Transforming Arab Economies:
Traveling the Knowledge and Innovation Road

Draft Overview
October 2012

This note contains an overview of the report on *Transforming Arab Economies: The Knowledge and Innovation Road* that has been developed by the CMI with the World Bank, the European Investment Bank (EIB), and the Islamic Educational, Scientific, and Cultural Organization (ISESCO). The findings, interpretations, and conclusions expressed in this draft report are those of the authors alone and do not necessarily represent the views of the Executive Directors of The World Bank, the boards of the contributing organizations, or the governments they represent. All errors and omissions are solely those of the authors.

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DRAFT OVERVIEW

Main messages

To cope with the daunting challenges they face, particularly the huge need to create jobs, Arab countries should embrace a new economic model, that of the knowledge- and innovation-driven economy. Some Arab countries began making the move in the past decade to spur growth and improve their global competitiveness. Traveling the road to the knowledge economy can help to ensure a sustainable growth trajectory, one that generates the jobs the region needs to keep its people, particularly the young, productively employed. It is not an easy road. Choosing it means expanding and deepening reforms in key policy areas—to develop more entrepreneurial economies, create more innovative industries, prepare a cadre of better educated and more highly skilled people—and nurturing societies that are more open and competitive. Such a development model would have to be accompanied by a new social contract between ruling powers and citizens, with the new economic model and the new social contract reinforcing one another. Implantation of the new model must be adapted to each country's specificities and capabilities and inspired by a pragmatic approach that gathers low-hanging fruit—relatively easy opportunities to create new wealth and jobs—in order to build trust and confidence in the reforms. Deeper integration within the Arab world and within the Mediterranean space would help considerably in making the transition to the new model.

Back to fundamentals

Knowledge has always been central to development. Cultures that knew more than others have been better able to adapt to their environments, survive, and thrive. A thousand years ago the Arab world led the world in knowledge, prosperity, and development. Arab science and technology, as well as free trade and tolerance for all religions, were key to this development. It is time to restore these knowledge-based traditions to the Middle East and North Africa.

Thanks to the development of the Internet and a variety of new information and communication technologies (ICT), knowledge is now truly global, accessible, and utterly democratic. Along with this dramatic technological change has come a globalization of economies, with intensified competition and the emergence of more-sophisticated value chains in production processes. The impacts of this paradigm shift are all around us. We witness countries—small ones such a Finland and Singapore, medium-sized one such as the Republic of Korea, and large ones such as China and India—that are able to harness the power of technical change, compete in the global economy, and nurture their

knowledge workers. Others that fail to acquire, adapt, and use new technologies, to upgrade their knowledge capabilities, and express their creative talents are doomed to decline.

Across the globe, far-sighted leaders are searching for new ideas and strategies to deal with a changed reality. The Arab Spring has shown that countries can no longer rely on narrow, statist paradigms of growth. In the southern Mediterranean, years of autocratic rule, characterized by harsh suppression of political freedoms and justice and crony capitalism, have been rejected by widespread populist movements for change. The challenge for these countries is to put in place a system that is free, just, inclusive, creative, and dynamic. Restoring confidence and improving governance are the needs of the hour, but new governments in the region will also have to deliver growth and jobs—quickly, before disillusioned populations are driven to revolt once again. Although the oil exporters seem to have weathered the storm a little better, their regimes must act quickly too and do more to diversify their economies beyond reliance on natural resources. The era when natural resources dominated trade has given way to an era where knowledge resources are paramount.

Given the immense challenges and opportunities, what should policy makers in the region do? On what must leaders of the Arab countries[1] concentrate in order to stimulate growth, create jobs, restore trust, and provide a measure of hope and prosperity for their populations? This report is a humble effort that seeks to answer some of these questions in an integrative framework. But it is only the beginning of a process. Putting the new model to work in any country requires a vision, a strategy that articulates that vision, the coordination of multiple government departments around the proposed strategy, the participation of stakeholders in the private sector and civil society, and, in many countries, the involvement of various development partners.

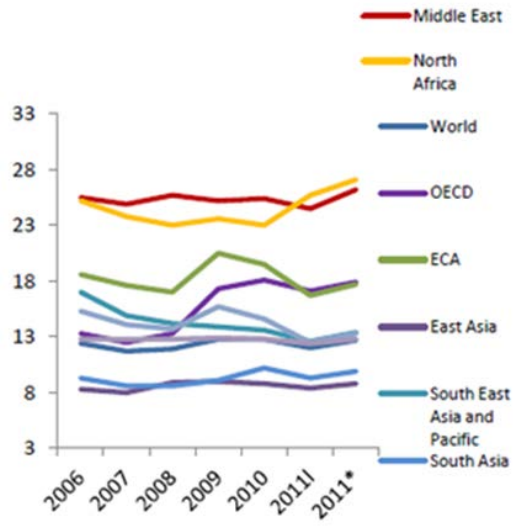
The jobs challenge

Unemployment, in particular among young people, is incontestably the main challenge facing Arab countries**.** The MENA region has the highest rate of youth unemployment in the world—25 percent—twice the world average. Figure 1 highlights the pressing issue of youth unemployment in the region as compared with other regions of the world. It is estimated that more than 10 million young people enter the labor market annually, including an increasing number of women, yet only a tiny fraction of them can currently expect to find formal employment. To accommodate them, approximately 40 million jobs will have to be created in the coming decade.

The job deficit is the consequence of inefficient economic systems, which were, or still are, in place, though change is in the air. From this viewpoint the Arab Spring has opened up unprecedented opportunities by breaking down the “authoritarian bargain” that had prevailed in some countries for decades. That bargain consisted of providing jobs through an enlarged public sector, while subsidizing the basic needs of the population. As a development model, the authoritarian bargain has proved to be unsustainable, because it is economically inefficient and socially inequitable. The region must thus launch its own employment miracle and develop competitive, productive, and sustainable economies.

[1] This study covers all Arab countries, with the exception of Comoros, Mauritania, Somalia, and Sudan. Reference is often made to the Middle East and North Africa (MENA) as a geographic region. The MENA region within the World Bank is made up of Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, West Bank and Gaza, and Yemen.

Figure 1. Youth unemployment by region



Source: World Bank (forthcoming 2012).

Wanted: A new economic model

With the advent of the Arab Spring, the countries of the region are revisiting their growth and development strategies, with reducing unemployment a key objective. In this context, there is strong interest in moving to a knowledge-based, productivity-driven growth model.

To succeed in the great transition that lies before them, Arab countries need more productive and competitive economies powered by knowledge and innovation. Only such economies can create a sufficient number of jobs and do so sustainably. Under current economic structures (and their associated rate of job creation), a rate of economic growth of 7 percent a year would be required to avoid further deterioration of the employment situation. Because such growth rates are unreachable in the current state of the global economy and in the foreseeable future, Arab countries have little choice but to change their current economic structures in favor of new arrangements capable of delivering more jobs and increasing productivity and innovation in all sectors of the economy and society, including the poorest segments.

Making the move to a knowledge economy model involves more than developing or acquiring new technologies for use in a narrow fringe of the economy. It involves a deeper change in the functioning of the economy in which knowledge and innovation penetrate all sectors of economic activity, fertilizing it through multiple channels (technical, financial, managerial), and knowledge is applied to generate and spread new goods and services. Along the way, knowledge and innovation boost overall productivity and augment competitiveness (box 1).

