4.56	40
Qatar	4.79	25	5.22	23
Bahrain	4.64	30	4.86	29
Saudi Arabia	4.44	33	4.78	32
Kuwait	3.74	75	3.96	72

Source: World Economic Forum (2014). The Network Readiness Index 2014. Retrieved August 15 from:

<http://www.weforum.org/issues/global-information-technology/the-great-transformation/network-readiness-index>

Table A13:

## ICT Development Index (IDI) (2011-2012)

Country	Rank (2012)	Index (2012)	Rank (2011)	Index (2011)
Qatar	31	6.54	30	6.41
UAE	33	6.41	45	5.68
Bahrain	39	6.3	42	5.79
Saudi Arabia	50	5.69	48	5.46
Oman	54	5.36	58	4.8

Source: International Telecommunication Union (ITU). (2013). *Measuring the Information Society. Geneva: ITU*. Retrieved August 15, 2014 from [http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013\\_without\\_Annex\\_4.pdf](http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013_without_Annex_4.pdf)  
 Note: The ranking lists 157 countries included in the 2013 Report, the index ranges between 0 (worst performance) and 10 (best performance).

Table A14:

## Innovative Capacity and Localisation of Technology in the UAE and Selected Arab Countries (2012)

Rank	Country	Percentage of High Technology Exports	Percentage of Imported Equipment & Machinery of Total Imports	Foreign Direct Investment Net Inflows	Percentage of Students Enrolled in Sciences and Technology	Spending on Scientific Research and Technology as a Percentage of Production	Number of Researchers per 1 Million Inhabitants	Number of Patents	Number of Science and Technology Articles	Innovative Capacity and the Localisation of Technology Index
4	Bahrain	0.00	0.08	0.67	0.40	0.00	0.03	0.00	0.09	0.16
5	UAE	0.04	0.40	0.64	0.51	0.00	0.00	0.01	0.08	0.21
11	Saudi Arabia	0.01	0.79	0.44	0.59	0.01	0.00	0.01	0.04	0.24
13	Qatar	0.00	0.91	0.32	0.58	0.00	0.00	0.01	0.08	0.24
14	Kuwait	0.01	0.59	0.00		0.03	0.04	0.02	0.18	0.12
17	Oman	0.01	0.91	0.48	0.55	0.00	0.00	0.00	0.09	0.25
	Average of Arab Countries	0.03	0.46	0.43	0.51	0.05	0.05	0.00	0.06	0.19
	Average of Comparison Countries	0.35	0.60	0.18	0.80	0.33	0.35	0.12	0.35	0.38
	Size of the Gap between the Arab Region Comparison Countries	-91%	-23%	139%	-36%	-85%	-86%	-100%	-83%	-50%

Source: Arab Planning Institute. (2012). *Arab Competitiveness Report 2012. Fourth edition*. Retrieved on August 21, 2014 from [http://www.arab-apt.org/images/publication/pdfs/310/310\\_compsue2012.pdf](http://www.arab-apt.org/images/publication/pdfs/310/310_compsue2012.pdf)  
 Note: The study includes 30 states and the index ranges between 0 (worst performance) and 1 (best performance). (Reference in Arabic)

Table A15:

## Global Innovation Index (GII) (2014)

UAE	Result (0-100) or Value	Rank
GII	43.2	36
Innovation Outputs Sub-Index	30.3	68
Innovation Inputs Sub-Index	56.2	25
Innovation Effectiveness Ratio	0.5	127
Global Innovation Index 2013	41.9	38
<b>Sub-index: Innovation Input</b>	<b>56.2</b>	<b>25</b>
Institutions	76.6	30
Political Environment	75	34
Regulatory Environment	82	27
Business Environment	72.9	36
Human Capital and Research	62.1	4
Education	66.3	2
Tertiary Education	100	1
Research & Development	19.9	44
Infrastructure	55.9	18
ICT	71.2	18
General Infrastructure	53.7	12
Ecological Sustainability	42.7	50
Market Sophistication	46.2	85
Credit	37.3	63
Investment	25.2	12
Trade and Competition	76.2	58
Business Sophistication	40.3	34
Knowledge Workers Availability	37.6	78
Innovation Linkages	63.8	2
Knowledge Absorption	19.5	104
<b>Sub-index: Innovation Output</b>	<b>30.3</b>	<b>68</b>
Knowledge & Technology	14.3	132
Knowledge Creation	7.7	92
Knowledge Impact	34.9	82
Knowledge Diffusion	0.3	141
Creative Outputs	46.2	21
Intangible Assets	74.2	1
Creative Goods and Services	4.9	111
Online Creativity	31.7	46

Source: Cornell University, INSEAD, & WIPO. (2014). *The Global Innovation Index 2014: The Human Factor In innovation*, Fontainebleau, Ithaca, and Geneva.

