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# ***EGYPT'S OBLIGATION TO RESPECT, PROTECT AND FULFILL THE RIGHT TO ACCESS TO KNOWLEDGE, SCIENCE, ART AND CULTURE (ICESCR ARTICLE 15)***

*submitted by*

**Pro Bono United Nations Human Rights Reporting Program**
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**NOT ONLY** are human rights inherent, inalienable, and universal. Economic, social, cultural, civil, and political rights are likewise inextricably interdependent, indivisible, and interrelated. The enjoyment of economic, social and cultural rights by the people of Egypt, therefore, necessitates the attainment of their correlative civil and political rights, especially in the all-too-important and far-reaching area of the **right to access to knowledge, science, art and culture** (ICESCR Art. 15; UDHR Art. 27(1))**.**

Another set of issues for the Committee to address is related to the ICESCR Article 15 "right to science and culture." Article 15 has historically received little attention in the CESCR's reporting process than many others, in part due to uncertainties of interpretation. Recent work by the CESCR to produce general comments makes this provision ripe for greater emphasis. The right to science and culture recognizes the importance of protecting and expanding access to technology and opportunities to take part in cultural life. Pursuing this track is quite important in order for the people, and children especially, to gain access to the latest advances and developments in the field of education, pursuant to ICESCR Article 13 (right of everyone to education) in relation to *General Comment No. 11 (Plans of action for primary education (art.14))* and *General Comment No. 13 (The right to education (art.13)).*

Over the past two decades, a significant international threat to enjoyment of this right has come in the form of increasing international pressure on developing countries to expand protection for intellectual property without regard to the social costs, often borne by the most vulnerable sectors of society.

The need to recognize the often detrimental impact of increased patent and copyright protections on access to technologies and cultural works is a theme of the recent report of the **UN Special Rapporteur in the Field of Cultural Rights Farida Shaheed**, *The right to enjoy the benefits of scientific progress and its applications*, A/HRC/20/26, subsequently adopted by the Human Rights Council in 2012 (available at http://daccess-ods.un.org/access.nsf/Get?Open&DS=A/HRC/20/26&Lang=E).

## ***Egypt's obligation "to take steps" (ICESCR Art. 2(1))***

In important respects, Egypt deserves praise for its efforts to promote the Article 15 right to science and culture. At the international level, Egyptian diplomats have been active at the *World Intellectual Property Organization* and other fora to promote a Development Agenda that is consistent with the human rights perspective on intellectual property. Egypt has provided important international leadership on this front.

Egyptian judges also deserve praise for interpreting Egyptian patent law in ways that will promote wider enjoyment of the right to science and right to health via access to life-saving medicines, and encouragement to do so with an even more explicit emphasis on human rights justifications. Egypt's initiatives in this regard need to be further strengthened, pursuant to Egypt's obligation under ICESCR Article 12 (right to the enjoyment of the highest attainable standard of physical and mental health) as interpreted and applied in *General Comment No. 14 (The right to the highest attainable standard of health (art. 12)).*

At a broader level, however, there remains a regrettable lack of awareness of intellectual property (IP) as a human rights issue. Debates on IP in Egypt still focus problematically on topics of policing and enforcement. The Committee can help focus attention on translating Egypt's international commitment to and leadership on the right to science and culture into domestic practice. There is room for improvement in ensuring that new technologies and cultural works are made affordable to all sectors of society. These issues are discussed in greater detail in *Access to Knowledge in Egypt: New Research on Intellectual Property, Innovation and Development* included in pp. 4-244 as part of this report (*eds.* **Nagla Rizk** & **Lea Shaver**, 2011) (full text available at http://leashaver.net/books/).

## ***Respect, protect and fulfill framework***

The right to access to knowledge, science, art and culture implicates a broad array of fundamental human rights, not only in the economic, social and cultural spheres, but in the civil and political areas as well. This includes, among others, the enjoyment of their Article 6(1)(2) right to work (interpreted and applied in *General Comment No. 18 (The right to work (art.6))* and further analyzed together with Article 2(2) and Article 3 (nondiscrimination) and *General Comment No. 20 (Non-Discrimination in Economic, Social and Cultural Rights (art. 2 para. 2))* and *General Comment No. 16 (The equal right of men and women to the enjoyment of all economic, social and cultural rights (art. 3)).*

Egypt has the obligation to respect, protect, and fulfill the right to equality and non-discrimination in exercising the right to access to knowledge, science, art and culture, as enshrined in ICESCR Article 2(2) *(right to nondiscrimination in enjoyment of economic, social and cultural rights)* and Article 3 *(equal right of men and women to the enjoyment of all economic, social and cultural rights)* in relation to General Comment No. 20 and General Comment No. 16.

## ***Conclusion***

Egypt has the obligation to ensure that the traditional intellectual property approach to private rights protection and enforcement, as discussed by Professor Lea Shaver, et. al., in *Access to Knowledge in Egypt: New Research on Intellectual Property, Innovation and Development*, does not emasculate the people's right to access knowledge, science, art, and culture, which the otherwise prohibitive cost of "privatized knowledge" can make inaccessible, thereby causing discriminatory impact upon those who cannot afford it. ICESCR Article 15 explicitly obligates Egypt to take "steps… to achieve the full realization of this right."

Pursuant to its obligation under ICESCR Article 2(1), Egypt needs to adopt and implement policies, rules, regulations, and laws that will enable access by the people of Egypt, especially those belonging to vulnerable sectors, to knowledge, science, art and culture, given this access' strategic and pivotal role in the people's attainment of their right to holistic development.

## **PROPOSED QUESTIONS**

I. Please provide the Committee with information about the policy, legislative, judicial, administrative, regulatory, budgetary and other measures taken by the government of Egypt in order to guarantee the right to access to knowledge, art, science, and culture, especially in light of significant developments in information and communication technology (ICT)?

II. What steps has Egypt taken to ensure that schoolchildren can gain access to advances in the field of knowledge, art, science, and culture especially those made easily accessible through various means of ICT?

III. What steps has Egypt adopted to effectuate and realize the elderly's and persons with disabilities' right to access to affordable medicines and healthcare?

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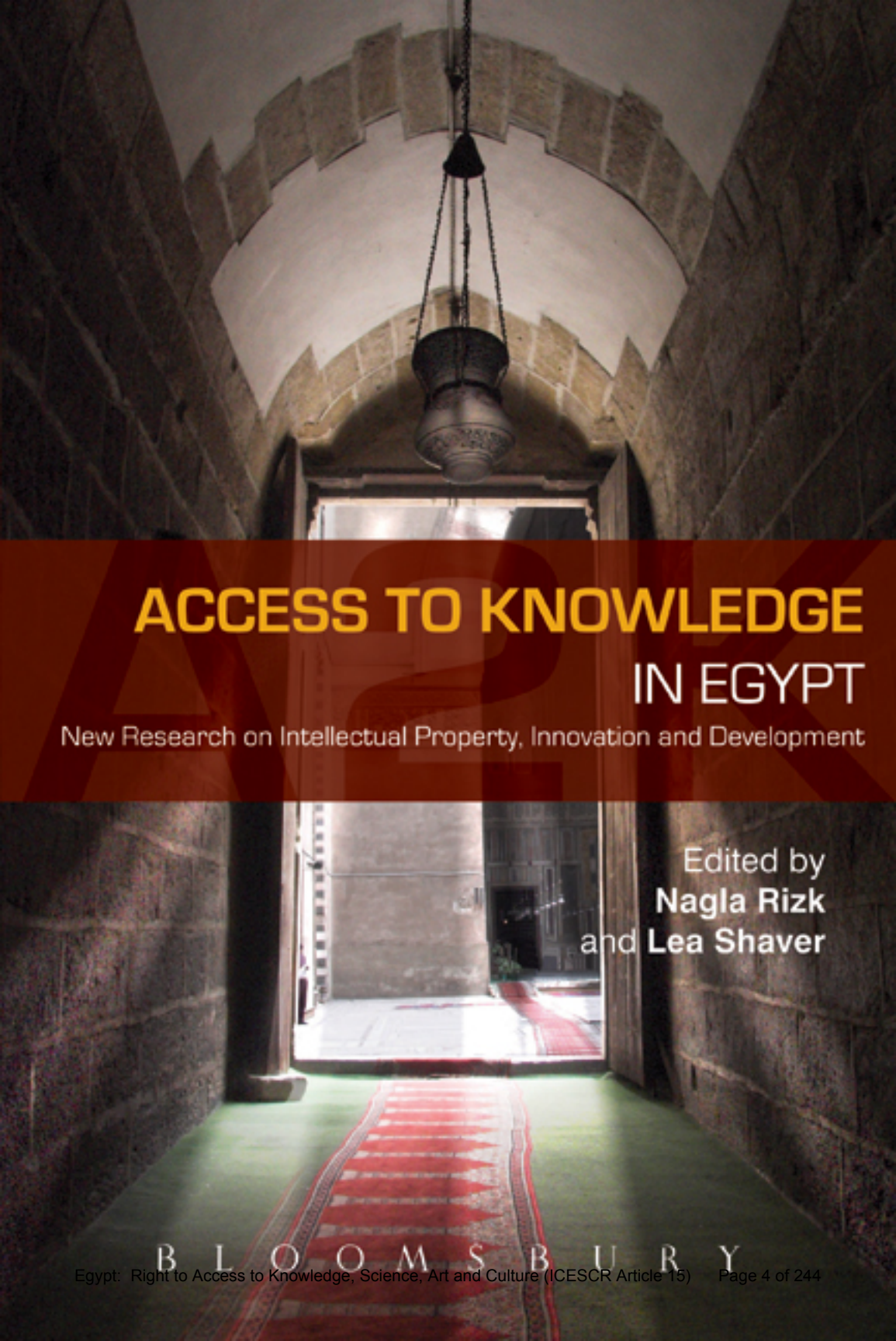
ACCESS TO KNOWLEDGE
IN EGYPT
New Research on Intellectual Property, Innovation and Development
Edited by
Nagla Rizk
and Lea Shaver
BLOOMSBURY

# Access to Knowledge in Egypt

*The cover image features the entryway of the Mosque-Madrassa of Sultan Hassan, as photographed by Egyptian architect Khaled ElChiati. The architectural masterpiece and Cairo landmark has been famous as a site of theological and legal learning since 1363.*

# Access to Knowledge in Egypt

## New Research on Intellectual Property, Innovation and Development

EDITED BY NAGLA RIZK & LEA SHAVER

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# Advance Acclaim for *Access to Knowledge in Egypt*

This volume is an important contribution to recovering a nuanced, contextually aware view of access to knowledge and global knowledge governance. Its detailed, careful studies provide a much more refined window on the world of innovation and creativity in Egypt than the standard models would permit. The essays Rizk and Shaver collect and author here contribute to our recovery of a deeper understanding of how the production of information, innovation, culture and knowledge affects the core of human development and human rights.

**Yochai Benkler**
**Jack N. and Lillian R. Berkman Professor of Entrepreneurial Legal Studies, Harvard Law School**
**Author, *The Wealth of Networks: How Social Production Transforms Markets and Freedom***

Though its immediate focus is Egypt this book has a much wider relevance. It is essential reading for all those interested in the Access to Knowledge movement and the current debate about intellectual property rights and development worldwide. With chapters covering everything from the diplomatic history of the intellectual property "development agenda" to open source software, pharmaceutical innovation and the Egyptian music industry, the authors provide an indispensable guide to the questions facing intellectual property policy and economic development and do so with concrete examples in a particular, and fascinating, national context. The authors of each chapter are leaders in the field and the introduction is clear and comprehensive. Highly recommended.

**James Boyle**
**William Neal Reynolds Professor of Law**
**Author, *The Public Domain: Enclosing the Commons of the Mind***

*Access to Knowledge in Egypt* is an outstanding example of the empirical, granular, multidisciplinary study of local laws, industries and conditions required to understand how best to promote development and access to

knowledge in the global South. The authors present lucid and illuminating analyses of Egypt's leading role in promoting a development agenda in the international intellectual property treaty regime and of Egypt's policies and markets in the areas of pharmaceuticals, the music industry, open source software, and information and communications technology. In so doing, this book at once cogently presents a cautionary tale against one-size-fits-all solutions and highlights the centrality of access to knowledge for economic well-being, innovation, and human liberty.

**Neil Netanel**
**Professor of Law, UCLA School of Law**
**Author, *Copyright's Paradox***

Nagla Rizk and Lea Shaver have brought together a skilled, multidisciplinary team to examine access to knowledge issues in Egypt. Featuring a contribution from Ahmed Abdel Latif, one of the leading negotiators behind the Development Agenda at the World Intellectual Property Organization, the volume includes well-informed analysis across patent and copyright issues and excellent discussions of open source software, information and communications technologies, and music and cultural production in Egypt. Based on primary documents, firsthand experience, numerous interviews, as well as scholarly literature, this book both juxtaposes and connects intellectual property policy across multilateral, regional, bilateral, national and individual practices. It makes a compelling case for policy coordination for access to knowledge in ways that best suit Egyptian development needs. This is a "must read" for scholars and practitioners interested in economic development, cultural production and access to knowledge.

**Susan K. Sell**
**Professor of Political Science and International Affairs,**
**George Washington University**
**Author, *Private Power, Public Law: The Globalization of Intellectual Property Rights***

This exceptional volume is an important new addition to the literature on access to knowledge. In each carefully researched and well-written chapter, it reveals Egypt's essential role in the global movement as well as the importance of access to knowledge in its culture and technology sectors.

**Michael Geist**
**Canada Research Chair**
**in Internet and E-Commerce Law,**
**Faculty of Law, University of Ottawa**
**Author, *Internet Law in Canada***

This book represents a critical first step in opening a multidimensional policy dialogue in Egypt on a subject of pivotal importance to social and economic development – enhancing access of citizens to information and the fruits of technical progress.

**Frederick M. Abbott**
**Edward Ball Eminent Scholar and**
**Professor of International Law,**
**Florida State University College of Law**
**Coauthor, *Global Pharmaceutical Policy: Ensuring***
***Medicines for Tomorrow's World***

# Foreword

Jack Balkin
*Knight Professor of Constitutional Law and the First Amendment at Yale Law School and Director of the Information Society Project*

This book is the second in a series of volumes and reports that study the relationship between knowledge policy and development in selected countries in the global South. The series arose out of a research initiative on Access to Knowledge begun in 2004 by members of the Information Society Project at Yale Law School (ISP), an interdisciplinary research center that studies the implications of the Internet and new information technologies for law and society. Building on this earlier work, the MacArthur Foundation commissioned the ISP to explore the state of access to knowledge in the global South, working together with scholars from around the world. The first volume, *Access to Knowledge in Brazil*, was published by the ISP in September 2008, and is now available in a new edition from Bloomsbury Academic. On behalf of the ISP, I would like to thank Yale Law School's Dean Harold Koh – as well as President Jonathan Fanton, Elspeth Revere and Kathy Im of the MacArthur Foundation – for their support of these studies.

"Access to knowledge" is a shorthand for a collection of public policies and private initiatives that help promote the growth, spread and distribution of knowledge and knowledge goods and tools around the world. The global economy is increasingly dominated by the production of knowledge goods and by struggles for control over information. Global wealth and power are increasingly correlated with control over knowledge and information technologies. Countries must promote access to knowledge to prepare their citizens to participate in the global economy and enjoy a share of its benefits. Societies and their inhabitants are better off and freer if more people are educated, informed, and have access to tools for knowledge and cultural production.

The *knowledge* in access to knowledge includes several different elements. The first is human knowledge – education, skills, know-how and human capital. The second is information – including news, medical information, data, and information about government and its processes. A third

category concerns knowledge-embedded goods such as drugs and software, whose production requires significant amounts of scientific and technical knowledge. And a fourth category involves tools for making knowledge and knowledge-embedded goods, such as scientific and research tools, Internet and communications technology, and computer software. The aim of access to knowledge is to promote human development and human freedom by adopting policies that promote each of these four features of the knowledge economy and that encourage their widespread accessibility and use.

The focus on *access* to knowledge means that the proper goal of knowledge policy is not merely increasing the total amounts of these goods in societies; it also concerns their distribution. Moreover, access to knowledge is concerned not simply with the mere dissemination of knowledge goods as commodities but also with giving people the skills, opportunities and practical abilities to use information technologies to create, innovate and communicate with others. By distributing the different types of knowledge and knowledge goods more widely and equitably – both within countries and across national borders – we can spur innovation and increase knowledge production. The best access to knowledge policies both increase the total production of information and knowledge goods and distribute them in a more equitable fashion. In this way, the task of promoting economic efficiency and human development aligns with the goal of promoting distributive justice and human rights.

The present volume, edited by my colleagues Nagla Rizk and Lea Shaver, surveys a key selection of issues about knowledge policy in Egypt. Many of these questions are closely intertwined with domestic and international law. This should come as no surprise. Law and legal regulation matter greatly to access to knowledge because law often sets the basic conditions of access – for example, through the regulation of intellectual property and telecommuncations technology. Domestic and international legal rules help determine whether innovation and knowledge production are concentrated or decentralized, and whether knowledge and knowledge goods are shared widely for the benefit of all, or monopolized for the benefit of a few.

The goal of access to knowledge is not simply economic development in the sense of a larger gross national product; its goal is also the expansion of human liberty in the broadest possible sense. Access to knowledge opens up opportunities for people; it allows them to communicate with others; it gives them the tools to improve their lives and choose their own life plans; it

enables them to be creators of their culture and contributors to the production of the world's knowledge. Distributing knowledge and knowledge tools widely promotes human freedom. Giving people access to communications technology helps them communicate and build relationships. Offering people access to educational materials helps them learn and amass human capital. Spreading information about health enables people to live longer and healthier lives. Opening access to government documents and limiting censorship makes people politically freer and governments more responsible and accountable to them. Enacting policies that decentralize innovation harnesses the creativity of vast numbers of people with new ideas. Promoting technologies and business models that engage ordinary people in cultural and knowledge production empowers them to participate in the forces that shape their lives. That is why access to knowledge is simultaneously a requirement of economic development and a demand of justice and human rights.

Each country finds itself in a different situation with respect to these issues – the result of its unique political, social, economic and cultural history. That is one reason for the series of country-focused research that the ISP is helping to produce. Even given the differences between countries, however, there are also important comparisons and commonalities. For example, we can learn something from comparing Brazil and Egypt's respective approaches to health policy, open source software or the music industry. By understanding the issues of access to knowledge in individual countries, we hope to produce a better understanding of problems of knowledge around the world – and their possible solutions.

CHAPTER ONE

# Access to Knowledge: Economic, Global and Local Perspectives

Nagla Rizk & Lea Shaver

Conventional wisdom in Egypt today examines the issue of intellectual property (IP) solely as a question of policing and enforcement. The high levels of protection indicated by the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) are unquestioningly assumed to be desirable. Policy debates – and all too often academic ones as well – focus only on the questions of how to more efficiently tighten IP protection and crack down on piracy. Yet a more critical examination is urgently needed, whereby IP law, policy and practice are viewed from a development perspective rather than from an enforcement perspective.

This volume offers the first examination of IP issues in Egypt adopting a multidisciplinary bottom-up approach that aims at maximizing access and contribution to knowledge, and in turn, promoting development. Bringing rigorous empirical research to bear on unquestioned ideologies, the collaborating authors question the conventional wisdom that more IP protection is necessarily better for innovation and development, and hence desirable from a policy perspective. Examining cross-cutting currents in patents and copyright, the authors suggest that maximal protection of intellectual property is not only *not* the silver bullet to innovation and development promised by its promoters, but may actually stand in the way of these public aims.

To replace the misguided conventional wisdom on intellectual property, innovation and development, this volume suggests a new approach, guided by the touchstone of "access to knowledge." By this term, we mean the coordination of public policy – across intellectual property, trade, information and communication technology (ICT) promotion, education, health and other areas – to ensure that the potential for knowledge-based development is maximized through programs, technologies and business models that enable knowledge to be shared widely and to flourish in conditions of

freedom. In this way, knowledge resources can be leveraged for the benefit of all, rather than be constrained or monopolized for the benefit of a few.

The chapters in this volume cannot offer a complete picture of all the policy issues relevant to this goal. Rather, our aim is to present an instructive cross-section of selected topics on access to knowledge issues that are of key importance to Egypt's development, illustrating the benefits that may be gained by reorienting our conventional wisdom and public policy to embrace this new paradigm. Toward this end, the collaborating authors have contributed chapters examining the theme of development through enhanced access to knowledge across a range of policy areas. Throughout, our goal is to draw out the connections – both theoretical and political – between areas of public policy not typically viewed through a common lens.

## The costs and benefits of privatizing knowledge

The notion of knowledge as an essential resource for economic growth and development is by now beyond controversy. If the twentieth century's primary objects of trade were oil, steel and unskilled labor; the twenty-first century deals in information, technology and knowledge, where investment in intellectual capital has become the driving force for economic growth and development. Scholars and policymakers have used various labels to describe this new global reality: the information economy (Shapiro and Varian 1999, UNCTAD 2005), the knowledge economy (Drahos and Braithwaite 2002, Mokyr 2002, World Bank 2005) or simply the New Economy (Castells 1996, OECD 2000). In this context, the massive developments in information and communication technology have created an intricate web of connectivity, where knowledge tools and content are expanding and disseminating at unprecedented rates. It is clear then, that access to information and communications technology and intellectual property will crucially shape how countries fare in this new global reality.

Yet the question of who will enjoy access to these essential resources, and on what terms, is a topic of inadequate public discussion. Modern policy discourse now speaks of scientific and technological innovation overwhelmingly in the frame of private transactions: the purchase of music on compact discs, the sale of medicines on the export market, growth in the sales of software packages. By constructing knowledge as commodity, the prevailing logic frames its production and diffusion as conventional challenges that face private goods, and that are solved by means of private incentives and

regulated through the price mechanism functioning within regular markets. This discourse obscures the essential nature of knowledge as a global public good – one whose value paradoxically increases the more widely it is shared (Stiglitz 1999). Acknowledging this characteristic of knowledge immediately reveals a tension between IP-based incentives and optimal access.

Instead of emphasizing access to maximize the value to be derived from knowledge, the discourse of intellectual property treats exclusion as natural and inevitable. The monopolies provided by intellectual property protections may provide incentives for innovation, but they are not the only possible incentives, nor necessarily the best ones (Maskus 2000, Gallini and Scotchmer 2002). Intellectual property monopolies always impose a social cost, as knowledge goods are priced at higher than the price that would prevail in a competitive market. This leads to the accumulation of monopoly rents for the IP rightsholder, but limits the productive utilization of the knowledge good in the larger economy. Economists speak of the negative impact of IP monopolies as a static inefficiency, representing a short-term loss to overall welfare. This social cost is concretely experienced as trade-offs between IP protection and other values such as health, education, equality and freedom of expression.

In addition to the static inefficiency of IP monopolies, however, there may be a dynamic inefficiency as well. Because existing knowledge is also an input for further knowledge production, imposing restrictions on the use of existing knowledge through patents and copyrights increases the long-term costs of producing new knowledge (Benkler 2006). Locking up knowledge also involves an opportunity cost; impeding the potential for a continuous stream of innovation and further knowledge creation (Stiglitz 2006). Indeed, whereas economists typically talk of the classic tradeoffs between efficiency and equity, overly strict IP protection may present a scenario whereby *both* effficiency and equity are compromised.

Much like tax policy, economists have long suggested, the optimal design of IP protections requires careful balancing and tailoring (Nordhaus 1969). This is not, unfortunately, the approach predominantly reflected in IP law and policy today. Rather, the new international IP regime reflects the influence of political dynamics prioritizing the interests of developed countries over developing ones (Sell and May 2001, Drahos and Braithewaite 2002, Grandstand 2006). The treaties administered by the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO)

embody an IP-maximalist logic, specifying minimum protections in many areas, while making no effort to impose any limits. The World Trade Organization's 1994 Agreement on Trade-Related Aspects of Intellectual Property (TRIPS Agreement) further entrenched international commitment to uniformly high levels of IP protection. According to one legal scholar, these rules reflect the misguided notion that "One size fits all. And it is 'extra large'" (Boyle 2004, 4).

Unfortunately for the majority of the world's population, one size does not fit all when it comes to intellectual property. The privatization of knowledge is particularly detrimental for developing countries who are already importers and not exporters of most knowledge-based goods. The negative impact of monopolies, too, is more pronounced in the case of smaller developing countries given the smaller size of their markets, which are typically already dominated by "at most a limited number of firms" (Stiglitz 2006, 119). The costs of a maximalist IP regime that privatizes knowledge, therefore, will be greater and the benefits smaller in the case of developing countries (ibid.). It is thus particularly important from the perspective of nations such as Egypt to question the merits of privatizing knowledge, and give greater consideration to the virtues of openness, on the dimensions of both equity and efficiency.

## Access to knowledge: a global perspective

As the global trade and knowledge architecture has moved toward harmonizing IP by imposing standards from the top down (Drahos and Braithwaite 2002, Sell 2003), another global trend also emerged, this time from the bottom up. The recent years have witnessed massive expansion of peer collaborative efforts engaged in knowledge production and sharing between communities cemented by trust (Benkler 2006, Tapscott and Williams 2006). Open source software, Wikipedia and the Human Genome Project are cases in point. These represent a development led by intellectual capital contributing from across the globe, irrespective of geographical boundaries. This may indeed be viewed as the globalization of grassroots knowledge production, which has interestingly thrived in parallel to the globalization of IP standards – regimes, rules and regulations – that is coming from above.

Also pushing against the tide has been a global network of public interest advocates seeking a different approach. The first salvo in this battle came in

from activists fighting to expand access to antiretroviral medicines (ARVs) in the late 1990s. With tens of millions of HIV-positive people worldwide, no situation better illustrated the cruel ironies of an innovation system that yields life-saving scientific discoveries, but then fails to make them accessible to most of the world. Approximately 40 million people worldwide are HIV-positive, including nearly 2.5 million children (UNAIDS 2006, 1). Almost two-thirds of those affected live in Sub-Saharan Africa (ibid., 2), where total health care expenditures in this region – both public and private – average $13 per person annually, excluding South Africa (World Bank 2005, 136). In contrast, governments and consumers in developed countries spend an average of $2735 per person annually on health (ibid.). From a market perspective, Sub-Saharan demand for these medicines is insignificant. But the cost of denying access was, and continues to be, enormous.