Box 1. Knowledge: Key to productivity and innovation

We know that the source of wealth is something specifically human: knowledge.
If we apply it to tasks we already know how to do, we call it “productivity.”
If we apply it to tasks that are new and different, we call it “innovation.”
Only knowledge allows us to achieve those two goals.
Source: Peter Drucker, Managing for the Future, 1992

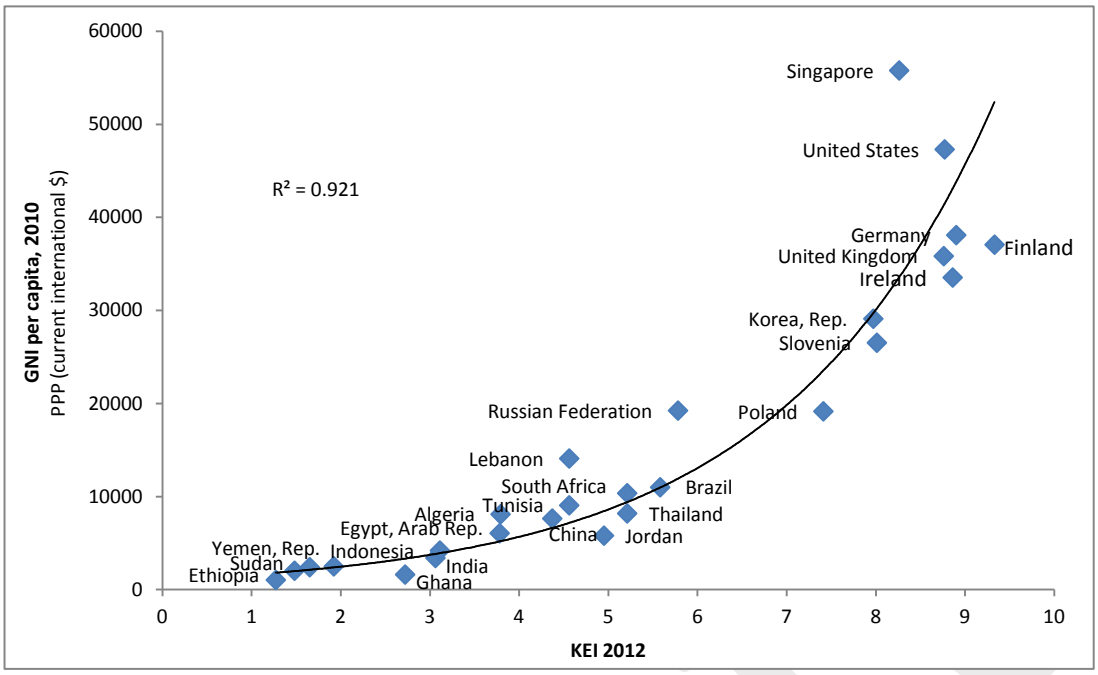
A knowledge economy, as observed by the Organisation for Economic Cooperation and Development (1996)[2] and as defined by World Bank (2007), is one in which knowledge is acquired, created, disseminated, and applied to enhance economic development. Intuitively, conditions for a knowledge-based development process would seem to include an educated and skilled labor force, a dense and modern information infrastructure, a rich innovation ecology, and, and a vibrant business environment supported by good governance (figure 2). In a knowledge economy, countries invest first in high-quality knowledge (rather than capital inputs), so as to make each sector of the country's economy more efficient. Figure 3 illustrates the significant returns that such an investment can create.

Figure 2. Four pillars of knowledge-economy strategies

Pillar 1 **Economic and institutional regime**	Pillar 2 **Education and skills**	Pillar 3 **Information and communication infrastructure**	Pillar 4 **Innovation system**
The country's economic and institutional regime must provide incentives for the efficient use of existing knowledge, the acquisition of new knowledge, and the application of both to economic activity—to improve productivity, to raise quality, to innovate, and to launch new enterprises.	The country's people need education and skills that enable them to create and share knowledge, and to use it well.	A dynamic information infrastructure is needed to facilitate the effective communication, dissemination, and processing of information.	The country's innovation system—firms, research centers, universities, think tanks, consultants, and other organizations—must be capable of tapping the growing stock of global knowledge, assimilating and adapting it to local needs, and creating new technology that underpins the development of new products and processes that can compete in export markets and meet needs at home.

[2] As observed by the Organisation for Economic Cooperation and Development in 1996, "OECD economies are increasingly based on knowledge and information. Knowledge is now recognized as the driver of productivity and economic growth, leading to a new focus on the role of information, technology and learning in economic performance. The term "knowledge-based economy" stems from this fuller recognition of the place of knowledge and technology in modern OECD economies." See also World Bank (2007).

Figure 3. Strong links between knowledge and growth



Source: Authors' calculations.

Note: The Knowledge economy index (KEI) measures the overall preparedness of a country or a region for the knowledge economy, and is based on the average of all normalized scores on the four pillars of the knowledge economy: economic and institutional regime, education, innovation and ICTs. www.worldbank.org/kam.

Advancing on the knowledge and innovation road

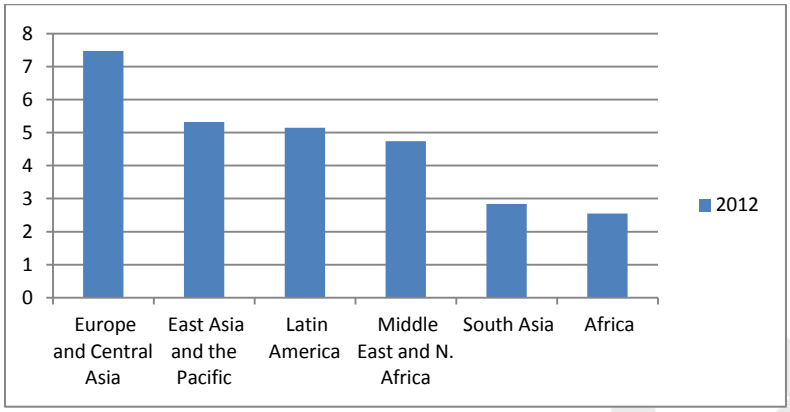
The Arab region is well placed to follow such a strategy. Some Arab countries have already begun traveling the knowledge economy road, upgrading their human resources through improvements in education that have significantly increased the region's capacity to absorb new technologies and know-how, investing in ICT infrastructure and the backbone logistics needed to connect to the global economy, building solid R&D structures, and improving their overall business environment. This is particularly true of the oil-rich countries of the Gulf, which aim to transform some of their cities into global innovation spots. Among the resource-poor countries, several countries have made noticeable efforts to organize their development strategies around knowledge-economy initiatives through sectoral or national plans.

But these steps, laudable as they are, have not kept pace with the rest of the world. Among developing regions, MENA has a middling score on the World Bank's Knowledge Economy Index (KEI, figure 4). When country performance on the KEI is plotted against competitiveness (as defined by a country's score on the Global Competitiveness Index[3] of the World Economic Forum), it can be seen

[3] The GCI has been the key methodology used by the World Economic Forum in its assessments of competitiveness (World Economic Forum and OECD 2011). The model rests on the belief that the determinants of competitiveness are numerous and interact in a complex manner. The GCI captures these interactions through a weighted average of 12 pillars of competitiveness. Four basic requirements essential for factor-driven economies are institutions, infrastructure, macroeconomic environment, and health and primary education. Six efficiency enhancers that are key for efficiency-driven economies include higher education and training; efficient goods markets, labor market efficiency, financial market development, technological readiness, and market size. Two innovation and sophistication factors that are key for innovation-driven economies are business sophistication and innovation. As shown in figure 5, Arab countries tend to exhibit a lower KEI for a given GCI, showing an underinvestment in knowledge-economy variables compared with the rest of the world. The plotting of the GCI 2012 scores against per capita GDP also reveals an unsurprising correlation:

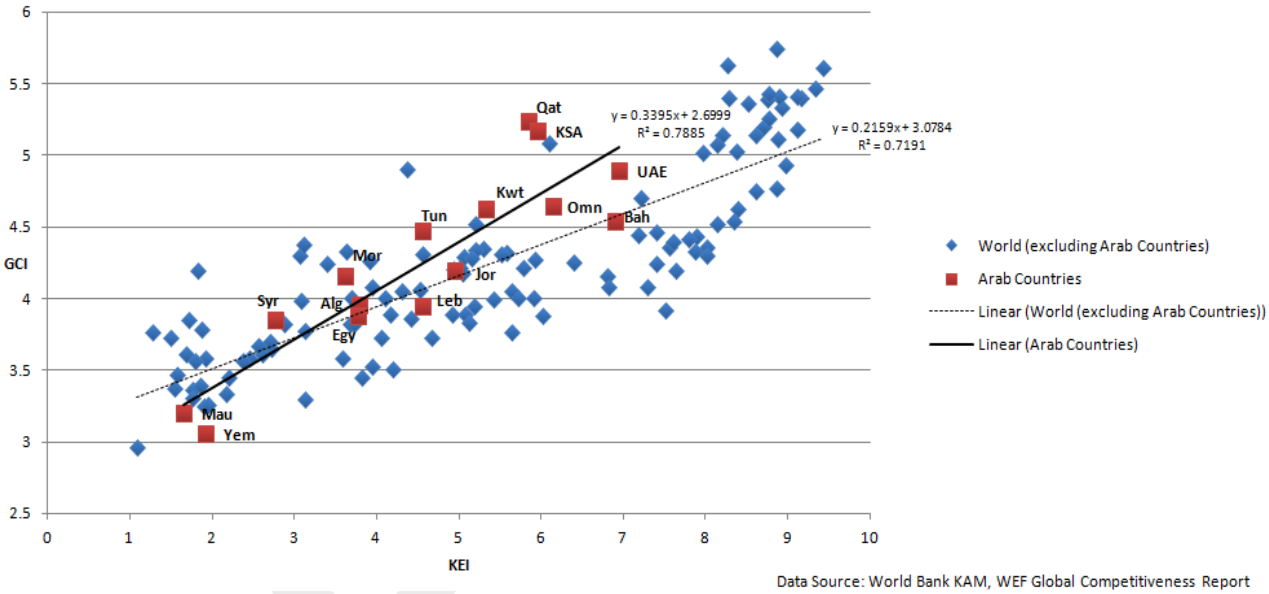
that the competitiveness of the Arab world is derived from factors other than those related to knowledge (figure 5).

Figure 4. Regional scores on the Knowledge Economy Index (KEI), 2012



Source: 2012 Knowledge Assessment Methodology (www.worldbank.org/kam).

Figure 5. Country performance on the 2012 KEI plotted against the 2011–12 Global Competiveness Index



Data Source: World Bank KAM, WEF Global Competitiveness Report

Source: Global Competitiveness Index 2011–2012 (World Economic Forum 2011); World Bank (2012).

The MENA countries appear to exhibit what may be termed "knowledge-weak competitiveness"—that is, their competitiveness is derived from factors other than those related to knowledge. The bulk of the economies in the Arab world are factor-driven; significant changes are needed to convert them to efficiency- and innovation-driven economies. Here the impact of the economic and institutional regime, and its effect on the overall business climate, is key. Mediocre governance, resulting in a poor business climate, is the single greatest hindrance to economic and social development in the region—and to knowledge-based development in particular. Political and

competitiveness brings wealth, but rich countries have an advantage over poor ones in creating competitive conditions. But they can squander competitiveness, too. The most striking fall is the United States, which has dropped in the competitiveness rankings for four years in a row. It is now seventh. The GCI rankings are based on criteria such as institutions, infrastructure, financial systems, flexible labor markets, economic stability, innovation, and public services (Economist 2012).

economic volatility, especially in the recent past, have also exerted a downward pull on the KEI by weakening the overall economic and institutional regime. The current events, however, provide an opportunity to make economic governance more transparent and effective and so unleash the region's potential.

Concretely, what does putting knowledge economy at work in the Arab world mean? Box 2 provides a few examples of different types of activities and communities—in business, research, education—discussed in the report. These examples demonstrate that the knowledge and innovation approach can apply in all contexts—from the most basic to the most sophisticated.

It is difficult to estimate the precise impact of a knowledge- and innovation-driven economic model on growth and employment, even if improved performances by individuals, firms, collective groupings, can be related to or explained by some aspect of increased knowledge or innovation—defined as something new relative to the given context (not in absolute terms). Nevertheless, econometric estimates and other prospective computations summarized in this report point to the likelihood that a sustained KE effort over a sufficiently long period can be an important source of jobs in the Arab region, provided that labor markets function well and skill mismatches are significantly reduced.[4]

[4] Depending on countries, the annual growth rate of job creation could be increased by 30 percent and more with a strong, but attainable, knowledge economy effort encompassing the four knowledge-economy pillars. Up to half of the new jobs could be directly related to KE-based development.

Box 2. The knowledge- and innovation-driven economy at work in Arab countries

The **Tunisian textile sector** has taken a qualitative leap by relying on nonconventional assets: creativity, innovation, marketing, and investment in new technologies to upgrade the quality of its production through clothing design, finishing, and co-production. On the local level, several research laboratories and units have been involved in textile-related subjects, most located at the University of Monastir. The latter hosts three textile training institutions that offer credentials in textile engineering (70 graduates a year), environmental protection, fashion, and design—with research teams and no fewer than 70 faculty researchers working on textile-related subjects. Competitive firms use advanced technologies to produce clothes, such as computer -guided lasers, and are connected on-line with markets around the globe for just-in-time delivery. The shift to the knowledge economy has saved at least 200,000 jobs and 40 percent of Tunisia's industrial exports (as of the end of 2010).

The **Education Reform for the Knowledge Economy (ERfKE) program in Jordan** has been a 10-year, multi-donor program to deliver comprehensive education reform. The initial focus on general education-system reforms led to efforts to instill the skills necessary for participation in the knowledge economy at all levels of education. Operating in tandem with ERfKE, the Jordan Education Initiative, launched in 2003 under the umbrella of the World Economic Forum, is a multi-stakeholder partnership that integrates ICTs into the education process as a tool for teaching and learning in grades 1–12. The results of the ERfKE reforms are tangible. By 2010, Jordan had the highest literacy rate in MENA; gross enrollment rates at the primary and secondary levels reached 98 percent and 97 percent, respectively, by 2006; as many as 3,000 schools were connected to online learning portals, with 80 percent of schools connected to the Internet; and there was a 37 percent increase in qualified kindergarten teachers with a bachelor's degree and certification.

Yomken.com (www.yomken.com) is the first open-innovation and crowdfunding platform in the Arab world. Initiated by a team at Cairo University, it tries to bridge the gap between (i) the challenges faced by micro- and small entrepreneurs (MSE) working mainly in low-tech and informal manufacturing industries (designing new products and upgrading current products and production processes) and (ii) the innovative ideas and skills of potential problem solvers (graduation projects, innovative solutions from recently graduated engineers, designers, researchers who are looking for a job, the Arab diaspora). Once the gap is bridged, the platform uses crowdfunding to finance the products that emerge from the matchmaking process. Yomken's team has started—in its pilot phase—by tapping the potential for innovation by supporting more than 60 workshops in Manshiet Nasser—Cairo's mega slum of some 800,000 residents. Workshops topics ranged from toy making, souvenirs, plastic gadgets, and handmade furniture.

Saudi Arabia is embarking in the creation of new knowledge cities. Madinah Knowledge Economy City, launched in 2010 with an investment of $7 billion, is planned to cover an area of 4.8 million square meters and create 20,000 positions for a population of 150,000 inhabitants. With an investment of $27 billion, the King Abdullah Knowledge City is planned to extend over 168 million square meters and create one million jobs with numerous incentives and measures in place to promote private sector participation. It will be entirely funded by private capital—the largest private sector project in the region.

The need for broader and deeper reforms

Establishing this new growth regime driven by knowledge and innovation will require progress on all four policy pillars.

More open and better-governed societies should help release the creative dynamism of their populations, notably youth. That means, in particular, facilitating freedom of expression and voice, offering women a more equitable place in society, establishing adequate checks and balances on political decisions, ensuring the rule of law, maintaining effective judicial systems, and ensuring both internal and external security.

More entrepreneurial economies with a dynamic private sector should be the source of wealth, jobs, and personal and collective accomplishments. Some pertinent reforms were carried out in several countries before the Arab Spring, but, generally, Arab economies have continued to lack the

flexibility needed to succeed in the global knowledge economy of the 21st century. Most of the region's economies are hampered by rigid regulations on product and labor markets, competitive conditions burdened by monopoly and privilege, restrictions on external trade and foreign direct investment, lack of development and venture capital, and bureaucratic hurdles of all kinds (table 1).