Note: Ranking includes 142 countries included in the 2014 Report, the index ranges between 0 (worst performance) and 100 (best performance), or the real sub-index value.

Table A16:

## GII Ranking (2013-2014)

Country	Result (0-100) (2013) (b)	World Rank (2013) (b)	Result (0-100) (2014) (a)	World Rank (2014) (a)
UAE	41.9	38	43.25	36
Saudi Arabia	41.2	42	41.61	38
Qatar	41	43	40.31	47
Bahrain	36.1	67	36.26	62
Jordan	37.3	61	36.21	64
Kuwait	40	50	35.19	69
Oman	33.3	80	33.87	75
Lebanon	35.5	75	33.6	77
Tunisia	35.8	70	32.94	78
Morocco	30.9	92	32.24	84
Egypt	28.5	108	30.03	99
Algeria	23.1	138	24.2	133
Yemen	19.3	142	19.53	141
Sudan	19.8	141	12.66	143

Source: (a) Cornell University, INSEAD, & WIPO. (2014). *The Global Innovation Index 2014: The Human Factor In innovation*, Fontainebleau, Ithaca, and Geneva.

(b) Cornell University, INSEAD, & WIPO. (2013). *The Global Innovation Index 2013: The Local Dynamics of Innovation*. Geneva, Ithaca, and Fontainebleau.

Note: The ranking lists 142 countries in each of 2013 and 2014 reports, the index ranges between 0 (worst performance) and 100 (best performance), or the real sub-index value.

Table A17:

## Global Competitiveness Indicators

Country	(2012 - 2013)				(2013 - 2014)					
	Competitiveness Index		Competitiveness Index		Basic Requirements		Efficiency Enhancers		Innovation and Sophistication Factors	
	World Rank	Index Value	World Rank	Index Value	World Rank	Index Value	World Rank	Index Value	World Rank	Index Value
Qatar	11	5.38	13	5.24	5	6.01	18	5.02	14	5.08
Saudi Arabia	18	5.19	20	5.1	14	5.73	27	4.69	29	4.33
UAE	24	5.07	19	5.11	4	6.04	20	5	24	4.67
Oman	32	4.65	33	4.64	13	5.77	29	4.45	39	4.05
Bahrain	35	4.63	43	4.45	25	5.46	38	4.5	59	3.71
Kuwait	37	4.56	36	4.56	32	5.22	77	3.95	101	3.34

Source: World Economic Forum. (2013). *The Global Competitiveness Report 2013-2014*. Geneva: World Economic Forum. Retrieved August 15, 2014 from: <http://reports.weforum.org/the-global-competitiveness-report-2013-2014/> Accessed: 20 September 2013  
 Note: Ranking includes 148 included countries, the index ranges between 0 (worst performance) and 7 (best performance).

Table A18:

## Arab World Competitiveness Indices for the UAE and Selected Arab Countries (2012)

Rank	Country	Current Competitiveness Index	Latent Competitiveness Index	Arab Competitiveness Index
4	Bahrain	0.58	0.48	0.53
5	UAE	0.58	0.47	0.52
11	Saudi Arabia	0.52	0.43	0.47
13	Qatar	0.53	0.41	0.47
14	Kuwait	0.53	0.39	0.46
17	Oman	0.50	0.35	0.43
	Arab States Average	0.44	0.35	0.39
	Comparison Countries Average	0.50	0.50	0.50

## Current Competitiveness Index

	Arab World Competitiveness Index for the UAE	Arab States Average	Comparison Countries Average
Economic Performance	0.46	0.51	0.51
Business Structure and Attractiveness	0.62	0.44	0.51
Governance and Institutional Efficiency	0.49	0.37	0.53
Goods and Services Distribution Infrastructure	0.65	0.26	0.29
Foreign Direct Investment Attractiveness	0.55	0.47	0.54
Government Intervention in Economy	0.83	0.62	0.59
Business Cost	0.58	0.48	0.61
Markets, Products and Specialisation Dynamics	0.54	0.37	0.4
Productivity and Cost	0.53	0.47	0.52
Current Competitiveness Index	0.52	0.39	0.5