Over time, the access to medicines activists were joined by other groups with a common interest in the commons (Boyle 2003). These included farmers in the developing world concerned about rights over seeds, educators concerned about access to learning materials, and software developers disturbed by the expansion of patents to computer code. Gradually, a loose movement has emerged under the banner of "access to knowledge" (A2K) (Kapczynski 2008). The A2K movement's demands range from limitations and exceptions on copyrights, to regulation of anticompetitive practices and elements of Internet freedom, to compulsory licensing provisions for a wide range of knowledge goods (CPTech 2005).

The strongest expression of this growing movement is an insurrection of sorts within the World Intellectual Property Organization. In 2004, these voices succeeded in prompting a call for a new WIPO Development Agenda that would redefine the institution's mission to consider IP regulation as a means toward the end of equitable development, rather than as an end in itself (WO/GA/31/11 2004). As approved by the WIPO General Assembly in 2007, the 45 Adopted Recommendations under the Development Agenda specifically invoke the language of "access to knowledge" as a goal to be promoted by balanced intellectual property policies (WIPO 2007, Recommendation 19).

As used by these public-interest advocates, the concept of access to knowledge communicates something much broader than access to education and opportunities for learning. First, the term "knowledge" is understood to broadly refer to data, information, tools, inventions, literature,

scholarship, art, popular media and other expressions of human inquiry and understanding. Second, the demand for "access" is also broadly intended – pertaining not only to the right to access these products as consumers, but also the right to participate as producers in their creation, manipulation and extension. This political demand for openness thus implicates policy-making in areas as diverse as Internet governance, libraries and education, cultural development, scientific and industrial research and development, competition policy and public health.

Thus far, scholarship on access to knowledge has articulated this concept primarily within the frame of economic development (Balkin 2006, Benkler 2006, Shaver 2008). This frame emphasizes the broad economic benefits that may be achieved through greater access to knowledge. This is also the dominant frame used by the access to knowledge movement, notably in the WIPO Development Agenda. It is equally possible, however, to advance access to knowledge claims within the international human rights framework. The 1948 Universal Declaration of Human Rights states: "Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits" (UDHR, Article 27). This is precisely the claim of the access to knowledge movement.

For some, support for the access to knowledge movement reflects skepticism of capitalism's ability to innovate the solutions humanity needs most – such as low-cost health interventions and improved seeds suited to conditions in the global South. For others, access to knowledge represents a way to unlock trapped economic value, which will inevitably lead to new and expanded business opportunities. From both perspectives, the access to knowledge movement is a reaction against "intellectual enclosure," seeking to reclaim resources that were once treated as part of the common heritage of humanity, before they were converted into private property (Boyle 2003). Access to knowledge is a demand for democratic participation, for global inclusion and for economic justice.

Alongside the mobilization of civil society and developing country governments at international fora, an increasing number of scholars are also doing important work in this field (e.g. Boyle 1997, Fisher 2001, Helfer 2003, Sell 2003, Jaffe and Lerner 2004, Reichman and Maskus 2004, Drahos 2005, Lessig 2005, Benkler 2006, Chon 2006, Sunder 2006, Netanel 2008, Deere 2009, Dinwoodie and Dreyfuss 2010, Okediji 2010). This emerging literature is helping to promote a critical perspective on

the IP-maximalist trend and revive attention to the virtues of openness in knowledge. Additional research is still urgently needed, however, to further conceptualize and investigate the economic and legal issues confronting access to knowledge, particularly in the global South. Given the basic insight of the access to knowledge perspective that both equity and efficiency can be improved by expanding distribution of knowledge goods and tools, how can public policy operate – in areas as diverse as ICT, software, trade, education, health, culture and agriculture – to promote this goal? Such work is particularly needed from the perspective of developing countries, given their unique realities. The current research volume on Egypt emanates from this standpoint.

## Access to knowledge: an Egyptian perspective

The story of access to knowledge in Egypt is a multilayered one, which may be visualized – to use a uniquely Egyptian symbol – as a pyramid. At the top of the pyramid shines Egypt's prominent position on the international knowledge arena. As the next chapter in this work describes, Egypt has served as a leader in promoting access to knowledge internationally, with a strong international presence and influence in shaping the A2K agenda on behalf of developing countries. Indeed, the very term "access to knowledge" as a banner for this emergent movement was suggested by an Egyptian diplomat, who is also a contributor to this volume. Interestingly, that was not the first time an Egyptian used the term. Before becoming Secretary General of the United Nations, Egypt's Director of the Egyptian National Council of Human Rights, Boutros Boutros-Ghali, used that exact phrase, characterizing "access to knowledge" as a human right.[1] As far as we know, this is the earliest evidence available for the use of the phrase, which illustrates the Egyptian fingerprint on the concept.

In contrast to Egypt's strong international stance on the A2K platform, however, the country's domestic policy formulation does not reflect a similar clarity of vision. Stepping down one layer to the center of the pyramid, we view the disconnect between Egypt's international position and its domestic policy formulation. The complexity of Egypt's domestic stance emerges as we consider the dynamics (interrelationships, or lack thereof) between

1 Referring to Article 27 of the Universal Declaration of Human Rights, Boutros-Ghali wrote: "By the right of an individual to culture, it is to be understood that every man has the right of access to knowledge, to the arts and literature of all peoples, to take part in scientific advancement and to enjoy its benefits, to make his contribution towards the enrichment of cultural life" (Boutros-Ghali 1970, 73).

the different bodies involved in domestic A2K policy formulation and implementation. Different arenas of policymaking emerge as blocks which fit together unevenly, with significant gaps in between.

Across this middle layer, however, the domestic scenario is dominated by a conventional wisdom that views IP from the perspective of policing piracy. Discussion of IP issues is confined to courtrooms, legal personnel and enforcement contexts, wherein a maximalist IP regime is assumed to be justified on an ethical or sometimes even religious basis. This reflects limited realization of the developmental angle of the IP debate, which is partly explained by the void in scholarship in Egypt on intellectual property as a development issue, compounded by the lack of qualified human resources to give the subject the multidisciplinary, empirical approach that it requires.

Additional interesting insights emerge as we move further down to the base of the pyramid, which represents actual practices on the ground. Here, weak enforcement and loose implementation of domestic laws present another instance of disconnect, this time between domestic policy formulation (middle layer) and actual practices on the ground (the base). The low and inconsistent enforcement of IP-maximalist policies offers limited alternatives and leaves the consumer with basically two choices: the expensive original or the illegal copy. In areas ranging from music to software – to take just two examples to be discussed at length in the chapters that follow – consumers frequently opt to ignore IP law. Indeed, intellectual property policy is increasingly marginalized by practices of both production and consumption on the ground, wherein Egyptians take the challenges of realizing access to knowledge into their own hands with little consideration for formal legal regimes.

From an Egyptian perspective then, it may be the case that practices on the ground are in fact more in sync with Egypt's international stance than is the country's domestic policy formulation. This insight emphasizes the importance of approaching IP as a tool to be adapted – even turned on its head – to fit the developmental needs of the country, rather than impose a ready made formula from the top down. It also highlights the need to treat IP issues from the perspective of more rigorous empirical research, to think critically about the law, to test ideologies and question conventional wisdom, particularly the idea sometimes sold to Egyptian policymakers that greater IP protection is an unmitigated boon for development.

## The contributions of this volume: a preview and themes

This book approaches access to knowledge in Egypt from a developmental perspective and features the contributions of an interdisciplinary team of Egyptian scholars in economics, law, political science, management, computer science and media, affiliated with the American University in Cairo. The chapters that follow examine the themes of intellectual property, innovation and development through essays on a variety of topics: policy-making through trade negotiations and treaties, commons-based business models in the music industry, the future of open source software and information and communications technology for development. Each chapter grounds its approach in the Egyptian experience, while offering conceptual and policy insights relevant to audiences worldwide. Together, they illustrate common themes at the heart of intellectual property and innovation policy in the developing world.

Ahmed Abdel Latif, the diplomat many credit with giving the access to knowledge movement its name, contributes a chapter examining Egypt's active role in international debates on this issue. The work surveys Egypt's historical and recent participation in international deliberations and negotiations particularly as one of the fourteen countries behind a successful push for a Development Agenda at the World Intellectual Property Organization. The chapter also examines the domestic policy-making structure on these issues, which involves various government ministries and agencies as well as civil-society organizations. Addressing the existing coordination mechanisms between these entities, Abdel Latif notes the inherent tensions resulting from different government agencies pursuing policies in accordance with their respective mandates. The chapter concludes with recommendations to promote greater policy coherence in favor of access to knowledge – at both the domestic and international levels – drawing on the experience of Egypt as well as experiences of other developing countries active in the area of A2K.

Intellectual property policy not only influences the pace of scientific innovation, but also the affordability of the products ultimately derived from that innovation. The third chapter in this volume - contributed by Hossam Bahgat and Rebecca Wright - explores the challenges facing Egypt in balancing IP regulations and trade policies with its obligation to protect the right to health, including access to medicines, on the other. Some of the

challenges explored in the chapter are internal to Egypt's national drug policy and policymaking structure and the nature of the local pharmaceutical industry. Another set of challenges appears to come with mounting pressures from developed countries and multinational pharmaceutical corporations who are seeking to maximize their gains in the region's largest market through a variety of means, including bilateral trade agreements, litigation against health authorities and local generic producers, as well as direct political pressure. The chapter concludes by advocating a coherent, transparent and rights-based national policy on intellectual property and access to medicines. The authors also identify a number of areas that require further research. These include the analysis of drug patents granted since 2005, the scope and content of existing IP training programs for judges and prosecutors, and decisions issued by Egyptian courts on issues of drug patentability.

The challenge to seek a fuller alignment between Egypt's international A2K leadership and its domestic policies is further taken up by the fourth chapter. Looking particularly at the area of copyright policy for the creative industries, this contribution by economist Nagla Rizk documents practices in Egypt's music industry that maximize access to knowledge and achieve a balance between creators and users. Thanks to the culture of weddings and parties, a thriving live music scene flourishes in Egypt, providing incentives for the creation and distribution of music in a de facto commons operating outside the realm of copyright. These live performances – rather than the sale of copyrighted recordings – emerge as the prime source of musicians' incomes. For both the popular stars and alternative musicians, the live music scene offers models of music generation and delivery that are open for access and continuous development, calling into question the relevance of copyright. At best, the copyrighted recording becomes a reputation device to promote the musician; at worst, a constraint on artistic freedom and access to culture. Generosity, sharing and gift giving are inherent in the group culture of the Egyptian people. Music is experienced within social gatherings, and recordings are widely copied, shared and downloaded, irrespective of the law. Such social practices provide models of de facto commons that emanate from the bottom up, and that provide a medium whereby the interests of musicians and users are brought closer without much need for copyright protection.

The promising potential of business models that provide incentives for creativity, without relying on IP-based exclusion, has also been highlighted

by the experience of open source software. The next chapter in this volume, contributed by Nagla Rizk and computer scientist Sherif El-Kassas, looks at the current and potential role of open source software (OSS) in the developing Egyptian software industry. Over the past decade, OSS has globally expanded, with the OSS movement extending to encompass growing communities and markets as represented in different business models. This emergence holds strong implications for access to knowledge, as OSS is believed to promote knowledge liberalization and human capital development through a bottom-up approach and innovative business models within flexible legal alternatives to proprietary software. This chapter studies OSS within the overall software industry in Egypt, based on extensive field research involving interviews with the business community, NGOs, academic institutions and government officials. The authors conclude that the existence of a healthy OSS sector alongside the existing proprietary models would have several advantages for Egypt as a developing country rich with Arabic content, whose potential has not yet been realized in the digital world. Toward that end, they identify particular barriers to the growth of the OSS industry, and suggest how policy might be shifted to stimulate the emergence of this promising sector.

Continuing on the theme of access to new technologies, the final chapter, contributed by Sherif Kamel, Professor of Management and Information Systems at the American University in Cairo, focuses on emerging information and communication technology. From mobile phones to the Internet to software applications, emerging ICT represents an invaluable vehicle for expanding access to knowledge. Since the 1990s, the Egyptian government has implemented a large number of projects to diffuse and leverage ICT for development. The implications of these projects have varied across different sectors and communities with a number of successes and failures realized. This chapter analyzes the experiences of the Egyptian ICT sector, with particular attention to the government's goals of building out IT infrastructure, expanding opportunities for education, and promoting digital Arabic content. The chapter evaluates recent projects, identifying lessons learned and recommendations for future implementations to maximize the potential for ICT to contribute to access to knowledge in Egypt.

The book's chapters travel between different worlds: the mainstream world where maximalist IP approaches are applied as part of the integration in the global order, and the parallel alternative world that finds for itself some space to act outside the scope and limitations of those maximalist

approaches. The latter includes activities that are encompassed within the formal economy as well as informal activities that are totally outside the realm of the IP system. Between these worlds, we try to analyze the picture of how best knowledge can be accessed, utilized and contributed in Egypt in its capacity to promote the well-being of its people.

Taken together, the contributions of this volume illustrate the importance of access to knowledge for both innovation and development. Intellectual property regulation is shown to play a crucial role in research and innovation – a role much more complex than conventional wisdom may suggest. IP law can dramatically affect the government's ability to provide public goods – ranging from health care to education and from software to music. Intellectual property law also has important implications for market competition; more open approaches may favor small entrepreneurs offering new products and services. And in the area of copyright, IP regulation has strong implications for democratic and cultural freedom, education and freedom of expression. These studies thus offer important reading for policymakers, legal scholars and the public, in Egypt and beyond.

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CHAPTER TWO

# Egypt's Role in the A2K Movement: An Analysis of Positions and Policies

Ahmed Abdel Latif*

The past two decades have witnessed a vibrant global debate on the effects of intellectual property rules on public policy objectives and development. The access to knowledge (A2K) movement emerged from these debates, and as noted in the previous chapter, Egypt is one of the key developing countries which have contributed to its formation. The Egyptian role has been instrumental in A2K discussions at the international level, particularly in the context of the Development Agenda of the World Intellectual Property Organization (WIPO), a landmark initiative launched in 2004 by a group of fourteen developing countries, including Egypt. Egypt's role, in this regard, reflects its wider role in the setting of the international agenda on many global issues as well as its engagement in favor of a more development-oriented global trade and intellectual property (IP) architecture. This chapter aims to examine Egypt's role in a number of international fora and processes, which have played a significant role in the development of the A2K movement.

The chapter proceeds in four parts. The first section will look at the global knowledge architecture as it impacts developing countries, providing a background to the emergence of the A2K movement and an overview of the most salient developments in this regard. The second examines Egypt's participation in international deliberations on A2K issues in a number of international organizations and fora such as the World Trade Organization (WTO) and the World Summit on the Information Society (WSIS), as well as WIPO. The third section considers how Egypt has strived to achieve a

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balanced implementation of its international obligations in the areas of trade and IP, taking into consideration the possible impact of the recent free trade agreements (FTAs) it has concluded on A2K priorities. The final section examines A2K at the domestic level in Egypt, including the domestic policy-making structure on A2K issues, which involves a number of government ministries and agencies as well as civil society organizations. It is suggested that Egypt's government should explicitly adopt A2K as a public policy objective. Such a move will boost A2K efforts at the domestic level as well as provide enhanced momentum for the country's involvement in the A2K movement at the international level.

## Developing countries and the global knowledge architecture

In recent years, knowledge has come to be increasingly recognized as a key factor in meeting development objectives as well as in achieving growth and competitiveness. At the same time, globalization and new information technologies have had a profound impact on the dissemination of knowledge. Nonproprietary models of knowledge creation, open collaboration and alternative innovation models are acquiring greater importance in generating wealth.

Within this new economic reality, intellectual property rights (IPRs) remain the predominant framework for arbitrating legal claims over the ownership of knowledge. IPRs, such as patents and copyright, have a major impact on the generation and dissemination of knowledge both nationally and internationally. Yet the global knowledge architecture – understood as the set of rules, arrangements and institutions governing knowledge flows at the international level – remains fragmented among a number of international organizations and processes dealing mainly with IPRs.

With the globalization of IPRs and the expansion of the scope of intellectual property (IP) protection, the main international organizations involved in IP deliberations and rule-making, particularly the WTO and WIPO, have acquired unprecedented importance. This explains why recent efforts of developing countries toward adapting and reforming global rules governing knowledge have been centered on these two organizations.

Already since the 1960s, developing countries had sought to reform the main international IP conventions such as the Berne Convention on the protection of literary and artistic works (1886) and the Paris Convention

on the protection of industrial property (1883), with a view toward making these instruments more responsive to their socioeconomic needs in terms of access to educational material, scientific knowledge and technology. These efforts did not result in the expected reforms pursued by developing countries and have progressively fallen into oblivion (Sell 1998, May and Sell 2006).

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) represented a turning point in the evolution of the global knowledge architecture. Until then, global IP norms were negotiated and concluded at the WIPO and represented a largely self-contained area of technical regulation, which remained confined to a limited number of experts and specialists. With the introduction of IP rules in the multilateral trading system, IP became inextricably linked with other trade areas, such as trade in goods, agriculture and textiles. Developing countries reluctantly accepted this in exchange for concessions in other areas of priority to them in the Uruguay round negotiations.

The novelty of the TRIPS Agreement, in comparison with existing IP instruments, resided in several features: for the first time, one single instrument encompassed all categories of IPRs – such as patents, copyright, trademarks, industrial designs, geographic indications, integrated circuits and undisclosed information. TRIPS harmonized terms of protection among WTO member countries, stipulating a fifty-year protection term for copyright and a twenty-year term for patents. The Agreement also expanded the scope of IP protection by requiring the protection of computer programs by copyright and the extension of patent protection to pharmaceutical products, which many countries had previously excluded on grounds of public health needs. TRIPS also laid down minimum standards for the enforcement of IPRs and brought all these commitments under the aegis of the WTO dispute settlement system, which could be invoked in cases of noncompliance (Correa 2001, UNCTAD and ICTSD 2005). A powerful discourse also accompanied the conclusion of TRIPS, arguing that strengthened IP protection in developing countries would promote innovation and lead to increased flows of investment and technology transfer (Sell 2003).

The TRIPS Agreement became the main pillar of the international IP system as it established minimum international IP standards binding on all WTO members, with transition periods for developing countries and

least-developed countries (LDCs). From the perspective of developing countries, the TRIPS Agreement marked a significant strengthening of IPRs at the global level with an important bearing on other public policy areas such as health, nutrition, the environment and education.

The TRIPS Agreement was thus one of the most controversial and contested results of the Uruguay Round. It substantially reduced the ability countries had enjoyed under earlier international agreements to devise IP regimes in accordance with their particular social needs and levels of development. Many developing countries and non governmental organizations (NGOs) saw in it a "one size fits all" approach to global IP norm setting, in which all WTO countries, regardless of their level of socioeconomic development, would ultimately comply with a unified set of IP obligations. Of particular concern were the effects of the Agreement on areas such as public health and biodiversity (Khor 2002).

The concerns with regard to public health soon materialized, when thirty-nine pharmaceutical companies brought a lawsuit against the South African government in 1998. The companies claimed that South Africa's 1997 Medicine Act, which allowed the government to import cheap versions of patented medicines, undermined their patent rights. The court case generated significant global media interest and international concern about the impact of new global patent rules on public health and access to medicines. In face of growing public pressure and NGO mobilization, the pharmaceutical companies ultimately withdrew the lawsuit.

The South African case triggered an international campaign, which was extremely effective in firmly putting the issue of patents and access to medicines on the global agenda. The resulting "access to medicines" mobilization proved exemplary in framing the issue of patents' impact on health and in forging a coalition made of developing countries – including Brazil, India and the African Group and international civil society. Key international NGOs included Médecins Sans Frontières (MSF), OXFAM, Third World Network and the Consumer Project on Technology (CPTech) – since renamed Knowledge Ecology International (KEI) – working with grassroots public health NGOs in countries such as Brazil, Thailand and South Africa (Sell 2002).

The campaign culminated with the adoption of the Doha Declaration on TRIPS and Public Health in 2001 (WTO 2001). The Doha Declaration proved to be a landmark development in global deliberations on intellectual

property. Contrasting with the IP-maximalist discourse prevalent at that time, its formulations embodied a more balanced approach to IP protection. Paragraph four of the Declaration reaffirms the parties' commitment to the TRIPS Agreement, while also affirming "the need to interpret and implement the agreement in a way that is supportive of WTO members' right to protect public health and promote access to medicines to all" (WTO 2001). For many developing countries, this balanced message had a wider significance, as it emphasized the importance of implementing IP protection in a manner that was supportive of social and development objectives more broadly.

Nonetheless, developed countries quickly signaled their determination to expand IP protection going beyond the minimum standards contained in the TRIPS Agreement. New "TRIPS-plus" standards resulted either from norm setting activities in WIPO or through comprehensive IP chapters in bilateral and regional trade agreements (Musungu and Dutfield 2003, Vivas-Eugui 2003). At WIPO, the 1996 Internet Treaties strengthened copyright protection in the digital environment, setting new obligations in an area that had not been specifically addressed by the TRIPS Agreement. The 1999 WIPO Digital Agenda promoted adherence to these instruments in the context of efforts to grapple with the challenges brought by the Internet and information and communication technology (ICT) to traditional copyright protection (WIPO 1999). The European Union, which had adopted a *sui generis* regime for the protection of non-original databases, pressed for the adoption of a similar regime of protection in the context of WIPO's Standing Committee on Copyright and Related Rights (SCCR).

Nevertheless, after the success of the campaign on access to medicines, developing countries and NGOs continued in their efforts to achieve a more development-friendly and balanced global IP system. Soon after the adoption of the Doha Declaration, the influential report of the UK Commission on Intellectual Property Rights (CIPR) was released (CIPR 2002). The report underlined the need to achieve a more balanced international IP system, which would take into greater consideration the different needs of countries as well as their levels of development. The CIPR report had a significant impact in intellectual property and development circles. It captured very accurately a growing opinion trend, which distanced itself both from a maximalist discourse that promoted the absolute benefits of IP and from a discourse that was unequivocally critical of IP as a matter of principle. It

thus recognized both the benefits and costs of IP protection, emphasizing the need to ensure that the costs do not outweigh the benefits, particularly for developing countries.

In many instances, the CIPR report echoed several of the criticisms of developing countries toward the international IP system and the TRIPS Agreement. Furthermore, the report contained the first direct criticism of WIPO's approach to intellectual property to be advanced in international policy debates beyond specialized circles of IP scholars and NGOs. In this regard, the Report underlined that WIPO "should give explicit recognition to both the benefits and costs of IP protection" and "should act to integrate development objectives into its approach to the promotion of IP protection in developing countries" (CIPR 2002, 157).

The publication of the CIPR report coincided with the launch by the United Nations Conference on Trade and Development (UNCTAD) and the International Centre for Trade and Sustainable Development (ICTSD) of the Bellagio Dialogues on Development and Intellectual Property Policy, with the support of the Rockefeller Foundation. These Dialogues also pointed to the need toward achieving a more balanced and development-oriented IP system (UNCTAD and ICTSD 2002). More generally, a more nuanced discourse on the costs as well as benefits of globalization, from the North and the South, was emerging and gaining ground on the international scene after the more optimistic views that had prevailed in the 1990s (Khor 2001, Stiglitz 2002).

All these developments persuaded a number of like-minded developing countries – including Argentina, Brazil, Egypt and India – that the debate should move beyond TRIPS and public health to address other substantive areas where global IP rules had a significant impact on public policy objectives such as access to educational material and scientific knowledge. These developing countries shared the belief, along with a number of NGOs active in this area, that the most effective way to mobilize on these issues was to replicate the elements that had proven successful in the access to medicines campaign. This was the premise of the Access to Knowledge (A2K) movement.

The World Summit on the Information Society (WSIS) was the first major international process in which the loose elements of what was to become the Access to Knowledge movement were able to advance their ideas and views. The objective of the summit, as approved by the United Nations General Assembly in 2001, was to discuss the new challenges and opportunities created by the digital revolution and the role of information and communication

technology (ICT) in improving living standards, bridging the digital divide between countries and within societies, and achieving the UN Millennium Development Goals.[1]

WSIS convened in two parts: the first part in Geneva in December 2003 and the second part in Tunisia in November 2005. The Geneva Declaration, the political declaration adopted by the first part of the summit, included many A2K concerns regarding access to knowledge and information, which appeared for the first time in a major policy document endorsed by heads of state and government. The Declaration's references to the role of the public domain as a necessary element for the growth of the information society, to the importance of raising awareness about the possibilities offered by different models of software, including Free and Open Source Software (FOSS) and to open access initiatives in the area of scientific publication, were groundbreaking from this perspective. The Internet Governance Forum (IGF), established after the Tunis part of the summit, would prove a useful vehicle for developing countries and civil society to continue advancing some of these priorities.

After the success of their mobilization in the WSIS context, and the campaign on patents and access to medicines at the WTO, developing countries realized that their reform efforts needed to include WIPO, the other major pillar of the international IP architecture. In effect, developed countries were already advancing a number of proposals at WIPO, such as the Substantive Patent Law Treaty (SPLT), to further harmonize IP laws beyond the TRIPS Agreement. WIPO's centrality in shaping the global IP discourse, particularly in developing countries, was becoming manifest, as well as its role in the implementation of the TRIPS Agreement, through its technical assistance programs and legislative advice, in the context of the 1995 WIPO–WTO Agreement on technical cooperation.

In 2004, fourteen developing countries, including Egypt, launched the WIPO Development Agenda – a major proposal to integrate the development dimension in all of WIPO's activities. After two years of intense

1 The eight Millennium Development Goals (MDGs) – ranging from halving extreme poverty, to halting the spread of HIV/AIDS, to providing universal primary education – were adopted in September 2000 at a meeting of world leaders in New York. The meeting endorsed the United Nations Millennium Declaration, which set out a series of time-bound targets – with a deadline of 2015 – that have become known as the Millennium Development Goals.

debates, the WIPO Assemblies, in 2007, adopted by consensus forty-five recommendations aiming at the establishment of a Development Agenda for WIPO.[2] The recommendations include language and formulations on IP flexibilities, public policy objectives and technical assistance, which represented an important departure from the more narrow approach to IPRs prevalent until then at WIPO.