Table 1. Areas for improvement and selected actions to improve the economic and institutional regime

Objective	Selected actions
Make strategy through participatory processes	Involve key stakeholders (private sector, youth, local authorities) to underpin stronger reform alliances Establish multiyear budgetary framework and monitoring systems
Strengthen governance and government efficiency	Ensure freedom of expression and political accountability Establish rule of law and fight corruption Proceed with gradual decentralization and devolution of power Strengthen government effectiveness through performance-based public management and improved public administration management (recruitment, training, promotion)
Open up society	Reduce gender disparities through actions in schools and on labor markets Open society to foreign influences through cultural exchanges, media, immigration, and other means
Improve the business environment	Reduce macroeconomic, regulatory, and other sources of uncertainty Promote economic competition and reduce built-in privilege Improve financing of economy and protect investors Prevent isolation of special economic zones from the rest of the economy
Integrate into the global economy	Pursue trade liberalization Promote intra-Arab economic cooperation and trade Stimulate integration in the Euro-Mediterranean space

More innovative communities should help renew the foundations of economies. Improving the innovative climate implies the existence of supportive programs and organizations for potential innovators, programs that connect them with sources of human and financial capital and with market channels. It means improving R&D structures and putting them in the service of the economy and society. It means tapping into global knowledge through research cooperation, foreign direct investment, and well-organized diasporas. It means building vibrant innovative sites by improving existing sites, such as techno-parks and industrial clusters, and opening new ones. A number of relatively inexpensive measures would have a strong impact of the creativity and dynamism of the academic and business communities (table 2).

Table 2. Areas for improvement and selected actions to improve the innovation system

Objective	Selected actions
Broaden the concept of innovation policy	Move from S&T policy to innovation policy with cross-sectoral actions (research, industry, education, trade, finance, competition, etc.) and involvement of representatives from the private sector and civil society
Bring R&D structures into the service of the economy and society	Support collaborative R&D projects with the business sector through government grants that stimulate and matching investments made by firms Remove obstacles to collaboration with the economy and society and stimulate research structures by requiring that a significant share of their budgets (20 percent or more) be funded from contracts with outside sources Upgrade technology services infrastructure (measurement, standards, testing, quality assurance) and ensure full availability throughout the region
Tap into global knowledge and technology	Stimulate participation in global and regional research networks through appropriate incentives and ensure that such collaboration contributes to long-term capacity building and sustainability of research teams and structures Take advantage of levers such as FDI through linkage programs that facilitate the upgrading of technology and management Mobilize highly skilled diasporas, facilitating their engagement with and/or return to their country of origin
Educate for innovation	Cultivate a mindset of innovation and entrepreneurship among young people by teaching enterprise creation and management in secondary school and offering innovation-oriented programs in university (business- oriented modules for students in science and engineering) Encourage the emergence of private universities oriented toward research and innovation, and recognize their diplomas at the national level
Support innovators	Support innovators through efficient structures and programs that provide the services they need to develop their projects (technical, commercial, industrial, etc.) Develop a financial environment in which incubators, venture capitalists, and business angels can finance innovative projects that are by nature risky. Provide support to seed funding and mobilize venture capital through appropriate public-private partnerships Provide strong legal support and intellectual property protection to innovators

More- and better-educated populations should respond to the needs of the economy and to job opportunities. Although Arab countries spend a great deal on education, they need to invest more efficiently at all levels: in early childhood development, in primary and secondary schools, in tertiary education, and in professional and technical training. Basic cognitive competences should be acquired in early school years. Creativity, problem solving, teamwork, and other such skills and aptitudes should be developed to replace rote-learning practices and outdated teaching methods. Technical and scientific disciplines should be better taught to attract more young people. Lifelong learning mechanisms need to be put in place so that people can continue to learn throughout their lifetime (table 3).

Table 3. Areas for improvement and selected actions to improve education

Objective	Selected actions
Improve the quality of education	Shift from engineering educational inputs to engineering the education system to obtain better results Widen the purpose of student assessment from its present one of selection and academic placement to the new role of supplying evidence of education quality
Invest in early childhood development (ECD)	Raise awareness about the importance of ECD among Arab countries and scale up initiatives that have been proven to work Invest in ECD by establishing incentives for private sector supply and allocating more public resources to this pursuit
Improve basic education	Emphasize development of higher-order cognitive skills such as flexibility, teamwork, and problem-solving Where appropriate, teach in spoken Arabic rather than in classical Arabic to facilitate learning in early years of education Reform teaching and learning by, among other things, retraining teachers and redesigning the curriculum from basic to higher education
Invest in technical and vocational education and training (TVET)	Improve governance of TVET and introduce participation, accountability, and decentralization in public provision of TVET Find new sources of funding, including from the private sector, to sustain diversified provision of TVET services of higher quality
Align the governance, management, financing, and performance incentives of the education system to produce better learning outcomes	Strengthen educational information systems Set targets and measure progress by adopting national performance standards at all levels of education, and continuously monitor progress toward those standards Develop quality assurance and certification mechanisms at the national and regional levels Participate in international testing programs Improve incentives by linking teachers' rewards (in terms of salary or promotion) to classroom outcomes; encourage private provision of education; provide greater autonomy to HE institutions
Link higher education with employment	Reduce dominance of public sector employment, as it is a major distortion of the labor market Integrate innovation and entrepreneurial thinking in the education process to foster the skills, aptitudes, and entrepreneurial mindsets that youth need for employability

More "wired societies" should make it easier to capture the benefits of global ICT developments. Events of the recent past have highlighted the power of ICTs to effect change in the Arab world. In the aftermath of these events, there is a great opportunity to further reform the ICT sector, increase competition, remove Internet restrictions, expand access to broadband, and provide new opportunities and create applications to increase employment, foster entrepreneurship, and enable better transparency and governance (table 4).

Table 4. Areas for improvement and selected actions to improve ICT infrastructure

Objective	Selected actions
Strengthen competition in the ICT market and improve broadband access	Raise competition in the telecom sector, increase access to broadband, and ensure affordable international connectivity Develop a more balanced legal and regulatory framework for ICT Enhance the independence and capacity of regulators; strengthen regulatory agencies and competition and antitrust authorities Protect users' privacy, guarantee intellectual property rights, and ensure freedom of expression.
Make more effective use of ICT applications for delivery of government services	Accelerate opening up of government data; develop e-procurement platforms Enhance citizen engagement to improve government transparency and accountability Promote e-government services; subsidize IT training within government; develop a variety of e-applications (in education, health, business, and so on); promote ICT literacy in schools Strengthen legislation to support media plurality and independence and promote open access to government data.
Improve IT skills among the labor pool to increase productivity and employability	Implement practical policies to enhance citizens' ICT skills to help them become more employable and entrepreneurial Encourage IT-enabled services (ITES) and business process outsourcing (BPO) opportunities for job creation Foster the development of Web content in Arabic to spread the benefits of ICTs among the population
Increase the contribution of ICTs to growth	Introduce ICT into the educational system, develop e-content, and increase the ICT literacy in the population Develop the legal and institutional framework for secure electronic transactions to spur development of online sales and allow businesses to capture a larger share of BPO

Promoting growth sectors and dynamic sites for economic diversification

In addition to actions needed on the knowledge economy pillars, there is also a need to promote and encourage the development of a set of sectors that can be sources of growth and jobs for economies that are not yet sufficiently diversified. There are niches to be exploited in established industries (agro-food, textiles, chemicals, mechanicals, etc.), in ICT-related industries (off-shoring, e-business, e-government, etc.), in creative industries (new media), in tourism (health tourism), and in green growth and environmental stewardship (table 5).