## Latent Competitiveness Index

	Arab World Competitiveness Index for the UAE	Arab States Average	Comparison Countries Average
Innovative Capacity and Localisation of Technology	0.21	0.19	0.38
Human Capital	0.53	0.48	0.66
Quality of Technology Infrastructure	0.66	0.37	0.47
Latent Competitiveness Index	0.47	0.35	0.5

Source: Arab Planning Institute. (2012). Arab World Competitiveness Report, 4th edition. Kuwait: Arab Planning Institute.

Note: The study includes 30 states and the index ranges between 0 (worst performance) and 1 (best performance). (Reference in Arabic)

Table A19:

**Corruption Perceptions Index (CPI) for the UAE**

World Rank (2013)	26
Index Value (2013)	69
Index Value (2012)	68

Source: Transparency International. (2013). *The Corruption Perception Index*. Retrieved August 15, 2014 from:  
<http://cpi.transparency.org/cpi2013/results/#myAnchor>

Note: The CPI is issued by Transparency International, it lists 177 states that are included in the 2013 Index, ranging from 0 (perception of high-level corruption) to 100 (perception of a very clean state).

Table A20:

**Happiness Index for the Arab States and Comparison Countries (2010-2012)**

Country	Happiness Index
Denmark	7.693
UAE	7.144
USA	7.082
Oman	6.853
Qatar	6.666
Kuwait	6.515
Saudi Arabia	6.48
Japan	6.064
Malaysia	5.76
Algeria	5.422
Jordan	5.414
Turkey	5.345
Libya	5.34
Bahrain	5.312
China	4.978
Lebanon	4.931
Morocco	4.885
Tunisia	4.826
Iraq	4.817
Mauritania	4.758
State of Palestine	4.7
Djibouti	4.69
Sudan	4.401
Egypt	4.273
Yemen	4.054
Syria	3.892
Comoros	3.851

Source: Hellinwell, J., Layard, R., & Sachs, J. (2013). *World Happiness Report*. United Nations. Retrieved on August 21, 2014 from:  
[http://unsdsn.org/wp-content/uploads/2014/02/WorldHappinessReport2013\\_online.pdf](http://unsdsn.org/wp-content/uploads/2014/02/WorldHappinessReport2013_online.pdf)



برنامج الأمم المتحدة الإنمائي  
United Nations Development Programme



مؤسسة محمد بن راشد آل مكتوم  
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Integrating the youth and stimulating their active participation in the transfer and localisation of knowledge holds special importance for the UAE as one of the steadily rising countries aiming to achieve the highest possible rates of development and access the wider fields of human knowledge. The UAE has declared its determination to become one of the best countries in the world as expressed in the UAE 2021 Vision. One of the main pillars for achieving comprehensive human development in the UAE is the establishment of a national knowledge base that rests on the effective integration of the youth in building it and benefiting from its products. Therefore, it is important to adopt an overall future vision of the transfer and localisation of knowledge, a vision that directs efforts towards horizons that are wider than the transfer of knowledge alone, in order to develop a knowledge production process in which the youth play their desired fundamental role; not only paving the way for the production of knowledge, but also for its employment, diffusion and development.

The strategies and mechanisms proposed are not only viable, but also enjoy the availability of most, if not all, conditions for their success. The current settings in the UAE confirm the availability of the main elements and requirements for establishing the knowledge society and the knowledge economy and strengthening the participation of the youth. Investing in the Emirati citizen and advancing him or her in all fields represents one of the main declared priorities and directions. Also, many of the elements of success are actually available or will be soon, for the UAE has witnessed remarkable achievements towards the establishment of the knowledge society and the knowledge economy. The country enjoys a sophisticated infrastructure and information technology system, a strong economy and a clear understanding of the importance of building the knowledge society and the need to efficiently involve young people in this central development process. More importantly, there is a political will at the highest levels, supported by sincere community will, to achieve these goals. There is also awareness of the importance of catching up with the developed countries. This will lead the UAE to sail across the wide seas of knowledge to reach the shores of sustainable human development and to realise the pride and happiness of the people in the UAE.