Beyond WIPO and the WTO, a number of international and regional organizations, bodies, fora and processes are also increasingly participating in international IP standard-setting activities and deliberations. Most recently, for example, the World Health Assembly (WHA) adopted a landmark Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property to address in particular diseases disproportionately affecting developing countries (WHA 2008). Within the World Customs Organization, new proposals for higher IP enforcement standards – such as the SECURE standards (Munoz Tellez 2008) – and new IP enforcement agreements – such as the Anti-Counterfeiting Trade Agreement (ACTA) – are also being advanced, which could have significant implications for the global regulation of knowledge.

As the above short overview shows, the emerging global knowledge architecture has dramatically increased in complexity at the turn of the millennium. A greater number of international fora have become relevant to IP policymaking. A significant new body of international law now binds countries in the area of IP legislation and enforcement. The relationship between multilateral standards and standards adopted at the bilateral and regional levels – particularly in the context of free trade agreements (FTAs) – is complex and sometimes not clear even for legal scholars. The expanding scope of IP protection has made these processes and norms newly relevant to areas of domestic policymaking such as public health, biodiversity, nutrition and ICT.

This increasing complexity has magnified the immense challenges faced by developing countries in coherently articulating and advancing their views in these different fora and processes. In effect, many developing countries

2 The 45 recommendations are divided into 6 clusters: Cluster A – Technical Assistance and Capacity Building; Cluster B – Norm setting, flexibilities, public policy and public domain; Cluster C – Technology Transfer, Information and Communication Technology (ICT) and Access to Knowledge; Cluster D – Assessments, Evaluation and Impact Studies; Cluster E – Institutional Matters including Mandate and Governance; and Cluster F – Other Issues. Available at http://www.wipo.int/ip-development/en/agenda/recommendations.html.

have limited expertise and resources to effectively participate in them and influence the outcomes they reach. In addition, they face coordination problems between different government departments and agencies in the formulation of their international positions (Abdel Latif 2005).

Despite these limitations and constraints, however, developing countries have attained a number of important achievements at the multilateral level – such as the Doha Declaration and the WIPO Development Agenda – in their efforts to shape an international knowledge architecture that is supportive of access to knowledge and development efforts. In achieving this, they have been able to capitalize on strategic collaborations and partnerships with international civil society and NGOs. Their actions also coincided with an increasingly vivid debate within developed countries themselves on the most effective means to disseminate knowledge and promote innovation through the use of alternative and open business models.

As has been described above, the globalization of IP rules at the end of the twentieth century, particularly through the landmark TRIPS Agreement, triggered substantial concerns regarding the impact of new intellectual property rules on public policy objectives and in particular public health and access to medicines. With leadership from a group of developing countries, in tandem with civil society partners, a broad A2K movement emerged seeking to expand on the successes of the access to medicines campaign to address the impact of IP rules on access to educational material, scientific knowledge and development objectives in general. This movement became active in a variety of international fora, including WIPO, WSIS and other arenas. With this global background in mind, the next section looks more closely at Egypt's role in advancing A2K concerns in these international processes and fora.

## Egypt's role in international A2K processes and negotiations

Egypt has traditionally been highly active in multilateral fora, which it considers as a key vehicle for its foreign policy and influence. In these settings, Egypt is able to effectively capitalize on its memberships in a vast number of regional groups (such as the League of Arab States, the African Union and the Organization of the Islamic Conference) and political groupings (such as the Non-Aligned Movement and the Group of 77). The United Nations system (UN), with its specialized agencies, is the primary focus of Egypt's multilateral diplomacy.

In this regard, Egypt has been one of the more influential developing country members in defining the orientations of the UN in past decades, in areas ranging from decolonization to human rights and the environment. An Egyptian, Dr. Boutros Boutros-Ghali, held the position of UN Secretary General from 1992 to 1996. Other Egyptian nationals have headed UN specialized agencies and bodies such as the International Atomic Energy Agency (AIEA), the United Nations Environment Programme (UNEP), the United Nations Industrial Development Organization (UNIDO) and the World Meteorological Organization (WMO).

As part of its general dynamic participation in the multilateral system, Egypt has taken an active role in seeking to influence the global knowledge architecture.

### *Egypt's historical role in global trade and IP negotiations*

From the 1960s to the early 1980s, Egypt took an active part in efforts by developing countries to reform international economic and trade relations. In the 1970s, these countries called for the establishment of a New International Economic Order (NIEO) as part of their drive to restructure international economic relations and make them more adapted to their socioeconomic priorities.

In the area of trade, Egypt was one of the main developing countries behind the creation of the United Nations Conference on Trade and Development (UNCTAD) in 1964. In the area of intellectual property, it participated in attempts to reform the main IP convention – the Berne Convention on Literary and Artistic works and the Paris Convention on Industrial Property – during the 1960s and 1970s, with a view toward making these instruments more responsive to the socioeconomic needs of developing countries in terms of access to educational material, scientific knowledge and technology.

Egypt was also one of the proponents of the UN Draft Code of Conduct on Transfer of Technology, which figured prominently on the international agenda in the 1970s and early 1980s. After first resisting the incorporation of intellectual property in the Uruguay round of negotiations, Egypt then participated in negotiations which led to the adoption of the TRIPS Agreement.

Egypt's role in these rounds of international negotiations provides an important context for understanding its later involvement in the A2K movement.

### *The UN Draft Code of Conduct on Transfer of Technology*

In May 1974, the UN General Assembly adopted the Programme of Action on the NIEO, which assigned a high priority to the formulation of an international code for the transfer of technology. The purpose of such a code was to facilitate international transfer of technology flows on more favorable terms to developing countries (Patel, Roffe and Yusuf 2000).

The push for the code came particularly from a number of developing countries – such as Argentina, Brazil, Mexico and the Andean Pact countries (Colombia, Bolivia, Ecuador and Peru) – which had already adopted a number of key domestic legislations and policies regulating foreign investment and the transfer of technology in the 1970s, reflecting their dissatisfaction with the market principles governing technology transactions. These countries considered that the restrictive business practices of many transnational corporations limited their possibilities of obtaining access to the right technology under the right terms and conditions at the right time, thus constraining the development of their national scientific and technological capabilities.

Egypt was closely involved in these early efforts to draft a code of conduct through the figure of Essam Galal, an Egyptian government representative to the code negotiations and advisor to the then Egyptian Minister of State for Foreign Affairs, Boutros Boutros-Ghali (Freymond 2001). In May 1974, a group of experts met in Geneva to draft a code of conduct on the international transfer of technology, at the instigation of the Pugwash Conference on Science and World Affairs.[3] The purpose of the exercise was to show the viability and feasibility of the elaboration of such a code and lend greater intellectual weight to the proposal (Galal 2001).The draft proposal presented by the G77 to the first Expert Group meeting convened by UNCTAD in 1975 was largely based on the Pugwash draft.

The negotiations on the draft code lasted nearly ten years (1975-1985) under the aegis of UNCTAD, with the Group of 77 leading the negotiations on behalf of developing countries. With Mexico, Brazil, Argentina and India, Egypt was one of the most active G77 countries in the code negotiation and sent experts to participate in the negotiations, which many other developing

3 The Pugwash Conference on Science and World Affairs is an international NGO forum established in 1955 for technical deliberations among scientists from the East and West. It was particularly active in the area of nuclear disarmament.

countries did not do (Sell 2001). During the years of negotiations, Egypt strived to maintain the solidarity and cohesion of the G77 coalition. The Group's more advanced economies – notably Latin American countries – gave priority to enhancing technology transfer by controlling restrictive practices, particularly parent/subsidiary relationships. The less-advanced members of the Group – such as African countries – gave more weight to enhanced technology flows, preferential treatment and effective international machinery for technical and resource support.

Egypt was the chief G77 negotiator at the 1983 meeting of the conference, which witnessed the last serious attempt to salvage the code negotiations from failure. It displayed enormous efforts to try to reach an agreement on a compromise text at a critical stage of the negotiations where many developed countries had expressed views on the futility of the exercise and some developing countries, such as Brazil, were reluctant to compromise on several basic issues and were considering withdrawal from the negotiations. The Egyptian negotiator argued that the G77 had a "vested interest in sustaining the exercise at any cost," adding that while "it would not be possible to reach agreement without compromise [...] compromise should not mean forsaking the basic interests of the South" (Galal 2001, 203). Ultimately, however, the negotiations were unsuccessful in reaching final agreement on a text. Divergences between developing and developed countries – focused on issues such as the legal character of the code, its legal effects, the nature of special treatment for developing countries, restrictive practices, applicable law and the settlement of disputes – proved insurmountable.

Moreover, by the mid-1980s, the global economic environment during which the code negotiations had originally been launched had changed. With the debt crisis and the decline in the price of commodities, most developing countries faced severe economic difficulties. Many of them sought to reverse their previous economic policies, taking measures to liberalize their policies toward transnational companies and foreign technology suppliers in an effort to attract foreign investment. As a result, the original impetus and rationale for the code eroded. Developed countries, on their part, were preparing a major shift to capitalize on these changes by seeking to introduce IP in multilateral trade negotiations. This highly successful move eventually resulted in the conclusion of the TRIPS Agreement, which would have significant impact in the allocation and regulation of international knowledge and technology flows.

### *The TRIPS Agreement: the journey from its negotiation to addressing its effects on public health*

Egypt, which had joined the General Agreement on Tariffs and Trade (GATT) in 1970, was among many developing countries opposed to the inclusion of intellectual property issues in the new round of multilateral trade negotiations being considered in the first half of the 1980s.

The main argument put forward by developing countries was that IP rules, which consecrate monopolies, did not belong in a forum for trade liberalization dealing primarily with tariffs and trade in goods. They argued that WIPO should continue as the sole specialized forum for negotiating international IP standards. From this perspective, the introduction of IP rules in the context of the GATT would create an inevitable duplication with the work of WIPO (Sell 2003).

Ultimately, however, developing countries yielded to the pressures by developed countries and in 1986 a formulation was reached on the consideration of "trade-related aspects of IPRs" within the mandate launching the Uruguay Round negotiations.

During the Uruguay Round, Egypt was part of the small group of developing countries that were active in the negotiations on IP issues. At the early stages of discussions, they sought to confine negotiations to what had originally been envisaged in the Uruguay Round mandate, i.e. measures to address the trade in counterfeit goods. When the US, the EU and Japan pressed toward the conclusion of an agreement of a broader scope, developing countries tried to resist such attempts. Unsuccessful, they then worked toward integrating some of their main concerns and priorities in the agreement under negotiation.

In 1990, Egypt joined a number of developing countries – Argentina, Brazil, Chile, China, Colombia, Cuba, India, Nigeria, Peru, Tanzania and Uruguay – in submitting a developing countries' draft text proposal for the IP agreement then under negotiation (Drahos 2002). The proposal included a first part on IP and international trade concerning measures on trade in counterfeit goods and border measures. The second part of the proposal dealt with standards and principles of IP protection. It included a first article on objectives and a second one on principles that addressed issues such as social and economic welfare, technological and public interest objectives, in particular those of developing countries. For instance, Article 2 on Principles states that "Parties recognize that intellectual property rights are

granted not only in acknowledgement of the contributions of inventors and creators, but also to assist in the diffusion of technological knowledge and its dissemination to those who could benefit from it in a manner conducive to social and economic welfare [...]" (WTO 1990, 7). The wording of these two articles would provide much of the current wording of Articles 7 (objectives) and 8 (principles) of the TRIPS Agreement.

On the substantive rights, developing countries also suggested some provisions to reflect their concerns regarding the effects of patent protection on public policy objectives. For instance, under Article 4 on patent protection, developing countries proposed to exclude from patentability, "on grounds of public interest, national security, public health or nutrition, certain kind of products or processes for the manufacturing of those products." The wording of such provision ultimately did not find its way into the TRIPS Agreement.

At the same time as developing countries were seeking to advance development and public policy considerations in the TRIPS negotiations, the global stage was significantly changing. The fall of the Soviet Union, the spread of liberal democracy and market economics resulted in a global discourse advocating the benefits of free trade and economic globalization. In the area of intellectual property, such discourse advanced persuasively that the strengthening of IPRs in developing countries would lead to an increase in investment flows, transfer of technology and levels of innovation. In addition, most developing countries, including Egypt, were experiencing important economic difficulties during the 1980s and early 1990s because of a decline in the price of oil and other basic commodities, which was accompanied by a significant increase in public debt and deficits.

Many key developing countries active in the TRIPS negotiations such as Brazil, Argentina and India were also facing bilateral pressures in the area of IP particularly from the United States under the Special 301 procedure, which allows the US to take measures against foreign goods or an economic sector including suspension or withdrawal of US trade concessions. Under Special 301 authority, the United States Trade Representative (USTR) issues a list of countries which are considered to deny adequate and effective protection of IPRs or deny fair and equitable market access to US persons relying on IP protection. The countries listed are divided into three categories: priority foreign countries whose acts and practices have the

greatest adverse impact, priority watch countries and watch countries where particular problems exist with respect to IPR protection and enforcement. Egypt was placed on the list of priority watch countries in 1992 and 1993 (Stewart 1999, 503).

All these factors ultimately contributed to the acceptance by developing countries of the TRIPS Agreement. They hoped that the conclusion of this new multilateral instrument would put an end to the resort to bilateralism, such as through the Special 301 procedure.

However, efforts to ensure that the TRIPS Agreement was effectively responsive to public policy concerns and adequately took into consideration the needs of developing and least developed countries did not end with the agreement's conclusion in 1994. As previously mentioned the access to medicines campaign soon put the issue of patents and public health on the global agenda, leading to the adoption of the Doha Declaration on TRIPS and Public Health (2001). The African Group at the WTO played a key role in raising the issue of public health at the TRIPS Council. Along with India and Brazil and a number of other developing countries, the African Group was instrumental in the negotiations leading to the Doha Declaration. Egypt played an active role in these negotiations through its membership of the African Group, and was supportive of the Group's effort to reach a satisfactory outcome.

Of particular concern to Egypt was that the outcome of these efforts be broadly applicable to a wide spectrum of public health concerns. Although access to medicines to fight HIV/AIDS was one of the main root causes of the entire patents and public health debate, it was not a primary concern for Egypt, which had a small HIV-infected population. Nevertheless, questions of public health in general are of paramount importance in Egyptian society. Egypt also suffered from a number of important diseases and epidemics where the infection rate was particularly high, such as in the case of bilharzia (also known as schistosomiasis) and Hepatitis C. For these reasons, during the deliberations leading to the Doha Declaration, Egypt argued for the need not to restrict the statement to HIV/AIDS medicines. In the context of this process, Egypt stressed that "the proposed special session of the TRIPS Council would not be about the AIDS pandemic, but about the relationship between the relevant provisions of the TRIPS Agreement and access to essential drugs on affordable terms" (WTO 2000a, para. 249). Consequently, during the negotiations on the wording

and formulations of the Doha Declaration, Egypt played a particular important role toward ensuring that the scope was not restricted to any specific disease.

### *The World Summit on the Information Society (WSIS)*

Since the early 1990s, Egypt began to take a number of measures toward increasing the use of ICT in implementation of public policies, notably with the establishment of the Information and Decision Support Centre (IDSC). These efforts witnessed an important acceleration with the creation of a specific ministry for ICT in 1999.[4] As a later chapter in this volume will discuss in greater detail, the new ICT ministry devised a comprehensive policy to raise awareness about the importance of ICT, modernize and liberalize the ICT sector and generalize the use of ICT in government agencies. In this regard, several initiatives were introduced, such as expanding the use of ICT in upgrading education standards, improving health services and facilitating e-business transactions. Partnerships among the government, the private sector, and civil society were launched with the aim of providing free Internet, making available a computer for every home at affordable prices, and establishing IT clubs nationwide. To encourage the development of an ICT industry, a "Smart Village" was established in 2001 as a state-of-the-art high-tech business park which would attract investors eager to benefit from a supportive environment and special incentives in order to address a strong emerging local and regional market.

These developments at the domestic level coincided, at the international level, with the convening of the World Summit on the Information Society (WSIS), to discuss the challenges and opportunities created by the digital revolution and the role of ICT in improving living standards and achieving the UN Millennium Development Goals (MDGs). Egypt thus took a great interest in the WSIS process and actively participated in the first part of the Summit held in Geneva in December 2003, as well as in the second part held in Tunis in November 2005. Egypt participated in many preparatory events and meetings for WSIS. It hosted the Pan Arab Regional Conference on WSIS (Arab African Dialogue) during 16-18 June 2003. Moreover, it participated in formulating the WSIS Arab Action Plan, which was endorsed by the Arab Summit of Amman in 2001, as well as the African Action Plan

4 The Ministry of ICT was headed by Dr. Ahmed Nazif, who was later appointed Prime Minister in 2004.

of Bamako (2002). In addition, it actively participated in the preparatory meetings to the two phases of the Summit in Geneva and Tunis.

Most importantly, the priority given by Egypt to WSIS was reflected in President Mubarak's participation in the first part of the Summit in Geneva. In his statement, President Mubarak made a call "to deepen the concept of universality in information society," emphasizing "that all peoples should have a chance to effectively take part in developing, manufacturing, and utilizing ICT which should become an effective instrument in exercising the right to development in its broader sense, in a manner that entrenches the principles of equality, justice, and active community participation" (Mubarak 2003). The President underlined that this required "support, particularly to developing countries, through promoting their scientific and research capabilities, and in transferring needed technology and know-how" (ibid). These statements capture several of the key long-standing priorities advanced by Egypt in the global knowledge architecture in relation to development, equity and transfer of technology.

Overall, during the WSIS process, Egypt was actively supportive of the demands by developing countries – particularly African countries – in underlining that an adequate infrastructure was instrumental to benefit from ICT. In addition, Egypt played an important role in a number of controversial areas in the negotiations such as financing, human rights, Internet governance and the role of the media. Intellectual property was also one of the controversial areas that emerged in the preparatory process leading to the Geneva phase of the Summit, particularly after the February 2003 preparatory meeting.

During the WSIS negotiations, developed countries and the private sector advanced the view that IP protection was "essential in the Information Society" and that "existing IP regimes and international agreements should continuously provide this protection, [...] thus promoting the necessary balance between owners and users of IP."[5] On the contrary, developing countries such as Egypt – along with NGOs, stressed that the continuous expansion in IP protection could negatively impact creativity and the

5 The quoted language was introduced in the text of intercessional work between the 2nd and 3rd Preparatory Committee meetings. See new paragraph 40 in the document WSIS03/PCIP/DT/4(Rev.3)-E, Draft Declaration of Principles – Refined version (June 5th) incorporating government contributions received by established deadline (rev. 3), available at http://www.itu.int/wsis/documents/doc_single.asp?lang=en&id=699.

dissemination of information. In addition, they opposed the qualification that international IP agreements were "balanced" or "promoting the necessary balance" in view of the numerous criticisms made at the TRIPS Agreement in this respect. After long and tortuous negotiations, a compromise formulation was included in the WSIS Geneva Declaration of Principles – the political declaration adopted by the Summit (WSIS 2003, para. 42). The paragraph states that:

> IP protection is important to encourage innovation and creativity in the Information Society; similarly the wide dissemination, diffusion, and sharing of knowledge is important to encourage innovation and creativity. Facilitating meaningful participation by all in IP issues and knowledge sharing through full awareness and capacity building is a fundamental part of an inclusive Information Society.

The final language thus qualifies IP protection only as "important" in the Information Society – not "essential" as first advocated by developed countries and the private sector. In addition, the placement of IP protection and the dissemination of knowledge on an equal footing implied, from the viewpoint of developing countries and NGOs, that IP protection did not necessarily equate the wide dissemination, diffusion, and sharing of knowledge, particularly if such protection was not balanced and supportive of public policy objectives. Such a distinction was an anathema for many advocates of an IP-maximalist discourse, which considered that IP, by recognizing the rights of authors and inventors, automatically encouraged the wide dissemination and diffusion of knowledge.

Egypt was also among the developing countries and many NGOs that were keen to raise, within the context of WSIS, the larger issue of "access" to information and knowledge. Ultimately, these concerns were included in the section on principles governing the Information Society, under the title: "access to information and knowledge." In this regard, the WSIS Geneva Declaration states that the "sharing and strengthening of global knowledge for development can be enhanced by removing barriers to equitable access to information [...] and by facilitating access to public domain information" (para. 25).

Retrospectively, WSIS appeared as a landmark development for the emerging A2K movement as it succeeded, for the first time, in including A2K concerns in a major UN policy document endorsed by heads of state

and government. These same elements would be later raised by developing countries and NGOs in WIPO.

### *Advancing the WIPO Development Agenda*

While developing countries had built expertise in engaging with WTO and TRIPS issues, their engagement with WIPO processes had remained limited throughout the 1990s (Musungu and Dutfield 2003, Abdel Latif 2005). The linkages between the discussions on TRIPS at the WTO and the deliberations at WIPO were not evident for most of them. Only a handful of developing countries were actively engaged in both fora – namely Argentina, Brazil, India and Egypt. Starting in 2003, however, the momentum for change in WIPO began to gain strength. NGOs were becoming increasingly active, particularly in the context of discussions on the proposed broadcasting treaty, which would have created new property rights including for webcasting as advocated by some countries. Developing country participation in WIPO's substantive debates had also witnessed a significant increase, particularly in relation to the proposed Substantive Patent Law Treaty (SPLT), which raised a number of concerns for developing countries in terms of its impact on the flexibilities they enjoyed under the TRIPS Agreement (Correa and Musungu 2002).

At this juncture, a number of workshops and seminars played a catalyst role in articulating and coalescing the demands of developing countries and of NGOs to promote an agenda for change in WIPO. Most prominent were the Bellagio Dialogues convened by UNCTAD and ICTSD in 2003, as well as two meetings organized by the Trans-Atlantic Consumer Dialogue (TACD) Special Group on Intellectual Property. The first of these, entitled "WIPO's Work Programme and How to Involve Consumers," was held in Lisbon on October 17, 2003. The second, on "Global Access to Essential Learning Tools," convened on April 5, 2004 in New York.

Around 2003-2004, developing countries active in WIPO discussions, including Egypt, were beginning to realize that only a major policy initiative could bring change to WIPO. The idea began to emerge to introduce a major policy proposal at the WIPO General Assembly. Such an initiative would go beyond the immediate efforts to address specific standard-setting proposals for increased IP protection to address in a systematic and comprehensive manner the organization's IP-maximalist culture. On a substantive level, the initiative would seek to include many of the proposals and recommendations that developing countries had put forward in WIPO since 2002 – in particular,

the CIPR report and the outcomes of the UNCTAD-ICTSD Bellagio Dialogues. It would also offer an opportunity to bring to WIPO the global debate of ideas on IP that was taking place outside of it, in which the A2K coalition had become an important actor.

In September 2004, Egypt was part of a group of fourteen developing countries – including Brazil, Argentina, Bolivia, Cuba, Dominican Republic, Ecuador, South Africa, Egypt, Kenya, Iran, Peru, Sierra Leone, Tanzania and Venezuela – that presented a comprehensive proposal to establish a Development Agenda for WIPO during the organization's General Assembly. The proposal of this group of countries, which chose the name "Friends of Development," aimed at integrating the development dimension in all aspects of the organization's work. This implied that differences in the levels of development between countries and the impact of IP rules on development objectives should be systematically taken into consideration in all of the organization's activities from norm setting to technical assistance.

At the time the proposal for a WIPO Development Agenda was launched, Egypt was coordinating the work of the African Group at WIPO, a responsibility it had assumed since January 2004. This responsibility, which rotates between the members of the Group, involves presenting the positions of the African Group regarding issues discussed at WIPO. Egypt indicated that the African Group welcomed this important proposal, as "the integration of the development dimension would contribute towards ensuring that intellectual property norms would be fully and unequivocally supportive of important public policy objectives, such as the protection of public health, bio-diversity, the dissemination of information and access to knowledge in particular, through the incorporation of public policy related flexibilities" (WIPO 2004b, para. 160). Thus with Egypt as its coordinator, the African Group came in general support of the Development Agenda initiative, contributing toward ensuring a favourable momentum for it.

As an active member of the Friends of Development, as well as an important link between the Friends of Development and other regional groups such as the African Group, Egypt was key in ensuring coordination and consistency among developing countries during the WIPO Development Agenda discussions.

Although the WIPO Development Agenda initiative was not only about A2K, access to knowledge issues were clearly an important component of the proposals and ideas that the initiative was seeking to advance. This

was reflected in the original document containing the initiative, which incorporated key elements and concerns of the A2K movement. These included: controversy surrounding the use of technological protection measures (TPMs) in the digital environment, the importance of exceptions and limitations existing in the laws of member states, the relevance of open access models for the promotion of innovation and creativity, and an invitation to WIPO to explore the role of open collaborative projects to develop public goods as exemplified by the Human Genome Project and Open Source Software.[6]

At the substantive level, Egypt interacted with many of the proposals and ideas put forward in relation to access to knowledge. For instance, it manifested its agreement with Chile that "there should be an effective mechanism for protecting and supporting the public domain, because it constituted a basis that was required in the domain of innovation, creation and development" (WIPO 2006, para. 44). Egypt also expressed its belief that that "systems, complementary to the intellectual property system, were worthy of discussion and study, particularly in view of the fact that there were many other experiments in this field" (ibid.).

Ultimately, many of these ideas and proposals were reflected in the 45 WIPO Development Agenda recommendations adopted in 2007. Recommendation 19, for instance, calls for the initiation of "discussions on how, within WIPO's mandate, to further facilitate access to knowledge and technology for developing countries and LDCs to foster creativity and innovation and to strengthen such existing activities within WIPO." Recommendation 16 affirms the importance of considering the preservation of the public domain within WIPO's normative processes (WIPO Development Agenda Recommendations 2007). As the WIPO Development Agenda enters its implementation phase, the challenge facing developing countries and civil society is to translate these recommendations into concrete activities and actions, which would contribute toward the further development of the A2K paradigm.