Table 5. Actions needed to promote growth in new and established sectors

Sector	Actions needed
Established sectors	Upgrade the value chain in order to strengthen vertical linkages. Design supportive policies to promote for R&D, innovation in these sectors for better product development, notably in niches products. Establish a comprehensive strategy to address the high duality (informal low-tech SMEs versus formal medium-tech MNCs) existing in these sectors.
ICT-related sectors	Create platforms for labor supply and demand matchmaking Encourage electronic and mobile money transfer services and crowd-funding. Create micro-tasking and crowd-sourcing platforms, and developing rural BPO for the low-skilled workforce. Develop top-end BPO, strengthening linkages between business and universities (incubators for ICT entrepreneurs, co-creation platforms…).
Creative industries	Stimulate investments in the media and entertainment sector to add value along the value chain. Harness the potentials of new technologies in meeting the demand of cultural goods (e.g. book, music, and film industries) and the values of the Arab customers. Advance legal framework regarding tax authorities and intellectual properties rights. Improve educational, administrative and technical qualifications to enhance productivity and increase the number of

	startup companies in that industry.
Health tourism	Enhance export promotion strategies to gain market shares by improving hospitality and combining excellent medical services with tourist activities. Initiate a certification of health facilities that meet international quality standards. Reassess the health-care regulatory mechanism in light of the domestic health goals and foreign trade objectives.
Green growth sectors	Foster new green niche industries and green entrepreneurs to accelerate the creation of green jobs. Expand national strategies for environment protection, energy saving, alternative energies. through programs that combine, as appropriate R&D efforts, public procurement, quality certification, and training. Advance international cooperation by following business models that are in line with the region's comparative advantage.

Another dimension of economic diversification relates to local and regional development. Innovation and new activities germinate in places where there is an accumulation of talents, knowledge, and entrepreneurship. Governments of the region, following global trends, have attempted to stimulate such processes by creating special economic zones, establishing science and technology parks, and building new cities (in resource-rich countries). The success of such operations depends largely on the ability to mobilize a critical mass of actors to cooperate effectively on specific projects (for example, entrepreneurs and researchers, domestic and foreign industries, and so on) and leading to the development of dynamic clusters. There is a need now to review the many initiatives taken in various countries and to build on the most successful experiences and practices.

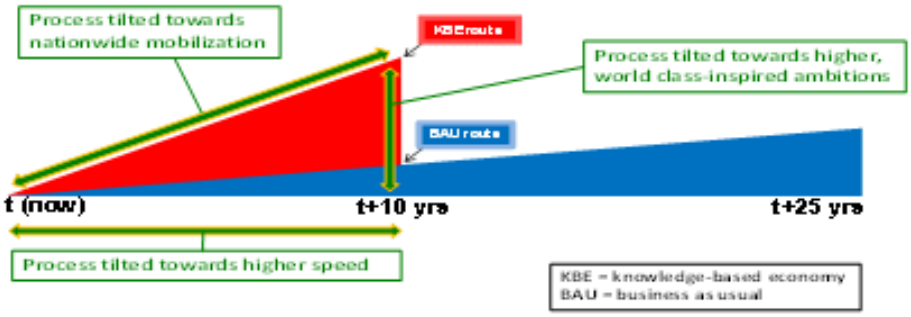
Table 6. Actions needed to build innovative and dynamic sites

Science and technology parks	Develop S&T parks that are efficiently run (with input from the private sector), as well as solid education and research infrastructure and incentives for cooperation among various players in the innovation process (businessmen, researchers, venture capitalists, and so on)
Special investment and export zones	Make the best possible use of industrial and export zones to facilitate linkages between local industries and foreign investors and to transfer technology and management competence.
Industrial clusters	Facilitate cooperation among businesses and establish trade and export networks, quality certification services, and financial support schemes
New cities	Create appropriate knowledge infrastructure (education, R&D) and establish efficient incentives to attract talented foreign investors and partners and to make the new cities hot spots of global innovation; use large-scale programs of infrastructure development (transportation, building, and so on) to stimulate innovation in local businesses.
Rural development	Deploy complementary policy measures—training programs, business incentives, technical support, ICT and road infrastructure, and so on—to facilitate the exploitation of local comparative advantages (for example, in agriculture), anchor populations, and prevent excessive urbanization.

Implementing the new development model with ambition and pragmatism

In putting in place the new development model, national leaders and policy makers should be inspired by the experience of countries that have used the knowledge- and innovation-based approach to achieve faster economic growth, as compared to the business as usual attitude. The necessary approach is inspired by ambition, speed, and mobilization of the population around the new vision (figure 6).

Figure 6. The knowledge-economy process contrasted with business-as-usual models of economic growth: ambition, speed, and mobilization



Source: Rischard (2009).

The new economic model should be accompanied by a new social contract between countries' leaders and the citizenry as a whole. This new social contract would replace the "authoritarian bargain" of the former regimes, a bargain that led to inefficient economies and repressive polities. The new social contract should be coupled with a supporting economic vision that emphasizes innovation and renewal. The media should be encouraged to report on the success stories that are emerging in the Arab economies, the modest as well as the flashy. The new social contract would facilitate knowledge-economy-related reforms and initiatives, using a broad participatory approach to involve change agents and the population at large in their design and implementation. The success of the new economic model will in turn consolidate the social contract, helping to ensure the long-term sustainability of transformed political regimes and stimulating a virtuous circle of reform. The new social contract should include clear commitments from ruling powers to transparency, accountability, social openness, economic competition, and knowledge- and innovation-related investments in return for acceptance of reform and a willingness to forgo large subsidies on the part of civil society and the business community.

Development strategies should be adapted to countries' specificities and capabilities. Without sacrificing ambition and speed in implementing the new development model, there is of course, a need to adapt the model to each country's circumstances, preferences, and capacities. Table 7 summarizes the actions on each policy pillar that are most appropriate as a function of a country's position on the knowledge economy road and its government's ability to engineer related initiatives and programs. Another important point, as seen above, concerns the financial resources that countries can invest in knowledge-economy-related infrastructure (whether in R&D centers, renovated universities, new cities, etc.). Economies rich in oil or gas can certainly do much more than

others, provided their government can manage investments and accompany them with an appropriate regulatory framework.

Table 7. Elements of knowledge-economy policy by development level, with potential job impacts

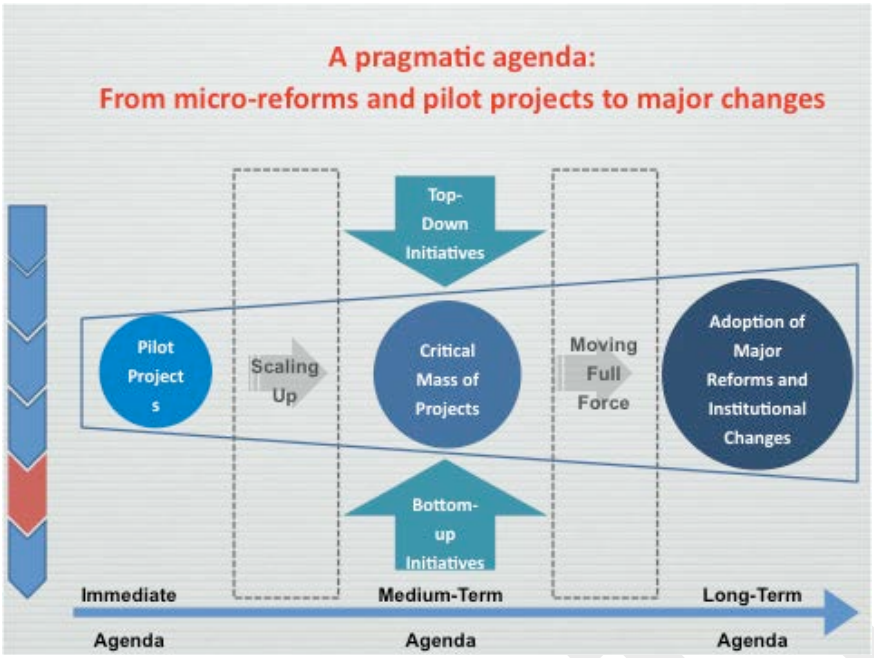
Stage I	Stage II	Stage III
Beginners (low Knowledge Economy Index, with embryonic knowledge economy policies)	Adopters (medium KEI, evolving toward a knowledge-based economy and full-scale reforms)	Advanced (high KE index with gaps)
Improve IER in enclaves or in selected policy areas (e.g., business creation) and begin fundamental governance reforms.	Extend IER reforms and consolidate governance reforms. Revisit trade agreements	Revisit governance. Build indigenous delivery capability. Widen trade.
Make ICT as widely available as possible and carry out demonstration projects (for small businesses, community services, etc.)	Build ICT services and promote ICT-based activities (BPO) Accelerate achievement of nationwide broadband	Build an advanced information and knowledge society that serves as a model for the larger Arab community
Build innovation capabilities in tapping foreign knowledge, conduct demonstration projects at micro level	Develop RD structures and build innovation systems on indigenous competences	Build top-level R&D structures, fully plugged in to global networks
Make basic reforms in education systems and introduce selected changes and pilots in higher education	Pursue reforms of education systems, generalizing progress across layers	Develop top-level education structures as global platforms

Source: Authors.

Note: The unshaded cells indicate little or no impact on jobs. Pale-gray shading indicates a moderate job impact, in terms of new jobs created or existing jobs saved. Dark-gray shading indicates a high impact on jobs

A gradual approach leading from micro reforms to macro changes can help in implementing overall strategies. The objective in the early phases of the reform process is to change mindsets and behaviors. Major reforms and employment effects are not to be expected in the short term. The first phase must include workable and convincing micro-projects that have demonstration value—that is, that have rapid, visible effects, particularly for job creation, such as training programs for a new industry in demand, dynamic incubating structures for rapidly growing enterprises, research centers being contracted by foreign firms for development work, and so on. The second phase consists of a series of such projects organized into well-designed programs, with critical masses assembled into identified sectors or sites. The overall perspective of the policy-making communities and the population then begins to evolve, and they are prepared, in a third phase, for broader and deeper reforms that lead to major changes on a national scale. The whole process can take a decade or so, but, if it is well managed, an efficient and transformative national strategy has a high likelihood of success (figure 7). A number of Arab countries are ripe for this third stage of moving toward major reforms.

Figure 7. A pragmatic agenda: From micro reforms to major changes



Source: World Bank (2007).

Regional integration as change booster

Deeper economic and political integration within the Arab world would considerably facilitate the transition to the new economic model. It would ease job tensions through more-integrated regional labor markets; it would expand markets for products and services; it would connect education, scientific and engineering resources, and creative organizations; and it would provide finance for large infrastructure projects. Full integration in the Arab region remains a distant goal. But some form of the "Lisbon Agenda," akin to the one that Europe has embraced, would be a significant and symbolic step.

***Deeper integration within the Mediterranean space would speed development of the Arab world and benefit Europe*.** Greater pan-Mediterranean integration would facilitate technology transfer between the two rims, creating a common research and innovation space and helping to rally diasporas to innovative and entrepreneurial undertakings. It would stimulate large-scale projects, such as those already under way in solar energy and logistics. It would create, more generally, an area of enhanced economic growth, which both sides of the Mediterranean so urgently need (table 8).

Table 8. Areas for improvement and selected actions to advance regional integration

Objective	Selected actions
Strengthen integration in education	Develop joint qualification and certification mechanisms Scale up scholarship programs (ERASMUS) Expand networks of engineering and management schools Develop learning and evaluation mechanisms for university management (governance), training programs, etc.
Build the Euro-Med innovation and research space	Mobilize actors through sector task forces and online platforms Develop networks of incubator managers, business angels, and R&D program leaders to share good practices Establish multicountry and multipartner R&D platforms and programs through co-design and co-ownership between partners in the North and South of the Mediterranean Stimulate FDI and strengthen linkages for technology transfer, business management practices, etc. Mobilize diasporas through efficient networks and good policy practices inspired by international experience
Promote the information society in the Mediterranean	Cooperate to develop ICT applications (e-government, e-business, etc.) Assist in efforts to liberalize telecommunication markets and improve regulatory frameworks
Promote industrial and local development in the Mediterranean	Reinforce cooperation in the development of growth sectors through joint projects (solar, energy saving, water management, transport, etc.) Stimulate city networks for good practice exchanges and mutual assistance in innovative urban development and related policy measures (techno-parks, city planning, smart cities, etc.)

Road map to the report

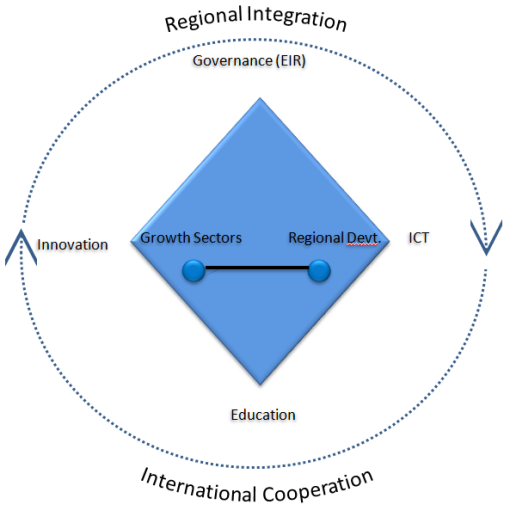
The report consists of four parts.

Part 1 addresses three key questions: Why? What? How? Why make the move to a knowledge and innovation driven economy? What would that move entail? How should it be done?

Part 2 focuses on the different policy pillars and discusses issues confronting the Arab countries and actions to be undertaken. The discussion of those different elements includes information and comments on regional integration aspects and international cooperation initiatives.

Part 3 discusses economic diversification initiatives, through the promotion of growth sectors and the building of innovative sites. Figure 8 presents the architecture of the contents of these parts 2 and 3.

Figure 8. The ecology of knowledge and innovation



Part 4 considers national knowledge-economy strategies. Looking at both institutional reforms and economic diversification aspects, it provides a bird view on policy trends, challenges and opportunities, distinguishing between resource-rich and resource-poor countries, to illustrate how to advance on the KE road, taking due account of specific countries' strengths and weaknesses and progress already accomplished.

Appendix 1 of this overview provides some key data on the knowledge economy for countries in the Arab world.

Part I. Key issues: Why, what, and how?

Chapter 1. Deploying knowledge and innovation to transform Arab economies. The chapter discusses the limits reached by the economic systems and political regimes that preceded the Arab spring. It shows how a knowledge- and innovation-driven economy responds to the employment and empowerment challenges faced by Arab countries. It provides estimates of the job impacts that such a knowledge economy might have, estimates based on past trends in Arab countries themselves. These impacts could be greatly increased by redoubling knowledge economy efforts, reducing skill mismatches through better education and training, and creating economic structures with greater job/growth elasticity. The employment effects of a knowledge and innovation-driven economy would be particularly significant in oil-importing (resource-poor) countries.

Chapter 2. Catching up with global knowledge economy trends. A knowledge economy is made up of four fundamental pillars: a well-functioning economic and institutional and regime, a well-educated and skilled work force, an efficient innovation system, and a dynamic information infrastructure. Using standard indicators to measure progress made by Arab countries on these different pillars, and benchmarking them against more than 140 countries, the chapter shows that the Arab world needs to catch up in their knowledge economy efforts with close competitors and comparators, such as the countries of Eastern Europe and Central Asia and Latin America. The chapter discusses the performance of the various Arab countries on each of the four pillars. Important differences in performance and achievements can be discerned between resource-rich

and resource-poor countries. Although the nature of the reforms to be undertaken is not fundamentally different, the means that can be mobilized for related investments—be they in education, research, or information infrastructure—do differ considerably in magnitude.

Chapter 3. Shaping knowledge and innovation-based strategies for the Arab world. Putting in place the new economic model requires bold and speedy initiatives, while at the same time taking due account of countries specificities—in other words, the distance already travelled toward the knowledge economy and their capabilities for further progress—notably in terms of government efficiency. The chapter discusses the need to link the implementation of a growth and job strategy based on the knowledge- and innovation-driven approach to a new social contract. It indicates the nature of the policy measures needed to carry out reforms and create jobs, in relation to the level of economic development of countries. Finally it provides views on integration within the Arab world, the European space, and the global economy, and the decisive role that the international community could play.

Part II. Policy pillars

Chapter 4. Improving governance and the business environment. The success of the knowledge economy strategy in a given country depends on that country's economic and institutional regime, as that regime influences the efficiency and effectiveness of investments made in other pillars—education, innovation, and information. The chapter discusses several key issues: the need to articulate and monitor new strategies through truly participatory processes; questions related to the rule of law, the freedom of expression, and voice and accountability; the opening of societies, notably in favor of youth and women; and improvements in the business environment and trade relations. Indicators of relative performance vis-à-vis competitors and comparator countries make it possible to measure progress.