### *Reviewing Egypt's role in promoting A2K internationally*

As can be observed from this overview, Egypt has played an important role in the overall efforts by developing countries to achieve a more

6 The proposals are contained in document WO/GA/31/11 available at http://www.wipo.int/edocs/mdocs/govbody/en/wo_ga_31/wo_ga_31_11.pdf.

development-friendly trade and IP architecture in recent decades. The country's efforts in this regard are also characterized by a great deal of continuity. Egypt's participation in the A2K movement is but one facet of its long-standing engagement in favor of greater access to education, science and technology for developing countries. These demands have been at the heart of policy debates in the context of discussions and negotiations from the 1970s UNCTAD Code of Conduct, to the TRIPS Agreement, and up to WSIS and the WIPO Development Agenda.

Of course, the international context has dramatically changed in this time period. The contested globalization of IP rules through the TRIPS Agreement, the public health and patents debate, the ICT revolution, the involvement of civil society in debates on the regulation of knowledge, the emergence of open models of innovation, and more recently the magnitude of the climate change challenge, have reinvigorated demands by developing countries for greater access to drugs, education, science and technology.

For reasons previously mentioned, the formulation of these demands has centered in IP related processes and negotiations. Yet the recent emergence of the "A2K movement" reflects a positive agenda beyond the IP system. The involvement of developing countries, including Egypt, also reflects a growing maturity on the part of these countries – moving from the simple contestation of IP rules to the formulation of concepts and new paradigms that embody a positive agenda for economic and social change. Within this dynamic of growing developing country involvement, Egypt has played a pivotal role in fostering links, synergies and coordination between the different groups of developing countries it belongs to and their respective priorities. It has been, in particular, a valuable link between African countries and their priorities relating to enhanced capacity building and increased technical assistance and other developing countries from Latin America and Asia, which have had a longer and more systemic experience in dealing with global trade and IP rules and efforts to reform them.

As will be seen in the next section, Egypt has also strived to ensure a degree of consistency between its international postures and the demands brought by domestic reforms and expanding trade relations with developed countries such as the United States and the European Union. In particular, free trade agreements (FTAs) concluded with developed countries have included new IP obligations exceeding the requirements of the TRIPS Agreement and carrying possible detrimental implications for the pursuit of A2K objectives.

## Balancing TRIPS obligations and TRIPS-plus demands

As seen in the previous section, Egypt joined most developing countries in criticizing the TRIPS Agreement as a "one size fits all" approach to intellectual property, which inappropriately applied uniform rules of IP protection to all countries, even with the transition periods given to developing and least developed countries.

After the entry into force of the TRIPS Agreement, Egypt argued during WTO deliberations that it was important for developing countries to take advantage of the flexibilities contained in the TRIPS Agreement and to implement IP policies in a manner supportive of their development goals. Egypt also consistently drew attention to the broad Objectives and Principles sections of TRIPS (Articles 7 and 8), which highlight the importance of goals such as the transfer and dissemination of technology, mutual advantage of producers and users of technological knowledge, social and economic welfare, and the balance of rights and obligations (WTO 2008b, para.183).

Egypt was also of the general view that the TRIPS Agreement represented the international agreed-upon standards of IP protection and that countries should not be required to implement higher levels of protection through provisions going beyond these requirements (known as "TRIPS-plus" standards). At the same time, Egypt was eager to conclude bilateral trade agreements with the United States and European Union to increase access of Egyptian products to those markets. Since the early 1990s, Egypt had embarked on an ambitious program of economic and financial reforms that entailed important trade liberalization measures, including concluding FTAs. At this time, however, the FTAs being concluded by developed countries with developing countries often included TRIPS-plus standards.

How well did Egypt manage to reconcile its international role as a developing country and the demands placed upon it by the bilateral and regional trade liberalization agenda?

### *Domestic implementation of the TRIPS Agreement*

The TRIPS Agreement is a framework agreement, to be implemented through national laws. In this regard, the TRIPS Agreement leaves some flexibility to member states. Discussions on a draft law to implement the TRIPS Agreement started in Egypt in the late 1990s and the law was finally enacted in 2002 (Law 82 of 2002). Discussions on the draft law were

controversial in Parliament, particularly in relation to the issue of TRIPS and public health. Egyptian policymakers were particularly concerned with the effects of the introduction of patent protection on pharmaceutical products, in view of the country's sizeable generic industry, mostly state-owned, and because public health was a sensitive issue within Egyptian public opinion. Article 18 of Law 82 reflected this concern as it provided for the creation of a "Drug Stability Fund" in order to "maintain stability in the prices of drugs [...] with a view to achieve health development and to guarantee that drug prices are not affected by incidental changes" (Article 18 of Law 82).

In the area of patents, Egypt's implementation of the TRIPS Agreement reflects a rather minimalist approach. In effect, the chapter on patents of the Egyptian legislation integrates many of the public health related flexibilities of the TRIPS Agreement. This is evident both in relation to the exclusions from patentability (Article 2 of Law 82) and the provisions for compulsory licenses – the use of the subject matter of a patent without the authorization of the rightsholder under certain conditions (Articles 23 and 24). Parallel importation is also permitted by Law 82 and an international exhaustion of rights is provided (Article 10). Egypt also availed itself of the ten-year transitional periods it was entitled to under the TRIPS Agreement, particular in relation to the protection of pharmaceutical products by patents. This was not the case of Brazil, for example, which implemented this obligation starting 1995 and incorporated several TRIPS-plus provisions (Guise et al. 2010).

In the area of copyright, the substantive provisions are more mixed from an A2K perspective (El Badrawi and El Saghir 2008). On the one hand, Law 82 (Article 160) stipulates a fifty-year term of copyright protection in accordance with the minimum TRIPS requirement. It includes a broad provision for the compulsory licensing of copyrighted works for reproduction or translation or both (Article 170). It also contains an interesting provision on translation (Article 148), which stipulates that copyright and translation rights into another language shall lapse with regards to the translation into the Arabic language, unless the author or the translator himself exercises this right directly or through a third party within three years of the date of first publication of the original or translated work (Law 82, 2002). This provision has important implications in view of the importance of the role of translation in access to knowledge, in particular for educational material.

On the other hand, the Egyptian legislation included provisions on technological protection measures (TPMs) for the enforcement of copyright which went beyond what was required by the TRIPS Agreement, as TRIPS did not contain provisions on TPMs. Thus Article 181, paragraph 5, includes sanctions against the manufacturing, assembling or importing for the purpose of sale or rent of any device, tool or implement especially designed or made to circumvent a technical protection measure, such as encryption or the like, used by the author or the owner of the related right (Law 82, 2002). This article reflects provisions contained in the 1996 WIPO Internet Treaties, although Egypt is not a party to them. Another copyright provision exceeding Egypt's TRIPS obligations relates to the protection of databases. In this regard, Article 141 of Law 82 extends copyright protection to both original databases, as required by TRIPS, but also to non-original ones whose selection is by mere virtue of "any other personal effort deserving protection."

Overall, Egypt implemented the TRIPS requirements in a manner that integrated the main public policy flexibilities in the Agreement relevant to A2K objectives and priorities. Copyright obligations exceeded in some aspects TRIPS requirements, such as in relation to TPMs and databases. This could be dealt with in any future revision of the law. It should also be seen in connection with a perception at the time that the presence of important cultural industries in Egypt (publishing and audiovisual production) could possibly benefit from such strengthened copyright protection.

It is important to note, however, that despite the fact that the Egyptian legislation incorporates many TRIPS flexibilities relevant to public policy objectives in areas such as public health and education, the government has not seen fit to use such flexibilities until now. Egypt has never, for instance, issued a compulsory license for access to medicines. So the incorporation of flexibilities in the Egyptian legislation, while a positive step, must still be complemented by efforts to consider the possible use of such flexibilities.

### *EU Association Agreements and Action Plans*

While negotiating FTAs as well, Egypt tried to the extent possible to avoid new IP obligations going significantly beyond the requirements of the TRIPS Agreement. These efforts were largely successful in the case of European Union and European Free Trade Association trade agreements.

In the context of the Barcelona process launched in 1995, which envisages the creation of a Euro-Mediterranean Free Trade Area (EMFTA) by

2010, Egypt was one of several Arab countries to conclude bilateral Euro-Mediterranean Association Agreements (AA) with the EU.[7] The Association Agreements have a comprehensive scope covering a large variety of political, economic, social, cultural and financial co-operation themes, including free trade and IP (El-Said 2007, Santa Cruz 2007). They typically contain a general provision on intellectual property, requiring the signing countries to provide "suitable and effective protection of intellectual property rights, in line with the highest international standards of IP protection" (EU-Tunisia AA and, EU-Morocco AA, Article 39.1). This vague wording leaves it unclear to which standards this formulation refers: EU standards, WTO standards or WIPO standards? This lack of a precise definition could be used in the future to induce AA countries to implement new international IP standards, which they are not currently bound by. Egypt appears to have reached a more favorable formulation in its negotiations with the EU. Article 37 of the EU-Egypt AA makes reference only to "prevailing international standards."

As is typical in such Agreements, the EU-Egypt AA also contains a specific annex on IP requiring adherence to a certain number of multilateral IP conventions, which are administered by WIPO, by the end of the fourth year after the AA's entry into force.[8] Adherence to these conventions is not required by the TRIPS Agreement and thus can be considered a "TRIPS-plus" obligation. It is worth noting, however, that most of these treaties are of a procedural nature in the area of IPR administration and do not have significant substantive implications; the exceptions are the UPOV Convention and the Rome Convention.[9] As of 2009, Egypt had adhered to three of these instruments: the Patent Cooperation Treaty in 2003, the Nice Classification Agreement in 2005, and the Madrid Protocol in 2009. Procedures to adhere to the remaining conventions have been engaged.

7 The European Union has concluded Association Agreements with Tunisia (1998), Morocco (2000), Algeria (2001), Lebanon (2002), Jordan (2002), Egypt (2004) and, on an interim basis, the Palestinian Authority (1997). The text of these agreements can be obtained from: http://ec.europa.eu.

8 These conventions are: 1) The Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations (Rome, 1961); 2) The Budapest Treaty on the International Recognition of the Deposit of Micro-organisms for the Purposes of Patent Procedure (1977, amended 1980); 3) The Patent Cooperation Treaty (Washington 1970, amended in 1979 and modified in 1984); the International Convention for Protection of New Varieties of Plants (UPOV) (Geneva Act 1991); 4) The Nice Agreement concerning the international Classification of Goods and Services for the Purpose of the Registration of Marks (Geneva Act 1977 and amended in 1979); and 5) The Protocol relating to the Madrid Agreement concerning the international registration of Marks (Madrid 1989).

9 Adherence to the UPOV Convention, in particular, restricts developing countries' use of one of the flexibilities in the TRIPS Agreement. TRIPS Article 27.3(b) requires that members shall provide for the protection of plant varieties either by patents or by an "effective sui generis system," or by any combination there of, without specifying UPOV in particular. For further detail, see commentary on Article 27.3(b), Chapter 2 of UNCTAD and ICTSD 2005.

In addition to the EU Association Agreement, Egypt has also signed, in 2007, an Action Plan as part of the European Neighbourhood Policy (ENP). The ENP is a new framework of co-operation with neighbouring countries developed by the EU in 2004.[10] The central element of the ENP is the agreement on bilateral ENP Actions Plans between the EU and each partner. The ENP Action Plans include political and economic measures with short and medium-term priorities. IPRs are one of the areas addressed by these Actions Plans. For instance, the ENP Action Plans concluded with Lebanon and Morocco affirm the commitment of both countries to "ensure a level of protection [of intellectual and industrial property rights] similar to that of the EU" (EU-Morocco Action Plan, 2.3.5(36)). The ENP reached with Tunisia instead echoes the language of the AA in committing Tunisia to "ensure a level of protection compatible with the highest international standards" (EU-Tunisia Action Plan, 2.3.5(36)). The EU-Egypt Action Plan contains neither of these formulations (EU-Egypt Action Plan, 2.2.4(c)). In the area of enforcement, most ENP Action Plans also contain language committing countries to reinforce the fight against piracy and counterfeiting. Such formulations were included in the ENP Actions Plans with Jordan, Lebanon and Tunisia (EU-Jordan Action Plan, 2.3.6(35), EU-Lebanon Action Plan, 2.3.5(c), EU-Tunisia Action Plan, 2.3.5(36)). The ENP Action Plan with Egypt includes similar language, which may be considered of a TRIPS-plus nature, although it does not create specific legal obligations (EU-Egypt Action Plan, 2.3.4(c)).

### *European Free Trade Association Agreement*

The European Free Trade Association (EFTA) is an intergovernmental organization established in 1960 to promote free trade and strengthen economic relations between its member states: Iceland, Liechtenstein, Norway and Switzerland. In 2007, Egypt concluded a free trade agreement with the EFTA, nearly ten years after negotiations on such agreement had started.[11]

The EFTA free trade agreements feature IP clauses and annexes similar to those contained in the EU Association Agreements, particularly in relation to the international IP treaties that countries are required to accede to. However, they also go beyond the EU-AA in some respects. For example,

10 The ENP applies to the EU's immediate neighbours by land or sea: Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Libya, Moldova, Morocco, the Palestinian Authority, Syria, Tunisia and the Ukraine.

11 In past years, several other Arab countries have concluded FTAs with the EFTA, including: Morocco (1997), the Palestinian Authority (1998), Jordan (2002), Lebanon (2004), Tunisia (2004).

one EFTA free trade agreement stipulates that the concluding country "will do its utmost to accede to the international conventions concerning IPRs to which EFTA states are Parties" (EFTA-Tunisia 2004, Annex 5, Article 2.3). In addition, several of these EFTA free trade agreements contain an article on "additional substantive standards," which typically requires States Parties to ensure patent protections on a level similar to that prevailing in the European Patent Convention (EFTA-Morocco 1997, Annex V, Article 3.1, EFTA-Jordan 2001, Annex VI, Article 3, EFTA-Tunisia 2004, Annex V, Article 3). Some EFTA free trade agreements also contain TRIPS-plus obligations in relation to data exclusivity (EFTA-Lebanon 2004, Annex 5, Article 4, EFTA-Tunisia 2004, Annex V, Article 4).

Again, it is noteworthy that the EFTA Agreement with Egypt contains none of the examples of language mentioned above. It is to a great extent similar to the level of obligations Egypt has accepted in the AA with the EU, particularly in relation to the international conventions the country should accede to (EFTA-Egypt 2007). The EFTA Agreement with Egypt also addresses a number of matters that are not addressed in the AA. However, these mostly reaffirm TRIPS standards in a manner consistent with the Egyptian law but in some cases exceed it. For example, the EFTA Agreement grants a fifteen-year term of protection for industrial designs (Article 3a), while the Egyptian law grants only a ten-year term of protection that can be extended for a further period of five years, when the owner of the industrial design applies for renewal within the last year of the protection period.

### *Trade and investments relations with the United States*

Apart from the EU and EFTA, trade and economic relations between the United States and Egypt have acquired increasing importance in recent years. In May 2003, then-President George W. Bush proposed a Middle East Free Trade Initiative, which entailed a plan of graduated steps to increase trade and investment between the US and Middle East countries. This proposal was made with a view to establishing a Middle East Free Trade Area (MEFTA) by 2013. According to this plan, the US would deepen economic ties with countries of the region, through supporting WTO accession of non-WTO members, as well as establishing trade and investment frameworks (TIFAs), bilateral investment treaties (BITs), and comprehensive FTAs (USTR 2003).

Egypt concluded a bilateral investment treaty (BIT) with the US, which entered into force in 1992 (US-Egypt 1986). Under BITs, IPRs are treated as an investment. It has been argued that this may create difficulties for countries in using certain flexibilities in international IP agreements to achieve public policy objectives, such as compulsory licenses. Arguably these could run counter to the limitations enshrined in these bilateral investment treaties on possible measures to be taken against foreign investments (Correa 2004).

The Trade and Investment Framework Agreements (TIFAs) are brief documents outlining shared goals and instituting bilateral Trade and Investment councils to explore a more substantive trade agreement. They typically have a general pre-ambular provision on IP. For instance, the US-Lebanon TIFA includes the language: "recognizing the importance of providing adequate and effective protection and enforcement of intellectual property rights and of membership in and adherence to intellectual property rights conventions" (US-Lebanon 2006, Preamble para. 11). As with the EU's Association Agreements, it is not clear which conventions are referred to in this formulation. The concluded FTAs which are the ultimate goal of this process, however, typically spell these terms out in more detail. For instance, the US-Jordan FTA contains four pages of substantive commitments in the area of intellectual property (US-Jordan 2000, Article 4).

The IP provisions in the FTAs concluded with Morocco (US-Morocco 2004, Article 5) and Bahrain (US-Bahrain 2004, Article 14) are of much more comprehensive nature in comparison with those with Jordan (US-Jordan 2000, Article 4) – even more so if compared with EU-AA or EFTA agreements – and concern all areas of intellectual property rights (IPRs) such as patents, trademarks and copyright. These TRIPS-plus provisions significantly erode the flexibilities available to countries under the TRIPS Agreement (Fink and Reichenmiller 2005). Examples of such TIRPS-plus provisions include narrowing the grounds of exclusion from patentability, limiting the grounds of issuance of compulsory licenses, obliging parties to provide for an extension of patent term to compensate patent owners for regulatory delays and envisaging longer protection terms for copyright.

Although Egypt signed a TIFA with the United States in 1999, nearly ten years later no free trade agreement has resulted (Sharp 2007, 20). A limited protocol to establish Qualified Industrial Zones in Egypt was signed by Egypt,

the United States and Israel in December 2004. It removes all US tariffs on goods produced in these Egyptian zones using a percentage of Israeli inputs. However, it falls short of a comprehensive free trade agreement. In this regard, it is yet unclear whether formal negotiations toward concluding such an agreement might begin in the near future. It is widely recognized by both parties that IPRs would be one of the thorny areas of negotiations, not only in relation to patents and public health, but also in relation to other issues such as criminalization of end-use piracy. Even staunch supporters of a US-Egypt FTA caution against the difficulties in this area. As stated by Galal and Lawrence: "Some of these provisions in a US-Egypt FTA would go further than TRIPS and could increase Egyptian obligations in what is still a controversial area. It would behoove Egyptian negotiators to be particularly wary" (Galal and Lawrence 2005, 38).

### *Egypt's TRIPS implementation in the balance*

As the previous section demonstrates, Egypt has, in general, successfully resisted significant new TRIPS-plus obligations in both its national implementation legislation, as well as through bilateral agreements. This situation stands in stark contrast with that of many other developing countries, and particularly a number of Arab countries, which have accepted significant new obligations in the area of IP as a result of trade agreements with the EU, EFTA or the US.

There might be two important reasons behind this relative success. First, Egypt has been one of the active developing countries in global trade and IP deliberations. It has thus been able to harness the expertise acquired in this area at the multilateral level and use it in bilateral negotiations with developed-country partners. Second, because of the greater size of its domestic market and its economic as well as political weight, Egypt has had greater leverage in negotiations with developed countries toward refusing extensive TRIPS-plus obligations.

From an A2K perspective, this negotiating position means that Egypt has a noticeable policy space to formulate and adopt public policies supportive of A2K objectives in areas such as public health, education, environment, and information and communications technology. The final section of this chapter will examine how Egypt might best take advantage of this policy space to promote access to knowledge domestically, as well as at the international level.

## Toward A2K-supportive public policies

As we have seen, Egypt has played an important role in the emergence of the A2K movement at the international level, repeatedly advocating a balanced IP regime that serves the interests of developing countries, both before and after TRIPS. Its careful avoidance of incurring significant TRIPS-plus obligations in bilateral treaties, and balanced implementation of international IP norms and trade obligations have created the foundation to further pursue A2K-supportive policies at the domestic level. To date, however, this potential has not been fully realized. The final section of this chapter suggests ways in which Egypt's international involvement in A2K could become fulfilled domestically as well.

### *The adoption of A2K as a public policy objective*

In reality, there are a wide range of policies, initiatives and measures in Egypt that closely relate to A2K objectives without carrying explicitly this denomination. These efforts are carried out by government agencies or civil society organizations in areas such as education, ICT, culture, health, and knowledge diffusion more generally. Among the many examples, we find high-profile initiatives by the Ministry of Communication and Information Technology (MCIT) in the area of e-education – such as the computer for every student initiative, the IT clubs in the governorates – and the annual Reading for All Festival sponsored by the First Lady of Egypt starting 1990. These activities and initiatives could greatly benefit from being brought together under the umbrella concept of access to knowledge.

The adoption of A2K as a public policy objective in Egypt would create an important momentum toward establishing a cohesive framework for activities and initiatives that are at present fragmented and dispersed. It would also ensure a greater visibility for traditional A2K-related policies, which have not received adequate attention in Egypt. The issue of open source software is a case in point. As a later chapter in this volume will discuss in more detail, Egypt significantly lags behind in this area compared to both developed and developing countries, particularly in relation to use by government agencies. Other A2K priority issues include the promotion of Creative Commons Licenses, the use of exceptions and limitations in the area of copyright, as well as other public policy flexibilities contained in IP legislations, but little used in practice.

The adoption of A2K as a public policy objective will also require a number of efforts, starting with raising awareness about the importance for A2K for development. Brazil in this regard is an interesting example of a leading advocate of A2K at the international level, while also having a very dynamic domestic A2K movement. A similar synergy between the international and domestic levels would be desirable in Egypt. The adoption of A2K as a public policy objective should not be considered a mere slogan. Rather, this commitment implies a number of related policy choices, and should induce changes in a number of regulatory regimes and policy areas. The latter contributions of this volume suggest a number of specific reforms or measures to ensure that such regimes and policies are supportive of A2K priorities in the context of a long-term process.

The convening of a national conference on A2K could contribute toward achieving this objective in relation to awareness and advocacy. Such a conference would act as a catalyst for many initiatives and groups that are currently involved in A2K-related activities in a loose and dispersed manner. It could also be pivotal in advancing the A2K agenda in Egypt while contributing toward identifying Egyptian priorities and pressing issues on the A2K agenda. The A2K conferences organized by the Information Society Project at Yale Law School since 2006 have had such a galvanizing effect on the A2K movement at the international level. A national conference could have a similar impact on A2K efforts in Egypt while providing a valuable link between national and international advocacy efforts. The ultimate goal of such a conference should be to cement national commitment to access to knowledge as an explicit goal of public policy.

### *Toward greater domestic coordination*

The adoption of A2K as a public policy objective could also spur efforts toward greater domestic coordination. Access to knowledge is a multidimensional issue cutting across public policy areas in many fields such as education, health, environment, trade, IP and ICT. These areas fall under the responsibility of different government ministries and agencies, which often formulate and implement public policies without sufficient interagency coordination and consultation. As a result, these government departments may pursue contradictory objectives at the national and international level.

The fragmentation of national policymaking is particularly apparent in the area of IP, which comes under the jurisdiction of a myriad of government departments and agencies. In this regard, Law 82 of 2002 defines the responsibilities of different government departments in the area of IP. These include the Ministries of Trade and Industry for TRIPS and trademarks, Higher Education and Scientific Research for patents, Culture for copyright and ICT for computer software. The Ministry of Justice has also been a central player in the drafting of IP legislation, and the Ministry of Foreign Affairs in international negotiations in WIPO in particular. This fragmentation is not specific to Egypt and is present in many countries including developed and developing countries.

Efforts toward greater coordination have been made in Egypt in past years, particularly in the area of trade. In 2000, the Ministry of Trade established a Central Department for WTO affairs as well as a Committee that follows current negotiations in the WTO, including negotiations in the context of the TRIPS Council. The sub-committee on TRIPS-related matters comprises representatives of different government departments and agencies in charge of TRIPS-related issues. However, this coordination mechanism does not extend to IP issues included in bilateral and regional FTAs or those discussed in the context of WIPO.

In 2006, the Ministry of Foreign Affairs established a coordination mechanism on IP issues in general. The mechanism is consultative in nature so as not to interfere with the mandates or attributions of any of the existing government departments or agencies. It includes officials from all relevant government agencies and departments dealing with IP issues, and meets several times each year to examine IP issues raised at the international level with a view to exchange views and coordinate positions.

Interministerial and interagency coordination is required in relation to public policies which have a cross-sectoral effect in different areas of development such as environment or trade. It has not been easy to achieve in the area of IP, however, as this issue has only recently come into the public spotlight (Abdel Latif 2005). There are a number of interesting experiences in interministerial coordination both in developing countries and in developed countries to learn from in this regard, in the area of IP and beyond (OECD 2008). So there is much room in Egypt to continue efforts at improving coordination at the domestic level, ensuring that positions adopted on A2K-related issues

particularly in international fora are consistent and supportive of development goals and objectives.

***Balancing knowledge production and consumption***

Egypt is both a producer and a consumer of knowledge goods. It is a producer of knowledge goods mainly in the area of creative industries such as publishing, cinema and audio-visual services in general. It is also ultimately a developing country, and thus predominantly a consumer of scientific and technological knowledge. The diversity of private sector and civil society entities engaged in domestic IP debates reflects this dual role.

On the one hand, private sector organizations representing creative industries – such as the Egyptian Federation of Publishers and the Movies section of the Egyptian Federation of Industries – in addition to a number of international IP right-holders associations which have been present in Egypt for some time – such as the Society of Authors and Composers, which goes back to the 1930s, or the local branch of the Association Internationale pour la Protection de la Propriété Intellectuelle (AIPPI). On the other hand, an increasing number of public sector entities are representing the other side of the spectrum – such as libraries on top of which comes the Bibliotheca Alexandrina, universities, and NGOs such as the Egyptian Initiative on Personal Rights (EIPRs) in the area of health and access to medicines.

Private sector organizations, particularly local representatives of foreign rightsholders such as multinational software or pharmaceutical companies, tend to push for stronger IP protections, which provide greater rights for IP rightsholders. NGOs and consumer organizations have on the contrary argued against such an increase in the scope of IP protection and advocated the need to use the flexibilities in IP instruments to serve the public interest.