Chapter 5. Educating people for better jobs in a new economy. Raising the skills and competencies of populations for knowledge-based development requires profound changes in the education system at all levels. Arab countries have made immense progress in providing equitable access to formal education, fighting illiteracy, and reducing gender disparities. These impressive quantitative achievements have improved the quality of life for citizens through longer life expectancy and lower fertility and infant mortality rates. Notwithstanding these successes—and the considerable resources invested in education—education reforms in the Arab region have not yet fully delivered on their promise. The relationship between education and economic growth has remained weak, the divide between education and employment has not been bridged, and the quality of education continues to be disappointing. This calls for strengthening the governance of the education system, aligning its governance, management, financing, and performance-incentive mechanisms to produce better learning outcomes. Every country in the region also needs to adopt national performance standards and to continuously monitor learning achievement. The chapter provides examples of some exemplary initiatives that are being undertaken by Arab countries.

Chapter 6. Fostering innovation and technological upgrading. The promotion of innovation, as shown by the experience of developed countries, is a task that requires actions by many government agencies and departments, while being focused on very specific objectives. There is, among other things, a need to support innovators on technical, commercial, and financial dimensions; to improve

the functioning of R&D structures, notably by developing better linkages between university and industry; to tap efficiently into global stocks of knowledge and technology by taking advantage of levers such as FDI and by mobilizing diasporas; and to set up and facilitate the development of innovation sites such as techno-parks and industrial clusters. Several countries in the region have already accumulated significant experiences in such programs and offer interesting examples that can be emulated throughout the region.

Chapter 7. Moving to the information society. Arab countries have made great strides in ICT diffusion since the mid 1990s, thanks to a host of liberalization reforms and the development of ICT technologies globally, which has driven down costs and made access easier. Owing to accelerated liberalization over the past 10 years, the Arab world has experienced a high rate of growth in telecommunications services. This, along with the development of the Internet, has encouraged and enabled the population in some countries to mobilize for political change. There is a great opportunity to further reform the ICT sector, to increase competition, to remove Internet restrictions, and to provide new opportunities to increase employment, foster entrepreneurship, and enable better transparency and governance using ICT applications. Accelerating the use of the Arabic language on the Web could have important effects in advancing the knowledge economy across the region.

Part III. Diversification initiatives

Chapter 8. Promoting growth sectors. In line with countries that have pursued active and efficient industrial policies to boost their transition to a knowledge-based development model, and with a view to plucking low-hanging fruits in terms of job and wealth creation, this chapter provides some suggestions of policies that could be implemented in a series of sectors by exploiting the comparative advantages of the region. These include, in established sectors, the agro-food and textile industries, which need to enhance their value chains; ICT-related industries, which need to expand their success in offshoring activities; tourism, where medical and health tourism show particular promise; creative and media industries; and green growth, including energy efficiency and environmental stewardship. In all sectors, efficient programs require sets of complementary measures that combine regulatory actions, financial mobilization, training programs, R&D efforts, and export promotion campaigns, among other things. The role of the government is not to undertake all these tasks, but to create the right conditions for the private sector to step in–by changing government's role one of a facilitator and catalyst.

Chapter 9. Managing local and regional development. Modern economies develop where there is an accumulation of talents, knowledge, and entrepreneurship. Following global trends, Arab governments have tried to facilitate the emergence and growth of such innovative sites by measures such as science and technology parks, industrial and export zones, and new cities (in resource-rich countries). The chapter examines these efforts and provides policy orientations accompanied by illustrative examples. It also discusses rural development issues and policies. Efficient spatial diversification requires long-term regional planning and effective measures of decentralization and devolution of power—a challenge for most countries throughout the region.

Part IV. Country strategies: Trends and orientations

Chapter 10. Adapting to countries' specificities: A bird's-eye view. Building on comparative strengths and achievements and reducing identified weaknesses should be the guiding principles of knowledge- and innovation-based development strategies. Three contrasted groups of countries can be distinguished. The first is made up of those *countries that are resource poor, with a high unemployment rate, and in a democratic transition process.* They include Morocco, Tunisia, Jordan, Egypt, and Lebanon. The first three have already travelled some distance on the knowledge economy road; their challenge now is to advance or complete key reforms, to overcome institutional inertia and social resistance, and to focus on those sectors and activities that offer the greatest job-creating potential (the cases of Morocco and Jordan are analyzed in more detail in Annex). The situations are more complex for Lebanon, where the government has limited maneuvering room, and Egypt, where the political situation is in flux, government capacity is limited, and the population is poor. A second group consists of the resource-rich countries, which consists of two categories of countries. The *small states of the Gulf are fairly far along on the knowledge economy road;* here the challenge is to further open societies with respect to freedom of expression and women's rights, to build up indigenous competence in the management of institutions, and to succeed in creating global education, research, and innovation hubs. Other *countries are resource-rich but have a high rate of unemployment,* including Algeria and Saudi Arabia; there, the key points are to further improve the governance and business environment (already well along in the latter), to ameliorate education and training systems, to strengthen their innovation systems, and to build on the huge investments made in new cities so that they can attract investment and highly skilled people.

Annexes

The report includes the following annexes:

Annex 1 presents the econometric model and literature review that support the estimates of impacts of knowledge economy efforts on growth and employment.

Annex 2 summarizes information on a set of countries chosen as comparators to Arab countries and discusses key policy and strategic features that can inspire the latter.

Annex 3 includes a detailed analysis of knowledge economy issues in Jordan and Morocco and provides policy orientations accordingly.

Annex 4 presents a set of data on knowledge economy efforts and performances of Arab countries and selected comparators.

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Appendix 1: Data on the Knowledge Economy

Socioeconomic Indicators												
	GDP (in millions of US$)	Knowledge Economy Index	Human Development Index	Total Labor force, (in millions)	Trade (% of GDP)		Agriculture, value added (% of GDP)	Industry, value added (% of GDP)	Services, etc., value added (% of GDP)	Employment (% of total employment)		
										Agriculture	Industrial	Services
Year	*2011*	*2012*	*2011*	*2010*	*2010*	*2008*	*2010*	*2010*	*2010*	*2008*	*2008*	*2008*
Arab Countries												
Algeria	188,681	3.79	96	11	52	69	7	62	31			
Bahrain		6.9	42	1		171						
Djibouti		1.34	165	0								
Egypt, Arab Rep.	229,531	3.78	113	27	47	72	14	38	48	32	23	45
Iraq	115,388	n/a	132	8						23	18	58
Jordan	28,840	4.95	95	2	117	144	3	31	66	3	19	78
Kuwait	176,590	5.33	63	1	86	93						
Lebanon	42,185	4.56	70	1	65	78	6	21	72			
Libya		n/a	64	2		95						
Morocco	100,221	3.61	130	11	76	88	15	30	55	41	22	37
Oman	71,782	6.14	89	1		96						
Qatar	172,982	5.84	37	1		79						
Saudi Arabia	576,824	5.96	56	10	97	105	2	60	38	4	20	76
Syrian Arab Republic		2.77	119	5	71	74				17	30	53
Tunisia	45,864	4.56	94	4	103	114	8	32	60			
United Arab Emirates	360,245	6.94	30	5	147	149	1	56	44	4	24	71
West Bank and Gaza		n/a	114	1						13	26	61
Yemen, Rep.	33,758	1.92	154	6	65	81	8	29	63			
Comparators												
Finland	266,071	9.33	22	3	79	90	3	29	68	5	25	70
China	7,298,097	4.37	101	800	55	62	10	47	43	40	27	33
India	1,847,982	3.06	134	473	50	52	18	27	55			
Korea, Rep.	1,116,247	7.97	15	25	102	107	3	39	58	7	25	68
Regions												
Arab World	2,401,696			114	85	97	7	49	44			
Europe & Central Asia	3,615,905			192	61	67	7	32	61	16	27	57
Latin America & Caribbean	5,650,157			278	44	48	6	31	62	14	23	62
Middle East & North Africa				105						27	26	47