The formulation of public policies in Egypt supportive of A2K objectives should fully take into account this reality. The development of creative industries in Egypt is not mutually exclusive to enhanced A2K. As later chapters in this volume will show, the weaknesses of these industries are often the result of other factors than low enforcement of IPRs. Furthermore, open source innovation and collaboration models are increasingly playing a role in business development of some newer creative industries, such as software.

It is for legislators and policymakers to arbitrate between the claims of these competing forces and adopt policy and laws that give paramount consideration to Egypt's level of development as a developing country and economic and social circumstances, in which the dissemination of knowledge is the most important priority.

## Conclusion

The advent of the TRIPS Agreement transformed the global knowledge architecture, globalizing IPRs and expanding IP protection significantly. Efforts to advance the interests of developing countries in this field have not always succeeded. The Doha Declaration on TRIPS and Public Health, the WIPO Development Agenda and the emergence of the A2K movement, however, are important achievements to which Egypt has significantly contributed. Not surprisingly, given its long history of diplomatic engagement in this field, Egypt has played an important role in the emergence and development of the access to knowledge paradigm at the international level. The implementation phase of the WIPO Development Agenda brings both challenges and opportunities for developing a number of A2K-related priorities and making it a tangible reality, and Egypt should continue to play a key role in this area.

Egypt's international leadership in A2K issues would also benefit greatly from increased awareness and advocacy on access to knowledge at the domestic level. As in many developing countries, the prioritization of access to knowledge at the international level has not always translated into domestic policy. Doing so will require strengthened coordination among the various ministries and agencies with responsibilities in the areas of health, trade, education, culture and foreign affairs. In its trade and IP agenda, meanwhile, Egypt should continue to be wary of adopting significant new TRIPS-plus commitments that could have an adverse impact on its development efforts and public policy objectives, preserving the policy space it currently enjoys to pursue A2K-supportive policies.

Finally, Egypt should consider adopting access to knowledge as a public policy objective, to ensure that A2K considerations are prioritized at both the national and international level. This in turn requires raising awareness about the ways in which access to knowledge issues cut across many policy areas. The present volume is certainly a valuable contribution to such efforts. It may also be a trigger to the organization of a national A2K conference, which should mirror

the priorities and issues debated at the international level within a domestic focus, taking into consideration Egypt's national priorities, circumstances and development objectives. It is ultimately a strong government commitment that could put access to knowledge at the heart of public policies.

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CHAPTER THREE

# Access to Medicines in Egypt: A Human Rights Approach to IP, Trade and Health

Hossam Bahgat & Rebecca Wright*

When the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was ratified by Egypt in 1995, significant changes resulted in the domestic intellectual property (IP) regulations. A new IP law was passed in 2002 to ensure the country's IP regime was TRIPS-compliant and to update the previous law that had been in place since 1949. Such developments ushered in a new era of IP protection in Egypt that, in turn, has posed challenges to the protection of access to medicines.

Adopted by the World Trade Organization (WTO) in 1995, TRIPS is the most comprehensive multilateral agreement addressing IP protection and enforcement. TRIPS raised the bar on pharmaceutical patent protection in developing countries, granting patent-holding drug companies the exclusive right to produce and market new drugs for a period of 20 years. During this time, the patent prevents competitors from producing less expensive generic versions of the same medicine.

This chapter explores the ways in which Egypt, the Arab region's most populous nation and also its largest drug consumption market, is managing to maintain relatively low prices. To date, Egyptians continue to have access to relatively inexpensive medicines because of government price controls and subsidization. In recent years, however, the Egyptian government has been pressured to implement "TRIPS-plus" provisions that would further limit pharmaceutical competition. These pressures have been exerted both in bilateral trade negotiations and in the form of protracted and expensive litigation by multinational pharmaceutical manufacturers against both the Ministry of Health and local generic drug producers. In the face of such pressures, it is essential that Egypt adopt

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a unified and carefully considered policy focused on guaranteeing access to medicines.

The best foundation for such an approach is to base Egypt's access to medicines policy explicitly in the human rights framework. Having ratified the International Covenant on Economic and Social Rights (ICESCR) in 1982, which commits States parties to protect the right to health, Egypt is legally obligated to ensure medicines are available and affordable to all individuals within its jurisdiction. In a March 2009 report, the UN Special Rapporteur on the right to health, Anand Grover, emphasized that "access to medicines forms an indispensable part of the right to health" (Grover 2009, para. 10). The report of the Special Rapporteur specifically addressed the ways in which Free Trade Agreements (FTAs) and TRIPS-plus provisions negatively impact access to medicines and called on states to resist such negative effects and to develop and implement laws and policies that protect the right to health. As recommended by the Special Rapporteur, the Egyptian government should develop a consistent and predictable policy on public health, trade and intellectual property that is firmly based on, and informed by, human rights. A rights-based IP policy would require Egypt to ensure that its laws and practices explicitly affirm the primacy of human rights over trade and IP related interests. In addition, government officials from multiple departments must coordinate their approach so that policies regarding issues such as drug pricing and patents are underpinned by Egypt's commitment to respect, protect and fulfill the right to health. Finally, a rights-based approach also necessitates greater transparency and public participation so that civil society and all interested stakeholders can be involved. Only with this firm foundation will Egypt be able to resist increasing pressures to place the commercial interests of pharmaceutical manufacturers over the obligation to protect the right to health.

This chapter proceeds in four parts. The first part assesses the current level of access to medicines in Egypt within the context of the country's pharmaceutical industry and public health policies. Next, the authors present key court cases related to Egypt's implementation of its TRIPS obligations, examining the extent to which judges have been sensitive to the implications of IP law for access to medicines. This second part concludes that Egyptian judges have, so far, done well in limiting the negative impacts of TRIPS on drug affordability, but without explicitly addressing the right to health. Third, the chapter looks at the increasing pressures being exerted by developed countries to limit pharmaceutical competition in Egypt

through bilateral trade negotiations. Here we find cause for concern, given the uncertain status of public health priorities in trade negotiations. In the fourth and final part, we conclude by advocating a way forward for Egypt that is based explicitly on the prioritization of human rights commitments.

## Economic and policy context of access to medicines in Egypt

Egypt has a subsidized healthcare system with state insurance policies covering most, although not all, of the population. Reasonably priced medicines have long been widely available in Egypt, in part because of a strong local pharmaceutical industry. Additionally, drug prices are state-controlled through an official Drug Pricing Committee, which sets the retail price for drugs. The government also subsidizes medicines to ensure that they remain affordable. Despite that, individuals in Egypt still rely heavily on private pharmacies and many purchases are unsubsidized. It is therefore critical that the drugs available in private pharmacies are affordable, so that every sector of society is able to access needed medicines.

### *Overview of healthcare provision*

A major financer and provider of healthcare in Egypt is the Ministry of Health (MOH), which runs a nationwide system of health services ranging from outpatient clinics to large urban hospitals, providing a mixture of inpatient and outpatient care. The MOH services are subsidized through public funding and provided largely free or at a low user fee to all citizens (Rannan-Eliya et al. 1999). While such subsidization helps to protect access to medicines in Egypt, this access is undermined by extremely low levels of government spending on healthcare. The MOH-commissioned National Health Accounts (NHA) of 2005 found that the government only allocated 4.4% of public expenditure to the MOH (MOH 2006).

Efforts have been made to expand and improve public healthcare through the state's Health Insurance Organization (HIO). The HIO is a social insurance agency that was established in 1964. It collects compulsory contributions from all employees and employers in the formal sector. Despite the existence of this program, and a stated goal to cover all Egyptian citizens under the HIO, insurance coverage in Egypt remains fragmented and incomplete. While 77% of Egyptians are covered by some form of health insurance, this figure includes adults with work related insurance, children who receive school

health insurance and newborns who receive specialized insurance from the government (El-Zanaty and Associates 2002, 62). Public coverage through the HIO is currently limited to approximately 50% of the population, focused mainly in the small urban, formal sector (Salah 2007, 28).

Because of the lack of quality public healthcare and insurance coverage in Egypt, and the consequent reliance on private pharmacies, the Egyptian population has a higher than average household spending on healthcare; out of pocket expenditure is as high as 58.8% of total medical expenditure in Egypt according to 2006 data (WHO 2009). The poorest economic bracket reportedly devotes the highest percentage of household expenditures to medical treatments at 10.8% per year (Rannan-Eliya et al. 1999, 30). Egyptian citizens in the low-income bracket are not, therefore, guaranteed access to medicines despite existing efforts.[1]

### *Overview of the pharmaceutical market*

Patients in Egypt have traditionally benefited from low prices on drugs, due in large part to a strong local generic pharmaceutical industry and a price control regime run by the state. In 2006, The American Chamber of Commerce in Egypt reported that "Egypt's retail drug prices are currently among the lowest in the Middle East" (AmCham 2006, 23). The same report noted how the profits of pharmaceutical producers in Egypt have been negatively affected by "government efforts to ensure the affordability of drugs for low-income citizens" (AmCham 2006, 31).

Egypt has built a pharmaceutical industry that is a dominant force within the Middle East and North Africa (MENA) region. In 2005, Egypt's private pharmaceutical market was judged to be the second most valuable in the Middle East region (AmCham 2006, 10). Its local drug manufacturing industry supplies 30% of the market in the MENA region, making it the largest domestic drug manufacturing base in the area (AmCham 2006, 10).

There are three main categories of pharmaceutical companies in Egypt: 1) public sector companies affiliated to the Drug Holding Company (DHC); 2) local private sector companies; and 3) multinational corporations (MNCs). Approximately half of the drug sector market share, in dollar terms, is

1 A USAID study also found that out-of-pocket spending was higher for women than for men (the latter were more likely to have some form of insurance through employers) and that the highest medical expenditures in Egypt were among individuals aged 50-69 (quoted in Rannan-Eliya et al. 1999, 28-29).

controlled by 10 companies – six of which are MNCs and four of which are local companies (AmCham 2006, 11). Unpublished information for the year 2005 from the DHC Sector of Planning, Systems and Statistics shows that although the public sector accounts for only 13.6% market share in dollar terms, it covers 23.1% of the local drug consumption needs (quoted in Dessouki 2008, 278). The remainder of the market consumption need is covered by the MNCs, with around 20.6% share; local private companies, with 51.5% share; and imported drugs, with 4.9% share (ibid.).

Although Egypt's production of medicines covers more than 90% of its domestic consumption, these medicines are not always the most up to date or technologically advanced drugs (Fayyad 2002). Reflecting limited domestic manufacturing capacity, at least 85% of chemical compounds are imported for assembly, packaging and distribution in Egypt (Abdelgafar 2006, 107, AmCham 2006). Average spending on research and development (R&D) is limited to 1.3% of total spending for public sector companies and 3% for private ones (Abdelgafar 2006, 107). Despite recurrent pledges since the 1960s by foreign subsidiaries to introduce new technologies for domestic manufacture in Egypt, these promises remain unfulfilled (ibid., 108). In the absence of such technologies and bearing in mind the poor level of R&D, the learning process remains slow in the sector and reinforces dependency on foreign materials and technologies. This situation is becoming more critical with the enforcement of the IPR protection provisions of the TRIPS Agreement and will threaten Egypt's ability to protect the right of all the individuals within its borders to enjoy "the highest attainable standard of physical and mental health" (ICESCR 1966, Article 12).

### *Drug accessibility and availability*

Acknowledging the importance of low-priced medicines, the MOH requires pharmaceutical manufacturers to supply government healthcare facilities with large quantities of discounted medicines through institutional sales, also known as national tenders or reverse auctions. Such sales mean that the Egyptian government often pays less than what buyers on the private market pay for the same medicine (AmCham 2006). The MOH typically purchases only the lowest-priced medicines, which are then dispensed in the internal pharmacies of MOH facilities.

A study commissioned by the World Health Organization (WHO) and Health Action International (HAI) in 2007 found that Egypt achieved low

public sector procurement prices compared to an international reference price (WHO/HAI 2007). Based on the standard price survey methodology, the study compared drug prices in Egypt with reference prices taken from the *2003 Management Sciences for Health (MSH) Drug Price Indicator Guide*. This guide draws from price lists of large, nonprofit generic medicine suppliers to developing countries. Researchers classified as unaffordable any of the public sector patient prices that were over 1.5 times the international reference price. Egypt's price ratio for generic drugs surveyed in the MOH's Central Medical Stores ranged from 0.4 to 5.8 with a median price ratio of 1.18 in relation to the reference price, setting it well below the affordability cut-off point of 1.5. The study, which included 34 essential substances based on the WHO/HAI standard core list of medicines, also found that the cost of a month's treatment using generic medicines costs the equivalent of only half a day's wage of an unskilled Egyptian worker (WHO/HAI 2007).

While the findings of the survey appear promising in the case of Egypt, it is important to note several qualifying circumstances. First, patients at public facilities in Egypt generally pay a service fee in which medicines are included. Public sector prices thus do not reflect the full price paid by the consumer, but simply the procurement price paid by the MOH. Second, figures on availability in public facilities are incomplete. The WHO/HAI study found that the procurement price list for the MOH Central Medical Stores contained only 20 of the 34 standard substances studied in the survey. In addition, data was not collected from areas outside Cairo, but was obtained from only four government facilities that were all within the Greater Cairo Area (WHO/HAI 2007). This limited geographical scope likely biased the findings, as government spending is lower in poorer, rural governorates. There is therefore a greater likelihood that shortages would be experienced in the areas not covered by the study. Despite these gaps, this measure of affordability does give an indication of the low prices public facilities pay for medicine relative to wages in Egypt.

Public sector firms play an important role in making affordable drugs accessible. While these firms are commonly criticized for the "poor profitability, the relative inefficiency, and the low labor productivity," they constitute 30% of the local drug consumption needs at affordable prices (Abdelgafar 2006, 98). Throughout the 1990s, however, capital investments in the public pharmaceutical sector have been decreasing by an average of 2.4% each year (ibid., 106). This has commonly been attributed to the

government's general trend to promote privatization, but also to the MOH's recurrent failure to reimburse these companies for purchased drugs, amounting to LE350 million in 2000 (ibid.).

While the public pharmaceutical sector is imperfect, the private pharmaceutical sector creates even greater barriers for access to medicines. According to the WHO/HAI study, private sector retail pharmacy prices for the lowest priced generics were, on average, 68% higher than public sector procurement prices for the same medicines (WHO/HAI 2007, 3). The study also showed that an unskilled government worker would pay between 0.1 and 12.6 days' wages for a month's treatment with standard therapies at a private pharmacy. In one example, treatment for depression with fluoxetine cost roughly 12.6 days' wages with the innovator brand drug and two days' wages with the lowest priced generic substitute (WHO/HAI 2007, 2). Such prices place a heavy burden on families with modest incomes.

### *Drug pricing system*

The Egyptian government uses a variety of strategies to keep many medicines at an affordable price, including drug pricing and subsidization through the public sector. According to a study by the US-based National Economic Research Associates, price controls in Egypt manage to keep drug prices at a quarter of those in the United States, and at half those in other developing countries (Abdelgafar 2006, 136).

The MOH has compiled a list of "essential" and "non-essential" drugs which is updated every two years. In a media interview, the Minister of Health, Hatem El-Gabali, explained that his Ministry:

> [C]ontrols drugs on the essential list, including insulin, antibiotics, cardiac, hyper-tension and hypo-tension drugs. [...] Other drugs, such as vitamins, are on the non-essential list, and the ministry controls the pricing, and is responsible for the availability, of only one or two kinds. Other drugs are not regulated by the ministry at all, because they are considered non-vital to the people's well being. (Leila 2006)

While the MOH is charged with negotiating procurement prices for drugs purchased for the public sector, it has also established a Pricing Committee to set the retail price at which the drug will be sold in both private and public

pharmacies.[2] The MOH's National Drug Policy mandates this committee to achieve "the availability of safe and effective drugs at the lowest possible cost [...] [by] rationalizing the drug pricing system" (MOH 2004-05). This is a cost-plus system in which the Pricing Committee fixes the retail price of the drugs based largely on manufacturing expenses, which vary according to the drug in question. Other inputs, such as taxes and profit mark-ups, are often calculated as a fixed percentage mark-up on all drugs within a given category (WHO/HAI 2007).

Ministerial Decree 314/1991 allows the MOH to set a profit margin of 15% for essential drugs and between 25% and 40% for over-the-counter drugs such as vitamins and painkillers (Ministerial Decree 314/1991, Abdelgafar 2006, 136). Although this decree is technically still in force, more recent Ministerial Decrees regarding the Pricing Committee do not make explicit reference to the concrete figures of Decree 314. For example, Ministerial Decree 148/1996, as well as its successor, Ministerial Decree 96/2004 (which is applicable today), instructs the Committee to undertake the necessary research to determine the prices of medicines "taking into account its economic cost, as well as the pricing guidelines approved by the Minister of Health" (Ministerial Decree148/1996, Ministerial Decree 96/2004).[3]

A regulatory affairs specialist, responsible for the registration of drugs in a local pharmaceutical company, explained that the process starts with companies setting their suggested price in the registration form submitted to the MOH's Pricing Committee. During the registration process, the company and the MOH engage in informal bargaining until an agreement is reached on the final retail price of the medicine (Adly interview 2009). The absence or nonimplementation of a coherent and transparent pricing policy often leads to pricing decisions based solely on the discretion of the Pricing Committee. In addition, according to Basma Abdelgafar, an expert in IP issues in Egypt, "when a product is therapeutically distinct there is

2 The Drug Pricing Committee was first established and regulated through Ministerial Decree 404/1976, which was later amended by decrees 177/1994, 148/1996 and, most recently, 96/2004.

3 The National Drug Policy directs the Pricing Committee to regulate and control drug prices based on four factors: 1) actual costs, based on costs of manufacturers/importers plus a fixed mark up; 2) control of profit margins, including standard mark-ups for importers/manufacturers, distributors, and pharmacies; 3) comparison with prices in other countries or other drugs in the same therapeutic category (benchmark or reference pricing); and 4) direct price negotiation with manufacturers of patented drugs and other single source medicines which have no therapeutic substitutes (MOH 2004-2005, 54).

greater price discretion" (Abdelgafar 2006, 136). Firms negotiating over therapeutically distinct drugs typically manage to reach a price that offers substantial profits (Adly interview 2009).

### *Subsidization policies*

The Egyptian government subsidizes a number of key commodities in order to assist lower-income families. In 2007, the government was subsidizing "278 pharmaceuticals for the treatment of chronic diseases such as tumor, renal failure, hepatitis and high blood pressure, in addition to subsidizing insulin and imported infant milk" (Egypt State Information Service 2007). The subsidies system works through the government commissioning a pharmaceutical distribution company – the Egyptian Company for the Sale of Drugs, owned by the Drug Holding Company – to distribute the medicines at set prices. Although the value of subsidy amounts to LE120 million, the government only pays around LE72 million. The LE48 million deficit is borne by the distributing company, which manages to cover for this financial shortfall by compelling pharmacies to purchase other medicines in addition to the subsidized ones, making use of its monopoly and of the pharmacies' keenness to obtain these medicines (Fayyad 2002, 254).

Article 18 of Egypt's intellectual property law also allows for the creation of a fund for the subsidization of medicines (Law 82/2002). The MOH decided to establish the medicines subsidization fund to ensure the stability of the price of medicines so that they remained accessible to the poor. In seven years since the promulgation of the law, however, the fund has not been put into operation, an oversight that also highlights the absence of a coherent policy dedicated to actively protecting the right to health (Fayez interview 2009).

## Pharmaceutical litigation and the role of the judiciary

As the previous section discussed, Egypt has adopted a number of measures to keep medicines affordable, both before and after TRIPS. These efforts have produced generally positive results, although the poor still face significant barriers, suggesting the need for more explicit emphasis on access to medicines as a human right. This second section examines the current state of Egyptian jurisprudence on IP and health, inquiring whether courts are doing their part to assure access to medicines.

Egypt's judiciary has come to play a major role in recent years in adjudicating claims related to the control of knowledge in the area of the manufacture and

marketing of medicines. Even before the TRIPS Agreement took effect with regard to pharmaceutical products in January 2005, Egyptian courts began receiving and hearing a number of important lawsuits challenging decisions by health authorities or practices of local producers of generic medicines. This section highlights three of these court cases in the period since 2001, drawing on original court documents and parties' submissions. This type of litigation is in no way exclusive to Egypt. Multinational pharmaceutical producers have been using litigation in a number of countries, both developing and developed, seeking judicial precedents establishing TRIPS-plus protections that are not explicitly contained in domestic laws or trade agreements.

In many other countries, such court cases are often high profile, attracting extensive media coverage and academic research. They also usually represent rallying points for human, patient and consumer rights groups and other civil society advocates. Those groups endeavor to use court cases to expose the strategies and motivations of large multinational pharmaceutical companies seeking to prolong their market monopoly to the maximum possible extent. Conversely, the cases reviewed in this section have received little public attention in Egypt. Research and analysis about their origins, developments and outcomes are almost nonexistent. A thorough look at these cases is essential, however, to understanding the actual effect of the TRIPS Agreement on access to medicines in Egypt.

### *TRIPS self-execution: the first legal challenge*

Notably, the first health related legal challenge filed in court after Egypt's ratification of TRIPS came from a local generic company, which protested some of the earliest steps taken by the government to implement the agreement. The case was brought by Apex Pharma against Egypt's Prime Minister and other officials in 2001, before the promulgation of the 2002 IP law. The complaint challenged the government's first decree granting exclusive marketing rights to a foreign patent applicant. Exclusive marketing rights give holders of foreign patents the sole authority to sell or distribute a substance even prior to the consideration of their Egyptian patent claim. Other companies are legally prevented from making, using or selling the same substance. The effect is a monopoly over a particular drug, as if the patent had already been granted.

The TRIPS Agreement allowed for a 10-year transitional period in relation to pharmaceutical patents. Countries availing themselves of this period were required to establish a "mailbox" as soon as the agreement entered

into force. The mailbox meant that applications for patents could be filed immediately, notwithstanding the fact that no applications would be examined until January 2005 (WTO 1994, Article 70(8)). Article 70(9) of TRIPS mandates member states in this category, including Egypt, to grant exclusive marketing rights to products whose applications are pending under the mailbox. These exclusive marketing rights remain in place for a period of five years or until the application is granted or rejected, whichever period is shorter (WTO 1994, Article 70(9)).

While TRIPS entered into force in Egypt in 1995, the mailbox was only established in the year 2000, by virtue of Decree No. 547/2000 of the Prime Minister. The Decree incorporated the relevant TRIPS provisions related to the mailbox and mandated the Chair of the Academy of Scientific Research and Technology (ASRT), the parent institution of Egypt's Patent Office, to grant the exclusive marketing rights stipulated in Article 70(9) to applicants that meet the Article's criteria. For the exclusive marketing rights to be granted, a patent application must have been filed and a patent and marketing approval given for the same product in another member state (WTO 1994, Article 70(9)).

The first such grant was issued in August 2001 for the multinational US-based company Eli Lilly, one of the world's ten largest pharmaceutical producers. The drug was Olanzapine, produced under the commercial name Zyprexa, a medicine used for the treatment of short-term schizophrenia and related psychosis. Eli Lilly had filed a patent application for the product in the mailbox in 1996 (CAJ 2003).

Apex Pharma, which had applied for the registration and marketing of a generic version of the same drug under the name Olapex, brought a challenge before the Court of Administrative Justice (CAJ), which has jurisdiction over disputes involving state authorities. The 2001 lawsuit (No. 282/56) argued that the Prime Minister had no authority to issue decrees implementing an international agreement without parliamentary approval. The plaintiffs also protested that they had intended to sell the generic product at one-fifth of the price of Eli Lilly's brand name drug, and that the exclusive market authorization would thus inhibit competition by more affordable generic versions of the same medicine (CAJ 2003). The Court, however, found against the plaintiffs on 11 March 2003, upholding the challenged decrees. The Court reasoned that Egypt, having ratified the TRIPS Agreement, came under an obligation to implement it immediately and that the appealed decree fell under the government's duty to respect its contractual obligations (CAJ 2003).

Apex Pharma appealed the decision before the Supreme Administrative Court (SAC), which is Egypt's court of last resort in administrative matters. Here they secured a favorable decision on 25 December 2004. The SAC ruling in case no. 6965/49 did not address the substantive matter of access to affordable medicines and public health policy priorities. Instead, the decision was based on the procedural ground that the government should have sought parliamentary approval before establishing the implementation regime of TRIPS. This step had, by then, actually taken place in 2002, when the government presented to Parliament the IP Law No. 82. In its reasoning, the SAC stated:

> Whereas the matters addressed by these decrees are considered to be among matters reserved in principle for the legislative authority, since they interfere with the rights and liberties of individuals; and whereas the elements of these decrees were not based on any laws, [...] the decrees therefore constituted a grave violation of the Constitution and the law (SAC 2004).

On the surface, the case appears to be a legal dispute over whether TRIPS was a self-executing treaty, where ratification is sufficient for immediate enforceability, or whether it required implementing legislation before it became part of Egyptian law. As stated, the second view ultimately prevailed and the matter resolved when the domestic IP law was adopted, including a provision regulating the mailbox and related exclusive marketing rights (Law 82/2002, Article 44). The case could, however, have held greater precedential importance had the SAC decided to address the substantive issue of the state's obligation to ensure access by citizens to affordable treatment.[4]

Nevertheless, the case retains importance as the first known incident where Egypt's judiciary became alerted to the potential disputes arising from the application of TRIPS. The outcome showed the judiciary's willingness and ability to monitor the implementation of the agreement and, in this case, to strike down government decisions. The fallout from this case continued, however, as discussed below.

4 At the time the decision was rendered, the drug in question was being sold without competition at LE300 (US$55), compared to the significantly cheaper price proposed for the generic version, which was LE60 (US$11) (Dessouki 2008, 165).

### *Round two: Eli Lilly vs Minister of Health and Others*

The broader impact of the SAC ruling in the Olanzapine case summarized above was to nullify the Prime Ministerial Decree allowing for temporary protection of pharmaceutical products during the transitional period. Apex Pharma proceeded immediately with the registration and marketing of its generic version, Olapex. Although the case was concluded in December 2004, Apex was only able to conclude the MOH registration and pricing procedures in May 2005; it was not until one year after the ruling that the generic version finally entered the market (MOH interview 2006).

At this point, Eli Lilly knew it was a matter of months before their patent application would be granted or rejected. Nevertheless its lawyers immediately sought a court injunction preventing Apex from marketing the cheaper generic. First, they filed a court motion requesting that the implementation of the SAC 2004 ruling be suspended. One week later, on 24 January 2006, they wrote to the Minister of Health requesting that the registration and marketing approvals granted to Apex be revoked pending the outcome of the new court motion. The MOH declined, stating that Olapex approvals were only granted following the SAC's nullification of Eli Lilly's exclusive marketing rights (CAJ 2008). Eventually, in April 2006, Eli Lilly filed a new court case before the Court of Administrative Justice against the Minister of Health, the Prime Minister, the Chair of ASRT and Apex Pharma arguing that it was unlawful to proceed with the marketing of Olapex pending the outcome of Eli Lilly's motion filed against the 2004 SAC decision (no. 22218/60). The suit requested that the generic Olapex be immediately withdrawn from the market, as well as financial compensation of LE5 million (US$900,000) to be paid jointly by MOH and Apex (Eli Lilly 2008). This lawsuit appears to be Egypt's first TRIPS related legal challenge by a multinational pharmaceutical corporation.

The CAJ started hearing the case in June 2006. Four months into the case, on 31 October 2006, the Egyptian Patent Office approved Eli Lilly's application and granted a patent for their brand name product, Zyprexa, until 2016, two decades since obtaining marketing approval in February 1997 (Eli Lilly 2008). Eli Lilly decided, however, to proceed with the case, demanding financial compensation for the few months in early 2006 during which the Egyptian generic was able to compete. Strategically, continuing the litigation served two purposes. First, the potential establishment of a favorable judicial precedent: specifically, that drug regulation authorities

may not approve a generic drug while a related patent dispute is active before Egyptian courts. Second, an award of damages would give health regulatory authorities a reason to become extremely cautious before registering generics in the future, for fear of similar litigation. Either outcome would effectively delay the launch of future generic drugs, decreasing competition and price reduction.

In a ruling issued on 20 December 2008, the Court found that the MOH decided to register the Egyptian generic at a time when Eli Lilly had no special rights related to the drug, since that decision was adopted only following the nullification of Eli Lilly's exclusive marketing rights; therefore, the government was not liable for any results emanating from this decision. The Court also dismissed Eli Lilly's procedural argument that the generic drug's approval was granted while a motion was still pending before courts. The ruling reasoned that the motion had no legal effect because it was filed before a civil court which had no jurisdiction over the matter, as opposed to the administrative court. The ruling avoided setting a firm precedent, but signaled that Egypt's administrative court judges were disinclined to allow the abuse of litigation as a procedural tactic to delay the entry of generic competition (CAJ 2008).

### *Data exclusivity on trial: Pfizer vs EIPICO*

In 2002, the US-based multinational company Pfizer, the world's largest research-based pharmaceutical manufacturer, attempted to use Egyptian courts in order to establish TRIPS-plus protection for data exclusivity. Data exclusivity refers to the policy followed in some countries of requiring off-patent manufacturers of a drug to independently reproduce the clinical trials demonstrating the drug's safety and effectiveness, rather than merely demonstrating that the generic drug is chemically equivalent to the one already registered. Because these trials are very expensive and time consuming, the ultimate effect of a data exclusivity policy is to delay the entry of generic competition, even after the patent has expired, or where a patent application has been denied.

The case involved Lipitor, often referred to as the world's best selling drug, used to lower cholesterol. Pfizer had registered the drug in Egypt and obtained market authorization in June 1998, submitting a patent application for it two months later. In December 2000, while Lipitor's patent application sat in Egypt's mailbox, a generic version of the drug, Ator, was registered by

the Egyptian International Pharmaceutical Industries Company (EIPICO). Pfizer decided to challenge this decision in court claiming that the generic was registered on the basis of confidential clinical data provided by Pfizer to the drug registration authorities.

Although Lipitor was not under patent in Egypt, Pfizer's data exclusivity argument asserted that: 1) such clinical test data fell under "undisclosed information" protected by the TRIPS Agreement and its predecessor, the Paris Convention of 1967; 2) drug regulatory authorities must grant exclusive rights to the originator providing this data by refraining from relying on it for a certain period of time; and 3) regulatory authorities must require generic producers to repeat the same clinical trials and regenerate the same data when attempting to register a generic version of a drug during that period of data exclusivity (Pfizer 2003), which usually lasts for five years (in the United States) or 10 years (in the European Union).

These arguments run contrary to the established practice in most developing countries, including Egypt, where generic producers are only obliged to submit to regulatory authorities data on the bioequivalence of the generic. In other words, generic producers must only show that the submitted drug works in the same way as the originator's version, implying that it meets the same safety and efficacy standards already proved by the originator's clinical trials.

According to the WHO, requiring data exclusivity and generic producers to regenerate test data as a prerequisite for registering their products is objectionable on a number of grounds. First, it would lead to significant delays in the registration and marketing of cheaper generics. Second, it would substantially raise the retail price of generic drugs, due to the high cost of reconducting these clinical trials. Third, it would violate medical ethics because it means repeating clinical trials involving humans without any scientific or public health value but for purely commercial reasons. Finally, granting data exclusivity rights would, in practice, force most generic producers to delay the launch of their products until the end of the data exclusivity period because they cannot afford to conduct the trials (WHO 2006). The effect is a de facto patent for unpatented drugs, which in turn delays generic competition and the resulting reductions in prices (ibid.).

Contrary to the argument put forward by Pfizer and other proponents, data exclusivity has no basis in the TRIPS Agreement. Article 39(3) places an obligation on regulatory authorities only to protect such data from

"disclosure" and from "unfair commercial use" (WTO 1994). Since generic producers never gain access to this data submitted by originators to regulatory authorities, neither protection is breached when a generic manufacturer submits bioequivalence studies. The WHO has concluded that:

> From the perspective of public health and access to medicines, it is preferable not to grant data exclusivity. Moreover, there is no requirement under international law that countries grant data exclusivity; countries only have to provide for data protection. (WHO 2006)

This understanding of Article 39(3) of TRIPS was reflected in Egypt's 2002 IP law, in Articles 56-57. Pending the drafting and parliamentary approval of the bill, the issue was regulated through a Decree of the Prime Minister (No. 2211/2000) "Regarding the Confidentiality of Information Related to Agricultural and Pharmaceutical Chemical Products," which in turn used the language and requirements of Article 39(3).

Interestingly, Pfizer did not initiate its lawsuit against EIPICO immediately after the generic was registered and received market approval. The case was filed on 18 June 2002, 18 months after the generic Ator entered the market and exactly two weeks after the IP law had been promulgated and entered into force. The timing might suggest that foreign pharmaceutical companies, including Pfizer, had hoped that the national IP law would establish periods for data exclusivity similar to those applied in the US and Europe; once that hope evaporated the companies turned to courts to push them to effectively write data exclusivity into the law (Zagazig Court 2003).

Although the lawsuit was in effect a challenge to the registration and market approval granted to the generic Ator by the MOH, Pfizer chose not to sue the Ministry, but rather the generic producer. Pfizer may have been trying to avoid the negative publicity associated with suing health authorities for providing the public with a cheaper medicine. This could also explain why the lawsuit was filed in the rural city of Zagazig, where EIPICO's factories are based, rather than in Cairo, where the headquarters of both parties are located. Pfizer may also have been trying to avoid a direct confrontation with the Egyptian government.

Suing a private company, rather than the government, also meant that the case would be heard before a civil court, as opposed to the administrative judiciary system. Pfizer may have decided to use this case as a test for

the capacity of civil courts outside the big urban centers to deal with complicated patent claims. EIPICO's lawyers requested that the civil court transfer the case to the CAJ since it involved an administrative decision, but the request was not granted.

The case (no. 1855/2002) was thus heard by the Zagazig Court of First Instance. Pfizer's first brief explicitly framed the claim as one of "unfair competition," due to the significant discrepancy in the retail price of Ator compared to that of the originator's Lipitor. The brief protested that "without engaging in any serious investments [. . .] [EIPICO] is selling the pharmaceutical product that is based on the scientific matter Atorvastatin, owned by the complainant, at a price that is 40 percent below than that of [Pfizer's]" (Pfizer 2003). Pfizer demanded the immediate cease of the manufacture, distribution and advertising of Ator, as well as LE6 million (US$1 million) in civil remedies to compensate for lost sales (Zagazig Court 2003).

Throughout the lawsuit, the role of academic experts on patents was prominent. At the first hearing in October 2006, EIPICO's lawyers submitted to the Court an expert report obtained from a private research unit at the pharmacology school of Ain Shams University in Cairo. The report clarified the technical issues and supported the claim of the respondent company that it was possible to manufacture Atorvastatin without reliance on undisclosed data. The report gave numerous examples of other companies around the world who have produced generic versions of the drug (SCA 2007).

Confronted by novel and complicated technical and legal issues, the Court decided that it was unable to reach a decision on the matter without relying on independent expert advice. The Court therefore mandated the Chair of the National Research Center in Cairo, a state-run institute affiliated to the Ministry of Scientific Research, to appoint a "commission of three experts on chemical pharmacology and drug manufacture" to examine the matter and submit a report to the Court with recommendations (Zagazig Court 2003, 4). Six months later, the commission submitted a detailed and meticulously researched 70-page report with a large volume of annexes. This document untangled the complicated web of IP issues and explained all the relevant provisions in both the TRIPS Agreement and Egyptian laws. The report concluded that there was no violation of any laws in the practice of EIPICO (SCA 2007). On 30 April 2005, the Court endorsed the expert recommendation and found against Pfizer (Zagazig Court 2005).

The outcome of this case was positive in that it found against the attempt to prevent Egyptian pharmaceuticals from utilizing existing knowledge on essential drugs. However, the three-page decision once again missed an important opportunity to address the human rights dimension of the matter. The attorney representing EIPICO, Professor Hossam Al-Ahwany, attempted to alert the Court to the significance of the case on the first page of his first brief:

> The fact is that this lawsuit is the first case to come before judiciary with regard to unfair competition in the field of drug manufacture, or what is referred to as "undisclosed information" by the legislature in the Law for the Protection of Intellectual Property (no. 82/2002). This case directly affects the health of Egyptian citizens, and the stance of foreign, multinational pharmaceutical companies. (EIPICO 2003)

The decision, however, merely summarized the facts of the case and declared that the Court accepted the technical views detailed in the expert report, making no reference to the public health concerns.

### *Seeking seizure: Pfizer vs Memphis and Delta*

EIPICO was not the only local generic producer that Pfizer targeted with Lipitor related litigation based on claims of data exclusivity. In 2003, a privately owned company, Delta Pharma, collaborated with the public sector company Memphis Pharmaceuticals and Chemicals, to produce another generic version under the name Atorstat. Pfizer decided to take both companies to court. Given that the case against EIPICO was still pending before the Zagazig Court, Pfizer opted to test a swifter legal strategy: seeking a temporary order to halt the distribution of competing generics without giving the Court the opportunity to consider the substantive matter of data exclusivity.

On 13 May 2004, Pfizer filed a motion before the Court of Provisional Matters, which has the authority to issue temporary injunctions pending the consideration of substantive claims. The motion sought an immediate and temporary injunction to halt all production, marketing, sales and distribution of Atorstat and any other generic version of Lipitor within Egypt. The motion further asked the Court to include in the injunction a provision banning the exportation or importation of any drug based upon Atorvastatin (Pfizer 2004).

Clearly, Pfizer sought a rapid solution to stop the competition, rather than face the type of extended court fight unfolding before the Zagazig Court. A side benefit of this legal strategy was that it would test, for the first time, the enforcement of the provisional measures process stipulated in the new IP law.[5] While the 2002 law gave petitioners the right to seek such an injunction from any "competent court," Pfizer's choice of the Court of Provisional Measure strongly suggests a preference for a court that, by its very jurisdiction, would not address the substantive issues underlying the claim.

The Court of Provisional Measures was not convinced that the matter merited such a drastic injunction without examination of the facts or merits of the case. Accordingly, the motion (no. 43/2004) was denied on 19 May 2004 (Cairo Court 2004a). Pfizer submitted a petition for reconsideration before the Northern Cairo Court of First Instance (Pfizer 2004). This petition was also denied on 28 November 2004, again without pronouncements on the facts (Cairo Court 2004b). Pfizer submitted a further appeal to the Appellate Court on 26 February 2005. By May 2005, however, the Zagazig Court had issued its above-mentioned decision on the EIPICO dispute. In light of that decision, the chances of success for the case against Memphis and Delta were low. This might explain why, in May 2005, Pfizer's lawyers missed a number of scheduled hearings before the Northern Cairo Appellate Court, prompting the Court to close the appeal without rendering a decision.

### *The role of judges: challenges ahead*

The cases reviewed above highlight the increasingly prominent role played by judges in enforcing and interpreting IP protections in Egypt. It is therefore essential to ensure that the training and capacity-building activities for judges on IP matters take into account human rights and public policy concerns as they relate to access to affordable medicines. Notably, none of the decisions

5 Article 33 of the 2002 IP law reads as follows:
The holder of a patent or a utility model may request the president of the competent court, as may be the case, to order conservatory measures against products or goods that are claimed to imitate a patented product, according to the detailed description established in the patent or utility model document. The necessary conservatory measures shall be ordered to preserve such products and goods in their state.
The aforementioned order may be issued before instituting the proceedings. Such order shall lapse if the proceedings are not instituted within eight days from the date of the injunction.
Article 62 of the law extends the application of Article 33 to the section on "undisclosed data."

reviewed above addressed substantive issues of human rights and the state's obligation to ensure access to medicines. These pioneering cases all reached access-friendly outcomes, but solely on procedural grounds or through a general endorsement of expert testimonies.

In an interview with the authors, Judge Hassan Badrawi discussed the challenges faced by the Egyptian judiciary when dealing with IP cases post-TRIPS. Judge Badrawi is currently the Assistant Minister of Justice for Parliamentary Affairs and was the rapporteur of the drafting committee of the 2002 IP law. He has been advising the government for many years on IP issues, both at the Ministry of Justice and through his membership in the Minister of Health's Advisory Committee on Intellectual Property of Medicines. Judge Badrawi said that in deciding to bring cases before Egyptian courts related to patents and data exclusivity, foreign pharmaceutical companies were hopeful that the Egyptian judges' lack of expertise and knowledge of IP issues would lead to decisions in their favor. He explained: "Foreign companies knew perfectly well when they filed these court cases that the law was not on their side, but they were betting that judges don't know, don't understand. They were surprised to see how our judges were aware of the subject" (Badrawi interview 2009).

Judge Badrawi noted that the number of lawsuits filed by pharmaceutical companies decreased once it became evident that Egyptian judges understood the issues involved in IP litigation. The pharmaceutical companies also became more explicit in their demands: "First, they were adamant that what they were asking for was only the enforcement of TRIPS and tried to convince us of this. When they realized we were not falling for that, they finally admitted and started asking for TRIPS-plus" (Badrawi interview 2009).

While the judges in Egypt have proved to be more knowledgeable and resistant to pharmaceutical demands than expected, significant challenges still remain. One subject that has attracted growing attention in recent years and could appear in future cases in Egypt involves the relationship between competition policy and IP (Correa 2007). The patent/antitrust intersection is characterized by a classic tension: patents intend to eliminate competition to reward innovation, whereas antitrust intends to protect competition (Kaplow 1984). In determining the proper extent of IP protections, courts are often obliged to strike a balance between the benefits of protection and competition. It is difficult, however, to believe that courts have the technical capacity to

accurately balance incentives to innovate versus importance of dissemination (Elhauge and Geradin 2007). This is especially true in the case of developing countries, which typically have little or no tradition in the application of competition law and policies. Additionally, weak institutional structures may hamper effective implementation of the laws.

In 2005, Egypt adopted the Competition and Anti-Monopoly Law (no. 3/2005), which could possibly be harnessed to serve public health and access to medicines. If and when this law becomes more actively enforced, it could be effective in hampering anticompetitive practices in the pharmaceutical industry, ultimately promoting greater competition and lower prices. The TRIPS Agreement (Article 40) specifically provides for the possibility of regulating anticompetitive practices in licensing agreements. It is important that judges recognize Article 40 and apply Egypt's Competition and Anti-Monopoly Law in a manner that prioritizes the right to health and access to medicines.

## TRIPS-plus proposals in bilateral trade agreements

The decrease in the number of TRIPS-plus court cases brought by multinational pharmaceutical companies in recent years has coincided with the intensification of pressures to include the same provisions in bilateral trade agreements. This section examines two free trade agreements where patent related TRIPS-plus provisions feature prominently. It will look at the provisions contained in agreements with the European Free Trade Association (EFTA) and the types of provisions that the US are likely to demand in any future US-Egypt FTA.

### *EFTA-Egypt Free Trade Agreement*

On 13 June 2007, the Egyptian People's Assembly ratified a trade agreement with the European Free Trade Association (EFTA), an organization of four European states: Switzerland, Norway, Iceland and Liechtenstein. Egypt currently benefits from limited exports to EFTA states (US$80,268 in 2007), mainly in agricultural commodities (EFTA 2007a). In contrast, imports from the EFTA states are more substantial (US$453,022 in 2007), with Swiss pharmaceutical products ranking first at US$82,654 (ibid.). As detailed by the previous chapter, the EFTA has recurrently used bilateral agreements to push for TRIPS-plus protections, including data exclusivity and restrictions on compulsory licenses.

As opposed to previous agreements with Chile, Lebanon and Tunisia, the data protection article of the EFTA-Egypt Agreement does not require data exclusivity.[6] Instead, it uses the words of Article 56 of the Egyptian IP Law, protecting the data against "disclosure and unfair commercial use" (EFTA-Egypt 2007, Annex V, Article 3(e)).[7] However, the EFTA-Egypt FTA fails to specifically provide for disclosure for the purpose of public health. Professor Frederick Abbott, a well-known international expert on IP and health, notes that this omission is not particularly problematic, however, because of the reference to Article 39(3) of the TRIPS Agreement that preserves this authority (Abbott interview 2009).

A second area of concern in EFTA agreements has to do with limitations on compulsory licensing, the grant by a government of permission to use a patented invention without the authorization of the rightsholder. The TRIPS Agreement does not limit compulsory licenses exclusively to the domestic market.[8] Nevertheless, some EFTA agreements specify that compulsory licenses must be issued "only in order to satisfy the domestic market according to reasonable commercial terms," including those with Morocco and Jordan (EFTA-Morocco 1997, Annex V, Article 3(1), EFTA-Jordan 2001, Annex VI, Article 3).[9]

6 An example of the way in which the provisions of some of the EFTA FTA agreements block marketing approval of generics on the basis of undisclosed data can be seen from the EFTA-Lebanese FTA which states that applicants are prevented from "relying on or referring to undisclosed test or other data submitted by prior applicants to the competent approval authorities[...] for a period, from the date of approval, of at least six years [...] unless the first applicant is adequately compensated" (EFTA-Lebanon 2004, Annex V, Article 4).

7 As discussed above, protection against *disclosure* need not prevent the Egyptian drug regulation authorities from *using* undisclosed data to assess the safety and efficacy of generic medicines.

8 Article 31(f) of the original TRIPS Agreement states that compulsory licenses should be "authorized predominantly for the supply of the domestic market of the Member authorizing such use." This provision was regarded as imposing unreasonable restrictions on countries whose limited manufacturing capacity prevented them from making full use of the TRIPS flexibilities. The WTO General Council Decision of 30 August 2003 responded to this situation by modifying TRIPS to allow the import up to 100% of the generic medicine that has been produced under compulsory license in a different state, provided that certain strict conditions are met (WTO 2003).

9 While the EFTA-Egypt agreement contains no clear restrictions to prevent the issuance of compulsory license for drugs used in Egypt, restrictions in other FTAs may have consequences for Egypt's pharmaceutical exports. Egypt's pharmaceutical sector currently holds the largest domestic drug manufacturing base in the MENA region, supplying 30% of the total market and exporting to countries in Africa, Asia and Eastern Europe (AmCham 2006). As its manufacturing capacity develops, Egypt may have the opportunity to exercise its right to produce local generic copies of unaffordable drugs that are still under patent. Restrictions on compulsory licenses have the potential to close the door forever to access to these drugs by less developed countries that depend on Egypt's pharmaceutical industry for affordable medicines.

Compared to other developing countries, therefore, Egypt succeeded in negotiating terms in its FTA with EFTA that do not undermine the accessibility of medicines. The insistence by Egyptian negotiators to not accept any TRIPS-plus provisions led to a significant prolongation of the negotiations with EFTA. According to a senior Swiss diplomat who followed the negotiations closely between EFTA and Egypt, and who spoke to the authors on condition of anonymity, the issue of patent protection of pharmaceuticals was "a very important element for the Egyptian government" and one of the main reasons that contributed to a "stalemate" after six rounds of negotiations between 1998 and 2004 (Swiss diplomat interview 2009). Negotiations were resumed in June 2006 and concluded after two rounds with the adoption of the agreement in Davos, Switzerland in January 2007.

Despite this success by Egyptian negotiators, provisions pertaining to the implementation of the EFTA-Egypt agreement could yet have serious consequences for the accessibility of medicines in Egypt. Article 23(4) of the FTA establishes a regular review mechanism to develop and implement the agreement's intellectual property provisions of the agreement (EFTA-Egypt 2007). Article 23(5) further foresees technical assistance from the EFTA states, offering technical experts from EFTA direct access to the consulting parties in the case of disputes over development and implementation of the agreement. It is unclear whether or not experts from Egypt or members of Egyptian civil society who could represent the interests of the Egyptian patients will be given similar access. Should a dispute arise and the Joint Committee fail to "arrive at a commonly acceptable solution" within three months, Article 40(1) of the FTA allows parties to respond with undefined "provisional re-balancing measures" (ibid.). These provisions may constitute a back door means to exert further pressure upon Egypt to adopt TRIPS-plus implementations or interpretations.

### *US-Egypt Free Trade Agreement*

In 2003, as a response to growing instability following September 11, President Bush announced his intention to encourage "an economically liberated Middle East," leading to the reopening of talks between the US and Egypt to prepare for FTA negotiations (AmCham 2003). Shortly after Bush's reelection in 2004, however, a letter sent by the Pharmaceutical Research and Manufacturers of America (PhRMA) called for the US to halt FTA discussions with Egypt. The letter, addressed to the United States Trade

Representative on 25 January 2005, protested the marketing approvals granted by the Egyptian Minister of Health, 'Awad Tageddine, to 850 generic medicines (EIPR 2005b). The letter highlighted pharmaceutical policy as a key area of conflict between the two countries' trade negotiators.

Other countries such as Jordan (2000), Chile (2003), Bahrain (2004), Australia (2004), Morocco (2004) and Central American-Dominican Republic (2005) have concluded FTAs with the US, which commonly feature TRIPS-plus provisions. Among the most notorious features of these agreements are the limitations on compulsory licensing, enforcement of data and market exclusivity, and linking market approval to patent status. Only two out of the six FTAs provide for the use of a patent without the authorization of the rightsholder (US-Jordan 200, Article 4(20), US-Australia 2004, Article 17(9)(7)). In most other FTAs, the compulsory license right reserved by TRIPS is made contingent upon permission given by the patent owner. The agreements also typically mandate a five-year period of data exclusivity, starting from the date marketing approval was granted to the patent holder (US-Chile 2003, Article 17(10)(1), US-Australia 2004, Article 17(10)(1), US-Bahrain 2004, Article 14(9)(1).

A third TRIPS-plus provision commonly found in these agreements is a requirement that the drug regulatory authority ensure that the medicines it approves for marketing do not violate any patents.[10] The financing and organization of patent status monitoring and prosecution, previously considered a private interest undertaken by the patent holder, places a new burden on public agencies. Drug Regulatory Authorities (DRA) are unprepared for this responsibility, which will slow the process of approving generic drugs. In addition, putting such a responsibility on the DRA ultimately alters its mandate from ensuring the health of the patient to playing the role of the "patent police."

A few months after the letter sent by PhRMA to USTR on the issue of data exclusivity in Egypt, the Egyptian Prime Minister Ahmed Nazif spoke publicly about the issue. At a press conference held on 18 May 2005, Prime Minister Nazif received a question about difficulties in FTA discussions, to which he answered:

10 There is no linkage between marketing approval and patent status in the Jordan FTA, but every subsequent FTA includes such a connection.

> Egypt is a state that respects its international obligations, including all the provisions of the agreement on the protection of intellectual property rights (TRIPS). Egypt has noticed that the US imposes more severe restrictions in this regard than those included in the international agreement. That is why the Egyptian government is conducting an assessment of the possible negative impacts on Egyptian society and the prices of medicines in case a bilateral free trade agreement is reached with the US. (EIPR 2005a)

This encouraging public statement highlighted that Egyptian officials were highly aware that the United States' demands in FTA discussions went beyond those required in TRIPS and would have a "possible negative impact" on access to medicines.

An Egyptian diplomat who was intimately involved in FTA discussions with the United States at the time, however, indicated that the Prime Minister's statement reflected only one trend within the Egyptian government. According to this source: "There was a position among some ministers and senior officials that advocated for the simplistic formula of 'quantification;' i.e. if the Americans insist they want excessive IP provisions in return for an FTA, let's calculate how much that would cost us and ask them for a cash advance" (Egyptian diplomat interview 2009). It appears that this quantification viewpoint did not ultimately prevail, or else was not acceptable to US negotiators. The United States halted discussions in late 2005, within one year of PhRMA's complaint.

In both the EFTA agreement concluded in 2007, and in the stalled negotiations with the United States, Egyptian negotiators resisted any measures mandating new IP protections that might negatively impact access to medicines. The interests of these trade partners, however, continue to lie in pushing for TRIPS-plus measures to benefit their own pharmaceutical industries. The next and final part of this chapter advances a proposal to put Egypt's access to medicines policy on firmer footing by explicitly grounding it in the right to health.