Institutional and Governance Indicators						
	Tariff and nontariff barriers	**Regulatory quality**		**Rule of law**		**Democracy Index[1] (rank of 167)**
Year	*2012*	*2011*	*2009*	*2011*	*2009*	*2011*
Arab Countries						
Algeria	73	11	11	-0.73	0.00	130
Bahrain	83	1	1	0.51	0.00	144
Djibouti		0	0	-0.65	0.00	147
Egypt, Arab Rep.	74	27	26	-0.03	0.00	115
Iraq	n/a	8	7	-1.50	0.20	112
Jordan	80	2	1	-0.23	-0.38	118
Kuwait	82	1	1	-0.50	-0.59	122
Lebanon	80	1	1	0.68	0.64	94
Libya	85	2	2	-1.16	0.15	125
Morocco	76	11	11	-0.21	-0.16	119
Oman	84	1	1	0.63	0.68	134
Qatar	83	1	1	0.78	0.96	138
Saudi Arabia	82	10	9	0.07	0.12	161
Syrian Arab Republic	72.8	5	5	-0.66	-0.47	157
Tunisia	58	4	4	-0.10	0.22	92
United Arab Emirates	83	5	4	0.46	0.52	149
West Bank and Gaza	n/a	1	1	-0.43	0.22	99
Yemen, Rep.	82	6	6	-1.50	0.20	150
Comparators						
Finland	87.1	3	3	1.96	1.94	9
China	71.6	800	787	-0.46	-0.35	141
India	64.1	473	471	-0.08	0.05	39
Korea, Rep.	72.6	25	25	1.01	1.00	22
Regions						
Arab World	n/a	114	108	n/a	n/a	n/a
Europe & Central Asia	n/a	192	189	n/a	n/a	5.5*
Latin America & Caribbean	n/a	278	267	n/a	n/a	6.35
Middle East & North Africa	n/a	105	100	n/a	n/a	3.62

[1] EIU Democracy Index: Democracy 1-25; flawed democracy 26-78; hybrid 79-115; Authoritarian 116-167.
* Index available for Eastern Europe only

Innovation and Scientific Research							
	Royalty payments and receipts (US$/pop.)	**Scientific and technical journal articles**	**Patents granted by USPTO / mil. people**	**Research and development expenditure (% of GDP)**		**High-technology exports (% of manufactured exports)**	
Year	*2009*	*2009*	*2005-2009*	*2007-2009*	*2004-2006*	*2010*	*2005*
Arab Countries							
Algeria	n/a	606.5	0.01	n/a	0.12%	0.50	1.48
Bahrain	n/a	35.8	0	n/a	n/a	0.11	0.07
Djibouti	n/a	1.6	0	n/a	n/a	n/a	n/a
Egypt, Arab Rep.	3.43	2247.3	0.07	0.24%	0.26%	0.88	0.40
Iraq	0	70	n/a	n/a	n/a	n/a	n/a
Jordan	0	382.6	0.14	0.42%	n/a	2.86	1.39
Kuwait	0	214.4	3.55	0.09%	0.11%	n/a	n/a
Lebanon	0.22	256.2	0.77	n/a	n/a	12.80	2.83
Libya	0	33.6	n/a	n/a	n/a	n/a	n/a
Morocco	1.59	390.7	0.08	n/a	0.64%	7.69	9.64
Oman	n/a	114.1	0.51	n/a	n/a	0.58	0.28
Qatar	n/a	64.2	1.29	n/a	n/a	n/a	0.01
Saudi Arabia	0	710.2	0.92	0.06%	0.05%	0.73	0.67
Syrian Arab Republic	1.46	71.5	0.04	n/a	n/a	n/a	2.08
Tunisia	3.72	1022.4	0.1	0.0	1.03%	4.89	4.51
United Arab Emirates	n/a	264.8	1.6	0	n/a	n/a	1.87
West Bank and Gaza	0	n/a	n/a	0	n/a	n/a	n/a
Yemen, Rep.	1.21	25.4	0	0	n/a	n/a	0.24
Comparators							
Finland	565.60	4949.1	138.1	3.72%	3.47%	10.80	25.06
China	8.63	74019.2	1.05	1.43%	1.31%	27.51	30.84
India	1.78	19917.3	0.51	0.76%	0.76%	7.18	5.80
Korea, Rep.	209.94	22270.8	151.18	3.29%	2.83%	n/a	32.48
Regions							
Arab World	63.88	6578.4	n/a	n/a	n/a	n/a	1.44
Europe & Central Asia	940.88	29088.9	31.44*	0.89%	0.81%	6.70	6.07
Latin America & Caribbean	970.42	23968.1	0.63*	0.65%	0.61%	10.92	12.41
Middle East & North Africa	62.36	11421.1	3.66 *	n/a	n/a	3.21	2.66
***All income levels**							

Education and Labor Market						
	Youth unemployment (%)	**Overall unemployment (%)**	**Stock of emigrant labor force (% of labor force)**	**Average years of schooling**	**Gross secondary enrollment rate**	**Gross tertiary enrollment rate**
Year	*Latest*	*Latest*	*Latest*	*2010*	*2009*	*2009*
Arab Countries						
Algeria	46	10	10	7.7	96.48	30.62
Bahrain	21	5	2	9.59	96.43	51.21
Djibouti	38	41	2	n/a	30.46	3.47
Egypt, Arab Rep.	26	8	9	7.08	67.2	28.45
Iraq	45	30	5	n/a	n/a	n/a
Jordan	39	11	4	9.23	88.22	40.65
Kuwait	23	3	3	6.29	89.89	17.56
Lebanon	21	12	31	n/a	82.14	52.52
Libya	27	7	3	n/a	0	0
Morocco	16	10	17	5	55.85	12.88
Oman	20	7	0	n/a	91.32	26.44
Qatar	17	1	0	7.45	85.22	10.24
Saudi Arabia	26	5	0	8.48	96.81	32.78
Syrian Arab Republic	20	21	15	5.28	74.74	n/a
Tunisia	27	14	15	7.32	90.21	34.44
United Arab Emirates	6	2	1	9.5	95.2	30.4
West Bank and Gaza	33	25	2	n/a	0	0
Yemen, Rep.	n/a	n/a	16	3.68	45.61	10.23
Comparators						
Finland	20	8.40	n/a	9.97	108.96	90.92
China	n/a	4.30	n/a	8.17	78.19	24.53
India	n/a	n/a	n/a	5.12	60.02	13.48
Korea, Rep.	9.8	3.70	n/a	11.85	97.22	100.02
Regions						
Arab World	n/a	9.60	n/a	n/a	n/a	n/a
Europe & Central Asia	18.27	9.65	n/a	n/a	n/a	n/a
Latin America & Caribbean	14.83	7.97	n/a	n/a	n/a	n/a
Middle East & North Africa	22.55	10.64	n/a	n/a	n/a	n/a

Information and Communication Technology				
	ICT Readiness Index (rank of 142)	**Total telephones per 1,000 people**	**Computers per 1,000 people, 2008**	**Internet users per 1,000 people**
Year	*2012*	*2009*	*2008*	*2009*
Arab Countries				
Algeria	118	1,010	100	130
Bahrain	27	2,290	750	820
Djibouti	n/a	170	40	30
Egypt, Arab Rep.	79	790	40	200
Iraq	n/a	0	n/a	n/a
Jordan	47	1,090	80	290
Kuwait	62	1,270	340	390
Lebanon	95	540	100	240
Libya	n/a	0	0	0
Morocco	91	900	60	320
Oman	40	1,510	170	430
Qatar	28	1,950	160	280
Saudi Arabia	34	1,930	690	390
Syrian Arab Republic	129	640	90	190
Tunisia	50	1,050	100	340
United Arab Emirates	30	2,660	330	820
West Bank and Gaza	n/a	0	0	0
Yemen, Rep.	141	210	30	20
Comparators				
Finland	3	1,710	790	840
China	51	800	60	290
India	69	480	30	50
Korea, Rep.	12	1,380	580	810
Regions				
Arab World	n/a	n/a	n/a	n/a
Europe & Central Asia	n/a	n/a	n/a	n/a
Latin America & Caribbean	n/a	n/a	n/a	n/a
Middle East & North Africa	n/a	n/a	n/a	n/a