## The way forward: a human rights approach

Even after the implementation of TRIPS, access to medicines has continued to be protected by Egyptian judges who have rejected the legal arguments of multinational pharmaceutical companies, and by Egyptian negotiators

who have succeeded in avoiding TRIPS-plus provisions in bilateral trade agreements. Foreign pharmaceutical companies, however, continue to have an interest in restricting generic competition. Efforts to push TRIPS-plus provisions are likely to continue through additional court cases and through negotiation, interpretation and application of bilateral trade agreements. In order to combat these efforts, it is essential to develop a coherent argument regarding the legal priority of access to medicines. One of the most powerful ways to shape this argument is to base it explicitly on international human rights commitments.

International human rights law is based on the principle that every state is obliged to respect, protect and fulfill the basic rights of individuals within its borders. In the case of access to medicines, the state should ensure that its laws, policies and practices affirm the primacy of human rights over trade and IP-related interests. In particular, the state has an obligation to respect, protect and promote the right to health. This right has been recognized by the United Nations as "a fundamental human right indispensable for the exercise of other human rights" (CESCR 2000, para. 1).

Access to medications is a critical component of the right to health so that disease and sickness can be effectively tackled. In 2000, the UN Committee on Economic Social and Cultural Rights, which interprets and monitors the implementation of the ICESCR, issued General Comment No. 14, an authoritative legal opinion interpreting Article 12 of the Covenant. This Comment stipulated that the state has an obligation to make medicines available and affordable for all individuals within its jurisdiction (CESCR 2000, para. 12(b)). States Parties to the ICESCR also have an obligation to protect individuals from violations of the right to health by third parties such as international institutions and pharmaceutical corporations (ibid., para. 33). Moreover, in his 2006 report to the UN General Assembly, the Special Rapporteur on the right to health elaborated on the responsibilities of states to ensure that "medicines are available, accessible, culturally acceptable and of good quality" (Hunt 2006, paras 47-51). Furthermore, the Millennium Development Goals (MDGs) identified efforts "to provide, in cooperation with pharmaceutical companies, access to affordable essential drugs in developing countries" as a central goal for development (Target 8(E)).

This legal obligation on states to ensure that basic medicines remain affordable and accessible inevitably leads to tensions with their trade obligations regarding intellectual property. In August 2000, the UN

Sub-Commission on the Promotion and Protection of Human Rights issued a statement recognized that "actual or potential conflicts exist between the implementation of the TRIPS Agreement and the realization of economic, social and cultural rights in relation to, *inter alia* [...] restrictions on access to patented pharmaceuticals and the implications for the enjoyment of the right to health" (OHCHR 2000). Nevertheless, the primacy of human rights over trade related interests has been made explicit in a number of international instruments. In 2001, the ESCR Committee issued a General Statement on "Human Rights and Intellectual Property" that emphasized that "the realms of trade, finance and investment are in no way exempt from human rights principles," and that both national and international intellectual property regulations, including TRIPS, must abide by international human rights law (CESCR 2001, para. 3).

Indeed, the TRIPS agreement does allow for a human rights sensitive approach to intellectual property regulation. Articles 7 ("objectives") and 8 ("principles") inform parties in their interpretation of TRIPS so that public health commitments are upheld. Article 7 emphasizes that any IP protection must be enacted "in a manner conducive to social and economic welfare" with "a balance of rights and obligations." Article 8 further affirms that "members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition." The Doha Declaration on TRIPS and Public Health further affirms in Article 4 that "the [TRIPS] Agreement can and should be interpreted and implemented in a manner supportive of WTO members' right to protect public health and, in particular, to promote access to medicines for all" (WTO 2001). In addition to general principles in support of the need to uphold the right to health, the TRIPS Agreement contains articles that limit patentability (Articles 2 and 3), make exceptions to the exclusive rights of patent holders (Article 30), and provide for compulsory licensing (Article 31).

An explicit human rights approach to IP, trade and health would require the Egyptian government to actively address the primacy of the right to health, despite potential conflicts with IP regulations. In order to promote, protect and fulfill the right to health, the government should, amongst other things, aggressively apply the provisions in TRIPS that protect the right to health and limit excessive patent protection. In his April 2009 report to the UN Human Rights Council, the Special Rapporteur on the right to health recommended that all states make full use of TRIPS

flexibilities (Grover 2009, para. 96). Although such flexibilities have been enshrined in Egyptian domestic law, the country has not actively employed them. In addition, the Egyptian government should take other active steps recommended by the Special Rapporteur, such as adopting pro-competition measures to ensure that there is no abuse of the pharmaceutical patent system (ibid., para. 103).

A rights-based approach would also encourage the Egyptian government to formulate a consistent set of arguments for maintaining low drug prices. Officials from the Ministries of Trade, Health, Foreign Affairs and Scientific Research should work together to make the right to health a central element of public policy regarding access to medicines. Regular dialogue, consultation and coordinated action between such ministries would ensure that policymakers develop a strong, united position regarding drug pricing. Government entities such as the Drug Pricing Committee could then develop a more coherent and transparent system for the pricing of medicines.

The rights-based dialogue developed by these efforts and interactions could also be transferred to the Egyptian judiciary. Human rights arguments would provide judges with additional legal tools to utilize when adjudicating IP issues. The curricula created to train judges in IP issues should explicitly integrate the language and principles of human rights treaties. Courts would then be better prepared to address substantive issues regarding access to affordable medicines and public health priorities in their opinions, paying attention to the ways in which TRIPS-plus provisions violate the right to health and prevent Egypt from fulfilling its duties to protect access to medicines.

Formal, regular dialogue between different ministries regarding the interaction of IP issues, trade and the right to health would also strengthen Egypt's negotiating position in bilateral trade discussions. As mentioned in the previous chapter by Ahmed Abdel Latif, the Egyptian Ministry of Trade and the Ministry of Foreign Affairs have already established a coordination mechanism on IP issues that includes officials from different government sectors. Such coordination, however, does not officially occur during bilateral or regional trade negotiations. Egypt should establish more interaction between different governmental bodies so that a coherent stance can be adopted in FTA negotiations. Such interaction would, ideally, also include key stakeholders from other sectors such as specialized agencies, the private sector and civil society. By involving officials from the Ministry of Health and other groups such as civil society, the Ministry of Trade is more likely

to consider the right to health in trade matters. Also, as discussed below, such participation and information sharing is an important element in any rights-based strategy to access to medicines.

A human rights approach to IP, trade and health must prioritize principles of equality, nondiscrimination and participation, and should ensure transparency, accountability and inclusiveness in trade and IP policymaking. The right to information and participation is protected in a number of the major international human rights instruments, such as the International Covenant on Civil and Political Rights (ICCPR), ratified by Egypt in 1982. Article 19 of the ICCPR states that all individuals "shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds." Article 25 states that all citizens have the right "to take part in the conduct of public affairs, directly or through freely chosen representatives." IP, trade and health policies should all therefore involve maximum public participation and transparency. The Special Rapporteur on the right to health stressed the need for such participation, noting "the importance of including rights holders, particularly communities, in decision-making processes as they can offer a vast and diverse perspective to various issues central to the right to health" (Hunt 2009, para. 3).

As part of a rights-based approach to IP and trade, Egypt should also make the negotiation of IP and trade treaties more transparent and should encourage the participation of civil society, both during international negotiations and during the formulation of national drug pricing and other domestic policies. Such inclusiveness would allow for a full range of perspectives when IP regulations and agreements are formulated, and make it more likely that the right to health is effectively protected. This is especially important as many regulations in Egypt's pharmaceutical industry are opaque and vague. There is also a lack of transparency regarding how the policies for trade and health are formulated.

This lack of transparency with respect to national drug pricing, for example, makes the process vulnerable to pressure from the multinational pharmaceutical industry. An opaque pricing system might also lead international pharmaceutical companies to avoid the Egyptian market entirely, a result that would not be in the best interest of individuals' health. Such complex considerations can only be adequately addressed by guaranteeing maximum public participation and transparency during

policy decisions regarding drug pricing controls. Ideally, an independent drug pricing body would be established. Such a body would explicitly address human rights concerns and be capable of balancing the interests of producers and consumers in a way that inspires confidence and ensures maximum protection of the right to health.

There are other important ways in which transparency and participation should be promoted in an explicit human rights approach to IP, trade and health. One important role for civil society that has been encouraged by a number of international bodies would be to monitor the impact of TRIPS and other trade agreements on the price of medicines. Without concrete data that charts both the positive and negative effects of trade agreements, it will be difficult to formulate an effective and compelling policy to protect access to medicines (Hunt 2009, para. 64). The collection and analysis of data regarding the impact of TRIPS on the price of medicines would be particularly beneficial in a country such as Egypt that has a large market for generic drugs and where the impact of patents could be potentially substantial.

Egypt is well placed to become a champion of access to medicines and a leader in the movement to resist the pressures of pharmaceutical companies and developed nations. As the previous chapter by Ahmed Abdel Latif demonstrates, Egypt has long played an important role in global trade and IP negotiations, and has pushed to attain greater access to science and technology. Egypt has greater leverage than many other developing countries because of its economic and political weight. It therefore has the ability to formulate and adopt rights-based public policies that integrate IP, trade and the right to health. Pursuing this leadership role more fully would serve as an important model for other developing nations and could have a significant impact at the international level.

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CHAPTER FOUR

# Stories from Egypt's Music Industry: De Facto Commons as Alternatives to Copyright

Nagla Rizk*

This chapter offers a study of the Egyptian music industry from an alternative perspective. The mainstream discourse internationally as well as in Egypt regards music as a good that warrants maximal intellectual property protection; a goal achieved by formulating and enforcing ever tighter copyright controls. This logic implies that music is a private good, where markets are best optimized by the price mechanism, creators are motivated by the profits realized through unit sales, and free riding "pirates" must be punished to keep the incentives system intact. In this chapter I adopt a different approach. I start with the premise that music embodies some characteristics of a public good, where the market mechanism typically fails to maximize both production and access, and where tension arises between the interests of producers and consumers. Adopting a bottom-up empirical approach, I examine actual practices of music production and delivery as they exist on the ground, and explore existing business models that may more closely align with the interests of music creators and users.

The chapter draws on extensive fieldwork, including interviews with musicians and other stakeholders, a survey of the prevalent business models in popular and alternative music production and delivery, and a comparison of musicians' earnings from live performances versus copyrighted recordings. Drawing on these various data points, I seek to answer one central research question, namely, what business model(s) offers the optimal mix between access and contribution to musical content in a way that is most suitable

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to Egypt's social, cultural, economic and legal realities? Within that, two secondary questions are addressed:

1) What are the dynamics and interrelationships between grassroots practice of music on the one hand, and domestic policy formulation, implementation and enforcement on the other?

2) What is the relevance of copyright to the music production and distribution in Egypt, as opposed to the influence of prevailing social and cultural norms and economic realities?

In attempting to answer those questions, the chapter's content travels between the two worlds: the mainstream world where maximal intellectual property (IP) approaches are applied as part of the integration in the global order, and the parallel alternative world that finds for itself some space to act outside the scope and limitations of those maximal approaches.

Based upon this research, I conclude that models that maximize consumer access and musician's contribution to knowledge exist in parallel to the mainstream ones, irrespective of the formal IP regime, and sometimes regardless of the price mechanism itself. Ironically, this informal and naturally evolving chaos may end up maximizing public welfare without much need for domestic policy formulation or enforcement, and irrespective of the formal copyright system. Indeed, I argue that what is in essence a de facto commons model for music production and distribution does achieve the very objective of access to knowledge which Egypt is promoting on the global knowledge platform, but which is not always as evident in the country's domestic policy formulation. Accordingly, I call for Egyptian copyright policy to address the unique realities of the music industry in Egypt rather than to blindly implement a maximalist agenda that is imposed from the top down.

The chapter proceeds in four parts. I start by providing a conceptual framework for the analysis, which examines the trade-offs and tensions involved in approaches that treat music as either a public, private, or quasi-public good. I then move to the local scene, whereby I present the landscape of music practices as represented by the market structure and the main players in the mainstream realm. Third, I present an account of Egypt's alternative music scene, focusing on live performances as engrained in Egyptian culture, with accounts about outlets catering to it and the artists

representing it. I discuss illegal music copying in the context of Egypt's sociocultural, economic and legal realities, with perspectives from the record labels and from the artists themselves. I conclude by highlighting the relevance of Egypt's live scene to the country's music industry and discuss what this means for the relevance of copyright and policy formulation in the Egyptian context.

## Conceptual framework

### *Music: a private, public or quasi-public good?*

Like other knowledge goods, music evokes the question of the extent to which it can be considered a public good or a private one. A public good typically carries the characteristics of being non-rivalrous (one person's use does not preclude another person's utility) and non-excludable (people cannot be denied access). A classic example of a public good is a lighthouse. The construction of a lighthouse, warning incoming ships that they are near land, delivers benefits to multiple parties. The ships' crew and owners avoid crashing upon rocks, and the townspeople obtain more secure delivery of shipped goods. The lighthouse is a non-rivalrous good in that an infinite number of ships may benefit from its use without the good being "used up." It is also non-excludable in the sense that once the lighthouse is constructed and in operation, it is impossible – even if it were desirable – to prevent certain ships or certain townspeople from sharing in the benefits.

Moreover, adding an extra user has no effect on the cost of producing the lighthouse. Since adding extra users for the public good does not necessitate an additional cost, one can argue that universal access will typically be socially desirable as excluding people will mean sacrificing public welfare unnecessarily. Economic efficiency generally calls for pricing a good at its marginal cost of production – what it costs to produce one extra unit of the good to an additional consumer. In the case of public goods, however, the marginal cost of production is zero. The provision of a public good will therefore be unsustainable as a market practice, since no private entity will have the incentive to produce it. Public goods are therefore most efficiently provided by the government, which can provide the good universally yet still cover its costs by imposing a tax. This solves the potential free-rider problem wherein people would decline to pay for the utility they derive from a public good if not threatened with exclusion.

At its core, music is non-rivalrous. One person's enjoyment of a song does not take away from another's. This statement, however, becomes complex as music comes in different forms, the most common of which are: purely digital as downloaded and stored in a computer or another digital device, packaged in a tape or CD, or delivered via the live performance. The first form, i.e. music that is purely digital, is non-rivalrous and involves zero marginal cost of reproduction and distribution. The second form of music delivery, however, makes music rivalrous as the tape or the CD is a private good by definition (Romer 2002). That is part of the reasoning that considers music as a private good, as expectations have been shaped by a technological era in which music was experienced largely within a scarce physical commodity: the album. Finally, the live performance by a particular artist has an element of rivalry.[1] Especially for concerts in closed halls with a limit on space, there are costs to expanding the size of the audience, and for any one concert, each additional person creates additional cleanup costs. A second concert adds to the marginal cost.

Moreover, music is also unlike the pure public good in that it can be excludable. In contrast to the lighthouse, which shines for all, universal access to music may be prevented by imposing walls. These could be technical, in the case of a record album that cannot be easily reproduced, or a digital file with technical protection measures (TPMs) imposed; legal, in the case of intellectual property rules that forbid one musician to cover another artist's song or treat digital music sharing as piracy; or physical, in the case of a literal wall that blocks out members of the unpaying public or uninvited guests from a live performance.

Because excludability is possible, music fits the definition of a quasi-public good, where non-rivalry may be evident yet excludability is possible. The quasi-public nature of music and other knowledge goods complicates the economic efficiency analysis (Antonelli 2008, 85-88). An additional user may not add to the marginal cost, yet excludability will be maintained by imposing a price (AmosWEB 2009). As in the case with public goods,

1 In a sense the live music performance may be non-rivalrous, since one person's enjoyment does not take away from another's, except if one is placed in a spot where she is blocked by the person in front. The pricing of the concert tickets clearly makes it excludable. Free riding can still occur as people listen in to outdoor concerts from the neighboring surroundings (Lange 2009). For open air concerts, adding a user may not add to the marginal cost. In general, the possibility of non-rivalry and excludability qualify the live performance to be a quasi public good.

employing the market and price mechanism for quasi-public goods will still be inefficient. On the one hand, it is feasible to treat the good as a purely private one, charging for access; it is not, however, economically efficient to do so, from the perspective of maximizing social welfare. This reveals a trade-off between maximizing public welfare by expanding access, versus maximizing private incentives by limiting access.

### *Tensions and trade-offs*

The unique characteristics of music place the industry at the heart of a trade-off between access and incentives. On the one hand, the essentially non-rivalrous nature of music at its core and the cost structure of its reproduction make a case for expanding *access* to users at an efficient price of zero, namely free access. This would address the interests of users and maximize their welfare. But this would also mean doing away with the *incentives* to produce music, it is argued, for who would be motivated to produce a good that has a zero price? If so, then expanding free access to music would arguably represent a disutility and welfare loss to music producers. Indeed, the argument goes, free access may be harmful to users as well since in the long run they would have access to less music and limited diversity (Romer 2002). This argument is presented as grounds supporting the case for maximalist IP protection of music, as strict intellectual property control ensures the excludability of music and secures incentives for music production to continue as a private good.

Such protection introduces a new form of disutility, however, namely monopolies created around knowledge goods, music in this case. As discussed in the first chapter of this volume, intellectual property protections do serve to create incentives for the production of knowledge goods, but at a cost. By creating an exclusive right to control the production and distribution of a particular good, IP-based incentives create new market-distorting dynamics. Without competition to drive down prices, IP rightsholders are able to set high prices. Monopoly rents accrued by the excess of the monopoly price over the marginal cost must be counted as a source of economic inefficiency, implying a loss in consumer welfare and a deadweight loss to society (Romer 2002).

The cost structure of producing digital music adds another dimension to the argument. Like other knowledge-embedded goods, digital goods carry a unique cost structure: high cost of production yet next to zero marginal cost

of reproduction and distribution.[2] This expands the potential for economies of scale that benefit from uncostly mass reproduction and distribution, capitalizing on positive externalities gained through distribution via digital networks. This in turn provides for larger monopoly rents acquired through private production and distribution of music. While the private model is justified by the producers' need to recoup the high initial costs through exploiting the excludability of the knowledge good, such monopolies still mean market inefficiency and social welfare loss.

Another problem emerges within incentives. On the one hand there is the risk of *underprovision* caused by loss of incentives, and on the other there is the threat of *monopoly* distortions caused by use of maximalist intellectual property protection to create incentives (Nordhaus 1969, Romer 2002). The argument for a maximalist IP protection resolves the first (underprovision), but does not address the second (monopoly). Indeed, this second issue takes us back to the initial trade-off between incentives and access, which is essentially a tension between the interests of producers and consumers. The mainstream IP approach addresses only one side of the story, namely, incentives for music producers. It does not consider the welfare of consumers especially given the realities associated with the recent developments in digital technologies, which enhance the potential for lowering marginal costs of reproduction and distribution in order to maximize access and social utility.

The argument for maximalist IP protection, dealing with music as a private good, also assumes that its distribution can be resolved through the price and market mechanism. Market pricing, however, is not an ideal mechanism to deal with knowledge goods. Paul Adler (2001) described a production-allocation trade-off brought about by applying the logic of the market and the price mechanism to public goods. Inherent in his argument is the difficulty of setting a price on knowledge, on both the supply and the demand side. On the supply side, Adler argued that producers cannot specify a price that covers their costs, since innovative ideas are the result of a society's cumulative "total stock of knowledge," which is essentially a public good. Accordingly, it is difficult to identify the cost of the "raw materials" that went into creating the new ideas, as well as the cost of their "transformation" into the innovative ideas that they generated. Adler concluded: "Whereas

2 Note that digital music shares this important characteristic with certain other knowledge goods, including software and, to a lesser extent, pharmaceuticals, also discussed in this volume.

competition between suppliers of most other types of good drives prices toward their marginal costs, no comparably grounded 'supply schedule' guides the price of knowledge" (Adler 2001, 224).

The demand side is equally complex, according to Adler's analysis, as the consumer is unable to place a value on an idea without revealing its secret. Adler concluded that the price of knowledge is "less grounded in any material considerations" (Adler 2001, 224), and considered the price mechanism to be "an increasingly unreliable basis for economic calculation" in the case of knowledge goods. The market/price "mode" hence "fails to optimize the production and allocation of knowledge" in the same way as traditional goods (Adler 2001, 216). As an alternative, Adler made the case for a strong role of communities based on trust as a superior organizational form for the production of public goods.

Adler's conclusion resonates with Benkler's analysis of non-market modes of production for knowledge goods (Benkler 2006). Benkler highlighted models of knowledge production that rely on peer collaboration and that have emerged and expanded, in part thanks to the development of digital technologies (ibid.). The notion of novel business models for knowledge generation that offer an alternative to the mainstream is a concept I use in examining practices of music production and delivery in Egypt.

### *Reconciling the differences: top-down, or bottom-up?*

So far, I have analyzed music as an instance of a quasi-public good, characterized by a trade-off between maximizing access through treatment as a public good and maximizing incentives through treatment as a private good, resulting in a tension between the interests of producers and consumers. A potential reconciliation between those interests can be achieved, however, through regulatory mechanisms devised from above by institutions such as the government (Samuelson 1954, Stiglitz 1999a, 1999b, Kaul 2000). There is also evidence for grassroots models that strike a balance of interests – such as the development of parallel or simultaneous, alternative markets – without the need for top-down interventions.

For a pure public good, the trade-off between incentives and access is typically resolved by the call for government provision such as the case of the lighthouse. But music is not a lighthouse. It is, first, a complex experience good with a necessarily decentralized system of production and delivery which does not easily lend itself to government provision on the same

model as a lighthouse. Second, music is also only a quasi-public good that encompasses unique cost characteristics, and that offers potential for large monopoly rents through IP-based exclusion. Conventional IP-based models for music delivery create incentives for private provision, but do not resolve the incentives-access dilemma. Alternative approaches are necessary to reconcile the interests of producers and consumers, who are now also digital downloaders and file sharers.

Most notable in the attempts to resolve the access-incentive trade-off under the umbrella of the prevailing IP regime are proposals to regulate compensation mechanisms. Thereby, users' compensation would reach producers albeit indirectly and under the foresight of the government as an upper ruling body. Neil Netanel proposed a model whereby unrestricted noncommercial P2P file sharing is allowed in return for imposing a levy on P2P-related services and products, which he calls "The Noncommercial Use Levy (NUL)" (Netanel 2003). This levy would be imposed on the "sale of any consumer product or service whose value is substantially enhanced by P2P file sharing." Examples are consumer electronic devices, computer hardware, P2P software and blank CDs. Artists get compensated out of the NUL pot based on the frequency of downloads as digitally tracked. The law would provide copyright immunity for noncommercial copying and distribution of any expressive content that has been previously released to the public. The amount of the NUL would be determined by the copyright office through applying a "fair return" standard. Such a calculable formula would be readily available in order to minimize administrative and uncertainty costs. When applied, the NUL would expand access, and it would provide a wider window of opportunity and freedom for users of P2P networks to share, examine and alter many of the files available on such networks. Incentives, on the other hand, would be maintained as proprietary copyright would still be protected without denying consumers from using P2P networks (Netanel 2003).

William Fisher has proposed an alternative reward system that would be administered by the government via taxation (Fisher 2004). Within this model, artists would make their song or film available free to the public and would register it with the copyright office under a unique file name. This allows for digital tracking of downloads, which are the base of artists' compensation by the government agency out of the tax revenue fund. This would resolve the incentive-access tension, as users will be guaranteed free access and more artists would be motivated to "enter the field" without having to rely on record labels. Fisher recommended that copyright law be modified to

accommodate the new system, whereby "most of the current prohibitions on the unauthorized reproduction, distribution, adaptation, and performance of the audio and video recordings" would be eliminated (Fisher 2004).

The above suggestions are taken under the umbrella of the formal IP regime and require some form of top-down government regulation. On the other hand, there are markets that emanate from the base and exist outside the realm of the formal IP system. Open access models for music offer a bottom-up model based on "social commons" business form, and may be suited to developing countries where intellectual property remains a distant concept (Lemos 2007). Lemos explains that "social commons" thrive in situations where technology arrived before the law, allowing autonomous creative industries to appear. These often take for granted free sharing and dissemination outside of a legal framework. While many would call this "piracy," Lemos points out that it is the idea of sharing and mutual appropriation, rather than plunder and robbery, that is at the heart of what he therefore calls a "social commons" (Lemos 2007).

A social commons can generally be regarded as a consequential development of legal enactments that are not fine-tuned to socioeconomic realities, which hence leads to a conflict (Lemos 2007). An example would be expensive legally provided music albums that are simply unaffordable by the majority of the population (Mizukami and Lemos 2008). A social commons then becomes the product of the tension between legality and illegality and capitalizes on actual relations established by people with content and information. It can therefore lead to models and approaches that obviate the necessity of implementing intellectual property protection in the process of cultural production (Lemos 2007).

The *tecnobrega* music business in Brazil is one such example, where artists are compensated through payment for live performances (Mizukami and Lemos 2008). This compensation is supplemented by the sales of the artists' recordings during the live performance. A network of street vendors also sells low-cost discs to the public, which serves as a mass marketing tool. It becomes the artists' responsibility to work steadily on diffusing their popularity and building an audience base. The process of making an album is quite strategic. The artist starts by pitching an individual song, rather than a fully fledged album, to check the market's response to it. Once it reaches the desirable success, albums are built around hits that were individually pitched and a few more compositions, hence giving audiences some sort of participation and gatekeeping functions in the process (Mizukami and Lemos 2008).

The Brazilian case of *tecnobrega* music is a showcase of resolving the tension between creators and users outside the realm of the formal intellectual property right regime. With this example in mind, the following section presents the story of Egypt, which shares with Brazil a history of low enforcement of copyright and high rates of illegal music copying, particularly in the era of digital music. As the story unfolds, I try to analyze whether and how practices on the ground resolve the tensions and trade-offs identified above, especially in light of the uniqueness of the Egyptian sociocultural and economic realities.

Overall, I find that the thriving live music scene in Egypt brings out a dynamic where the tension between music creators and users is eased, as the balance between their respective interests is achieved – or at least, approached – within a de facto commons that indeed blossoms outside the realm of the formal IP system. While essentially a model of "social commons," I use the term "de facto" to emphasize that these models naturally emanate from Egypt's sociocultural heritage in which they are deeply rooted, and find some space to act and thrive outside the scope and limitations of more recently imposed maximalist IP approaches. This is particularly relevant in the debate on sustainable development since these models crystallize the meaning of knowledge as some form of a public good that needs to be shared and, in fact, disseminated.

## Stories from Egypt's music industry

Egypt holds a privileged position in the regional artistic landscape, with many referring to it as the capital of the Arabic music scene. The country has been a fertile territory for multiple genres of music and various models and opportunities for access to audiences and for making gains. Historically, aspiring musicians from all over the Arab world came to Egypt in search of success and fame. For Egyptians, music has always been an experience good associated with historical landmarks, social and political events, experienced more in groups and gatherings than in private. A rich live scene has always characterized Egypt's music industry, whether in formal concert halls or in the small town cafés or bars.

Despite this rich tradition, there is no scholarship on the economics of Egypt's music industry, nor on its relationship to intellectual property. Indeed, there are no publicly available statistics on sales, revenues or employment within Egypt's music industry. This work is therefore built on extensive fieldwork involving interviews with musicians, producers, label representatives, government officials, live performance agents and consumers. Where possible, quantitative data have been obtained from these sources, although in many instances these are informed estimates, rather than based on documenting accounting.

The current study does not offer a comprehensive coverage of Egypt's music industry. Rather, it is a selective attempt to understand the economic realities of three co-existing business models: the mainstream market, the independent alternative music scene and the digital world of downloads.[3]

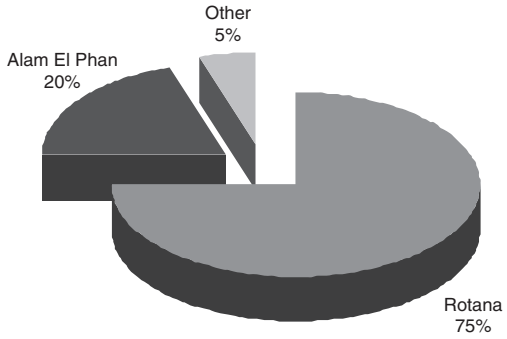
In the following sections I tell two competing stories taken from the music industry in Egypt and, in conclusion, trace a common thread between them. The first is the story of the commercial market for pop stars that sells music as a commodity, earning revenues from CD sales as well as live performances. The second is the story of alternative musicians whose livelihood depends almost exclusively on the live music scene. The common thread is this: within each story, a compromise is made via a model of social commons that eases the tension between users and produces and resolves the access-incentives trade-off. The compromise is the de facto commons attained by the live scene that is at the core of Egypt's sociocultural tradition, and whose importance is emphasized thanks to economic and legal realities. In some instances for alternative bands, the commons may take the form of free offering of music; in others, the commons may cross the line of legality as illustrated in the illegal copying, sharing and downloading of commercial music. In all instances, the compromise takes place irrespective of copyright.

### *The first verse: the mainstream world of the pop stars*

The mainstream music market in Egypt is dominated by a few major recording companies, most notably Rotana followed by Alam El Phan. Both labels own their satellite channels, which are important outlets for promoting singers through music videos, commonly known in Egypt as "video clips." These short music videos have become an important pillar of success for Egyptian artists within a music culture that has grown increasingly interested in the visual. The overall scheme of production firms is geared toward exclusivity (Mischiatti interview 2007), leaning toward music being a private rather than a public good. Musicians typically sign long-term contracts, up to three years, with the music labels. Under the typical contract, the label holds exclusive rights to the artist's work, including those to the singers' performances in concert and in video clips.

3 This section draws from research by Nagla Rizk published 2009 as "Arab Musiconomics: Culture, Copyright and the Commons," in Neil Netanel (ed.), *Intellectual Property and Developing Countries: the WIPO Development Agenda*, Oxford University Press.

**Figure 4.1 :** Market share for mainstream music




Source: Compiled based on various sources and interviews.[4]

As illustrated by Figure 4.1, Rotana owns the bulk (75%) of the Arabic music market share.[5] According to the company's public materials, its number of singers has reached over 100 in 2008. The company has a set of six satellite channels, four of which are dedicated to music (Rotana 2009).[6] Alam El Phan, runs two music channels, Mazzika and Zoom.[7] At one point of time, Mazzika was sold to Rotana, but then it was repurchased by Alam El Phan. Although a number of other labels compete in the Egyptian music industry, none of these smaller companies own satellite channels, and their market share is much smaller. [8]

According to Alessandro Mischiatti, marketing manager of Alam El Phan, the company assumes the role of the producer and the manager of the singer. In other words, it produces the record for the singer and at the same time manages all communication with distribution entities and any other entities in demand of the singer's music. This gives decision-making capacities to the company with regards to distribution as it owns the rights to the songs. The same model holds within Rotana. Both labels typically strike deals on a per-album basis, under which they hold exclusive rights

4 These are mostly estimates made by industry insiders, and based on a mix of the label's alignment of top stars and size of sales revenue.

5 Although the Rotana website claims the company holds an 85% market share, I adopt the more conservative figure of 75%, which was supported by several of the sources I interviewed.

6 These are Rotana Tarab, Rotana Clip, Rotana Mousica and Rotana Khalijeyyah.

7 While Zoom only broadcasts Arabic content, Mazzika has rights to broadcast content from major international labels.

8 The US market is also dominated by a few major players, albeit much less concentrated. According to Nielsen SoundScan, in October 2008 Universal Music led the US music market with 35.12%, followed by Sony Music with 22.79%, Warner Music with 21.12%, EMI Group with 8.35%, and the rest of the labels with 12.61% (http://www.itfacts.biz/music-market-shares-in-october-2008/11622).

to the artists' performances of the work – in concert, on disk, and in video clips – for a given period of time, usually 1-2 years. Independent producers or artists may also sell the exclusivity rights of a particular release to the music channel for a certain period of time.

Egypt's mainstream model of revenue sharing typically has the record label assume the role of music producer and distributor at the same time. According to Mirage record label representatives, this is a major difference from the international business model, whereby the record label is usually responsible for the production and management of the musician's artistic output, and shares revenue both with the artists and with a partnering distributor who is responsible for supplying the record to the different sales outlets (Maher interview 2007, Tosson interview 2007). In some instances in Egypt, however, the artist acts as their own producer, in which case revenue is shared between the artist and the distributor, where the latter receives only a percentage of the sales revenues and does not share in proceeds from live performances (ibid.).

In both cases of Rotana and Alam El Phan, income through the satellite channel is generated from a variety of strategies. These include: sales of advertisements,[9] competition programs that involve paid calls and text messages from cell phones, the sale of digital ring tones, and other deals with mobile operators and online music services in exchange for a share in the revenues of charged downloads (Mischiatti interview 2007). The main market strategy is hence getting more exclusivity deals and constant update of content.

Although the contracts between artists and companies typically accord the labels exclusive rights to performances, album sales, and broadcasting, enforcing these rights is easier in some areas than in others. Expounding on the nature of this control, Mischiatti of Alam El Phan says:

> The music industry is highly exclusive, for example, songs produced by one of the music channels would not be broadcasted on any other music channels. Singers who move from one producer to another at different timings of their career have to abide by an exclusive clause in their contract with any of the different producers, namely that the singer loses the rights to his/her own songs produced by an entity once he/she shifts to another production companies, i.e. the singer cannot sing them in concerts, on TV

9 Revenues from advertising represent 20-25% of the revenues of Mazzika TV channel (Mischiatti interview 2007).

> shows and in weddings. But since tracking is a tough job for the production companies and lawsuits take forever in Egypt, it happens from time to time that singers do breach this contract clause and do receive warnings from their previous producers. (Mischiatti interview 2007)

Not only live performances but also recorded sales are difficult for labels to police. Black market sales of CDs have long been a reality; the new era of illegal file sharing only accentuates this difficulty. In this context, ownership of a satellite channel becomes crucial to generating revenue; in this form of distribution, at least, the competitors continue to respect each others' exclusive rights. Moreover, while access to satellite channels requires subscription, a common practice in Egypt is to have unauthorized access through what is termed "the connection." This is a model whereby one subscriber pays the subscription fees (initial fee of LE350 (equivalent to a little over $60) and a monthly fee of LE160 (equivalent to just under $30), then offers unauthorized extension cords to different homes in return for an initial subscription fee of LE60 (equivalent to a little over $10), and a monthly rate of LE20 (roughly equivalent to less than $4). An illegal model of shared access to the content of satellite channels, the connection offers an affordable alternative that is more suited to the economic realities of the country, and that expands access, albeit not offering monetary reward to the channel owners.

The highly concentrated nature of Egypt's music industry shows no signs of changing in the near future. Other companies have found it difficult to continue producing music for singers, since they have no music channels on which they can broadcast video clips for their stars, which is a cornerstone to the album's success. This is becoming increasingly important given that voice is not the only key to popularity, but other elements also play a role such as image and art directing. Some companies said that the market was controlled by major players leaving no space for small players. In addition, ongoing and consistent illegal copying, downloading and file sharing have left such companies with little gains to make.

Both mainstream labels have also created their own digital download models, with new technologies making the process of downloading music to computer or mobile phone a fairly easy and accessible process. In the case of Rotana, its website sells mp3 music paid for by credit cards, at $0.99 per song. Alam El Phan, on the other hand, has developed a more complex model available only for Egypt. Streaming and downloading of songs and

videos are paid for by credit points earned by hours of access to the Internet through a particular dial-up number. Alam El Phan's website also offers the sale of hard copy CDs and DVDs using the same credit system, as well as by credit card (www.alamelphan.com).

Alam El Phan also introduced another venue for music downloads via mobile phone. The company's satellite channel Mazzika launched Mazzikabox.com, whereby Arabic music is downloaded to mobile phones via software that is freely provided. Songs are sold for LE1 (less than $0.20) which is deducted from the customer's phone credit and paid automatically upon the song download. Customers have a choice of downloading the mp3 or the ring tone version of the song. By offering digital music via the combination of Internet and mobile telephones, Mazzikabox stresses convergence as their unique selling point, which differentiates them from other music providers. With a rapidly growing mobile penetration that exceeded 50% in 2008, mobile phones are becoming a growing platform for music delivery in Egypt. The introduction of the 3G mobile technology in 2007 has made the mobile technology an even more suitable platform for music distribution in the country.

Both of the above models represent legal downloading websites tied to a label. There are independent websites that also offer legal downloads, the first of which in Egypt is Mazika.com (www.mazika.com),[10] which was bought by one of the major Internet providers (Linkdotnet). Mazika used to send warning letters to illegal websites to sign onto their digital rights management and revenue share or else they would report the site to be closed (El Baradei interview 2007). Mazika sells mp3 music at a price of LE1 per song (less than $0.20); payment is made using prepaid debit cards, the credit for which is bought by a credit card. Mazika has signed contracts with both major labels where revenue is shared in half, and also signed with individual musicians, in which case the artist receives 50% of the sale price (Barakat interview 2007a, Sobhy interview 2007).

### *The social commons for pop stars: live is king*

The importance of the video clips is matched only by the significant role played by the live scene in promoting pop stars in Egypt. Traditional culture carries on in the prominent play that live performances continue to enjoy in Egypt. Good summer weather encourages frequent and popular beach

10 Mazika.com is different from the Mazzika satellite channel owned by Alam El Phan.

**Table 4.1 : Legal websites for music downloads in Egypt**

| | Rotana | Alam Al Phan | www.mazzikabox.com | www.mazika.com |
|---|---|---|---|---|
| **Mp3** | Yes | Free sampling (part of the song), paid streaming, and downloads | Yes | Yes |
| **CD** | Coming soon | Yes | No | No |
| **Tape** | No | Yes | No | No |
| **Video clips** | Coming soon | Paid streaming and downloads | No | No |
| **Mobile ring tones** | No | Yes | Yes | No |
| **Payment method** | Credit card | Credits counter or credit card | Phone bill | Link card or credit card (buy credit on link card) |

Source: Compiled based on information in providers' websites.

parties featuring pop singers. Live performances in major hotels are also frequent, especially in festive times and during holiday seasons when tourists come from neighboring Arab Gulf countries. Hotels compete for the top pop stars; the choice of star is a sign of the venue's prestige.

Then there are wedding parties. In the Arab culture, marriage is a highly celebrated life event for young people coming of a certain age; arranged marriages are not uncommon. Egyptians have a strong preference for live music at wedding parties, which emphasizes the nature of music as an experience good rather than a commodity. The small stratum of the upper class tends to make an excessively lavish show of its wealth in the form of extravagant weddings. This flagrant show of luxury is especially seen among families with newly acquired wealth. Families may live in debt, if only to ensure that their sons and daughters have the proper and prestigious wedding. The choice of a wedding singer is a most important status symbol. Pop stars are usually at the center of this choice, and are, naturally, in high demand.[11]

11 From an access to knowledge perspective, it is important to note that live performances are an area ripe with access opportunities for users, but could still be exclusive. In concerts, tickets prices may be quite

The live performance market for pop stars is an interesting case study in supply and demand. On the one hand, there is a strong and inelastic demand coming from the public as illustrated in weddings and other live parties. On the other hand, supply is offered by the pop stars, each being a monopolist in their own right. The pop star charges exorbitant rates for weddings, which are multiplied by two to three times for the live parties. There is a price for "superstardom" as talent is not replaceable, nor is it additive (Connolly and Krueger 2005). The market then settles at a high equilibrium price for each pop star. In weddings, the rate ranges from the equivalent of almost $37,000 per performance for the top Egyptian singer, to the equivalent of $930 for the lowest (Salem interview 2007). Lebanese singers may charge between $25,000 to $40,000, in addition to covering expenses of travel and accommodation for themselves and their accompanying musicians (Salem interview 2007).

Given the considerable revenue that top singers earn from live performances, the major record labels have recently pushed singers to agree to recording contract provisions that give labels a share of the singer's live performance proceeds. Even when singers acquiesce in the labels' demands, however, such provisions are more easily enforced in the case of concerts than weddings. Weddings can be informally contracted, with artists wanting to cash in on the wedding proceeds in return for their effort, and seeing little reason to share their earnings with a label. There have been disputes between artists and labels on this particular issue.

How do artists' earnings from live performances compare to their earnings from the sale of copyrighted recordings, namely tapes and CDs? Put another way, what is the relative importance of the copyrighted recording, as opposed to the live performance, from the musician's perspective? The major challenge faced in attempting to answer this question is the lack of publicly available information on sales of musical units, proceeds from royalties, and any receipts of major labels out of the live performance. To overcome this challenge, I gathered information on a top Egyptian pop star (whose name is withheld) whose contract with the major label was highly publicized and the figures confirmed by almost all interviewees. I made a

expensive if the artist is a very popular. In weddings, although listeners are not asked to pay for the privilege, there is more of a social calculation. Only a family of extensive wealth is going to be able to afford certain artists, and their guests are quite delineated. Live performances are thus also exclusive; it should thus not be assumed that issues of access and distribution exist only with respect to recorded music.

rough estimate of the artist's earnings from weddings and live parties based on the artist's live performance rate (as provided by the wedding and party agent at a major hotel) and frequency (as estimated by an accompanying musician). Although this exercise is preliminary and provides only one data point, I believe that this artist's situation is roughly representative of major pop stars in Egypt today.

This particular artist had signed a deal with the major label whereby a lump sum of $5 million was paid at the signing of a three-year contract. Under the terms, the label obtained exclusive rights to satellite broadcasting and copyrighted merchandise (CDs, downloads, etc.), but with all rights to a share in live performances waived. The artist's annual earning out of copyrighted recordings may thus by imputed by dividing the lump sum of $5 million over the contract term of 3 years, yielding an annual earning of $1.67 million a year. My estimate of the artist's earnings out of live parties and weddings over the same three-year term totaled $7.88 million.[12] In short, this artist's earnings out of the live performances totaled 4.7 times those coming from the sale of copyrighted recordings. As I mentioned earlier, this particular case was calculated based on the fact that this singer received a lump sum payment upon signing the contract in lieu of percentage of sales. This is typical in Egypt, partly due to the weak institutional structures to ensure efficient implementation of the collection mechanism (El Kashef interview 2007). Even if pop stars supposedly receive percentages out of the sales, a good part of that escapes the collection chain in most cases. The latter is partly the result of a lack of proper accounting mechanisms, as well as inaccurate reporting on the part of vendors (Ousso interview 2007). Indeed, the weak institutional structures in Egypt have meant that musicians who sign to percentage of sales rarely receive their due share via the collection chain (Salama interview 2007).

Thus, although an estimate for only one artist is presented here, I expect most artists' relative earnings out of copyrighted recordings to be quite modest. Even where the rate charged for live performances is lower than the singer under study, I still expect the ratio of their earnings of live performances to copyrighted recordings to be high, given the negligible proceeds from copyrighted sales.[13]

12 Calculated at the exchange rate of $1 = LE5.5.

13 After undertaking this exercise, I came across a similar calculation undertaken for the top 35 pop stars in the United States (Connolly and Krueger 2005, Table 1.1, p. 71). In this case, the authors use data published in *Rolling Stone* magazine on the stars' earnings in 2002. The ratio of live

The claim that live performances weigh much more heavily in musicians' earnings in Egypt than do revenues from sales of music recordings is made stronger by the fact that sales of recorded music are generally declining, due in part to illegal copying and file sharing, with no similar signs for the live music scene. One published statistic shows that the steepest decline in global production of music units (cassettes, CDs and DVDs) by region in 2004 was witnessed in the Middle East (-13.3%,) followed by Australasia (-5.8%), with an average world rate of -0.4% (IFPI 2005). The decline in the production and sales of licensed pop music albums further shrinks the already limited return to musicians from copyrighted recordings.

In light of the above, I argue that the thriving live music scene – rather than sales of copyrighted recordings – seems to offer the venue where artists and music lovers are brought closer together in the mainstream market for pop stars. Artists' main earnings come from the live scene. Under the prevailing differentials in artists' earnings between the live performance and the copyrighted recording, and in light of a weak enforcement of the copyright law and the weak institutional structures, artists use the copyrighted item as a reputation device, while the main benefit is achieved through the live performance. Music lovers are also comfortable with accessing music through this group experience within social gatherings and irrespective of copyright. While the major labels continue to deal with music as a private good, what seems to take place in the tension between access and incentives is resolved through a special form of de facto commons that is not restricted by copyright, and that is more aligned with the sociocultural context and economic realities in Egypt.

### *The second verse: the alternative music scene*

An alternative music scene is developing in Egypt independent of the mainstream commercial space, featuring bands that perform outside the commercial channels and provide an alternative voice that is often associated with social rebellion and political dissent. These groups play a wide array of genres, ranging from rock, to metal, to Latin, to Arabic and oriental jazz. This clique of musicians has been slowly making an entrance into the music

performance earnings to copyrighted items came out as 7.5 on average (Connolly and Krueger 2005), even higher than that of star performers in Egypt.

market that is traditionally dominated by mega-producers focusing on pop stars. Bands and singers predominantly show in private cultural venues and centers which act as their point of liaison with their base of audiences. Main players in this underground scene like to dub themselves as the alternative to the operating mainstream, and not simply groups who happen to fall outside an existing framework. Some groups like to call themselves independent to emphasize their freedom from all possible constrains manifested in business deals or political affiliations.

The beginnings of alternative music in Egypt may be traced to the early 1990s, with two young bands that played original hits, mostly rock (Ousso interview 2007). Alternative music in Egypt suffered a major setback due to the police crackdown of 1997 associating musicians with satanic practices and improper ethical conduct. Many alternative musicians were jailed and the rest were subjected to strong family pressures. Nevertheless, alternative music still survived the dramatic "satanic" trauma. A more solid beginning finally came in the early 2000s, with the creation of outlets catering to alternative musicians. These ranged from pubs hosting live music, to bigger cultural spaces continuously promoting artists. Examples of the former are the Cairo Jazz Club and After 8. The latter are particularly considered a breakthrough for alternative musicians, especially Al Sawy Cultural Center and Al Genina Theater.

### *The outlets*

Since it started in 2003, Al Sawy Cultural Center, also known as Al Saqia, catered to the needs of alternative performers and bands by hosting concerts, where they facilitated sound and light equipment as well as media advertisement. Literally translated as "cultural wheel," Al Saqia was built on the site of a garbage dump under a flyover by the Nile. The center transformed the role of the middleman in the music industry by "removing the concept of CVs," to use the words of its founder and director Mohamed Al Sawy (Al Sawy interview 2008). In other words, performing singers and bands do not need to have a long history in performance before approaching the center for a concert. In terms of revenues, the performing band does not bear any cost, since all equipment as well as the space is provided by the center. Revenues from ticket sales are typically shared equally between the space and the band, although in some instances the artist may get up to 70%, depending on his or her popularity and good performance. In the rare

cases when an alternative band or singer has a CD, these are made available for sale at the show; the center gets 20% of sales. The center then covers half its costs from ticket and CD proceeds and annual membership fees which are set at a modest rate of LE30 (equivalent to $5.5) in return for a discount of LE5 (a little under $1) on concert tickets plus free access to the library and use of facilities. The center covers the remaining 50% of its expenses through sponsorships from corporate social responsibility initiatives by major companies such as Alamiya (Mr. Al Sawy's own establishment), MobiNil, Juhayna, the Arab African Bank and Egypt Air. The Al Sawy Cultural Center's sustainability depends upon the renewed support of his sponsors each year. The Director also plans to launch "Sound of Saqia," an Internet radio initiative with advertisement as a source of income (Al Sawy interview 2008).

Al Saqia hence brings musicians and consumers closer together. On the one hand, it provides an entry point for nascent bands that do not have a lead into the commercial world, by giving them the exposure and the opportunity to keep their own copyrights, at no cost. On the other, it equally provides for easy access to the public, with inexpensive tickets ranging from LE10-25, roughly the equivalent of $2-5. With two separate theaters, the space will often run two concerts every day and crowds are often seen gathering on the streets awaiting the opening of the doors. Al Sawy himself has boasted that 750 music concerts were held in Al Saqia in 2006, mostly performed by alternative bands. In the meantime, it stays a nonprofit organization, with sustainability generated largely by mere good intentions and commitment to support young talents, and with live performance as its primary mode of music delivery to customers.

Al Mawrid Al Thaqafi (The Cultural Resource) is another nonprofit outlet catering to alternative musicians in Egypt and other Arab countries. Its scope covers all performing and self-expressive arts as well as experimental works crossing over different arts media. Al Mawrid offers production awards through an open application process with grants ranging from $500 to $5000 for young musicians to produce their own record, to which the artists retain copyright. The awards have allowed the production of five CDs so far. Revenues of the LE55 CDs (roughly equivalent to $10) are divided as follows: 20% to the retail shop and 80% to production. Out of the latter 80%, 50% goes to the producer, 30% to the distributor and 20% to the band (Abdallah interview 2007, Ousso interview 2007).

In other words, out of every CD sold, the band gets roughly the equivalent of $1.60.

According to Mohamed Abdallah, the program coordinator, Al Mawrid Al Thaqafi attaches particular importance to engaging international donors, whether private or governmental, in conversations that result in generating funds and giving more attention to the independent cultural sector in the region (Abdallah interview 2007). In addition, it seeks to explore possibilities of building long-term partnerships with the corporate sector in the region. In the meantime, Al Mawrid has also sponsored the opening of a performing space, Al Genina Theater that, like Al Sawy Cultural Center, provides alternative bands with a performing venue and an exposure to audiences.

Another initiative that focuses on the revival of traditional music is "Makan" or the Egyptian Center for Culture and Art, which hosts live performances and records releases. The thrust to focus on traditional Egyptian music, as expressed in the Center's mission statement, is to recreate a place for it in the everyday life of Egyptians. "Traditional Egyptian music is increasingly in danger of being relegated to the status of an exotic tourist curiosity, a showcase of national identity or a place on the shelves of academic archives, all of it far from the daily lives of its dwindling practitioners" (El Maghraby interview 2007). A series of cassettes, CDs and DVDs have hence been produced by Makan, alongside regular live performances by groups coming from different parts of Egypt and whose reputation may be limited to their own, sometimes remote, environments in rural Egypt. This initiative has been recognized by the Society for Ethnomusicology, which awarded the Makan Center the Lois Ibsen Al Faruqi Prize in 2005. According to Ahmad El Maghraby, the initiator and Director of Makan, cheap entry tickets to performances, ranging between LE5 and LE20 (between $1 and $5), cover a quarter of the concert's expenses. Well-to-do customers are encouraged to buy more than one ticket since, so far, ticket sales have been Makan's major source of funding (El-Jesri 2005). Despite that and its small capacity (a maximum of 50 tickets), Makan still offers no advertisement but counts only on word of mouth as the means of filtering the audience to ensure attendance only by music lovers (El Maghraby interview 2007).

Makan hence offers another alternative model of the middleman, giving opportunities of exposure to groups falling outside the scope of Cairo, in a context where the industry is extremely geographically polarized into the capital city. Makan also serves its audience by providing them with

affordable access to artistically produced music genres that have become scarce and, at best, exoticized. The business model by which this mission is implemented provides satisfactory solutions for both the artists – through exposure and revenues from CDs and performances – and to the audiences via cheap entry tickets.

From an economics perspective, it is notable that all of these centers produce music on the model of a quasi-public good. The model has some characteristics of a private good, in that the partial excludability of music is exploited in order to charge concertgoers for access to a unique live performance. This revenue model does not, however, depend upon copyright enforcement to protect the excludability that ensures its success. At the same time, the model has some characteristics of a public good, in that it relies in part on donations from public-minded individuals, corporations and foundations, to produce something that is considered to hold significant value for the Egyptian public generally. This raises the question of whether the quasi-public model of alternative music production is sustainable in the same way as the purely private model of mainstream music production.

### *For alternative artists, live is livelihood*

Like the mainstream pop stars, alternative bands earn from live performances, albeit less lavishly. Weddings are not usually an option for alternative musicians, since pop stars are the ones usually sought after there. Alternatively, live concerts hosted by an array of organizations become the venue for live performances for alternative bands. In addition to the nonprofit music performance centers described above, private venues such as select bars in Cairo (After 8, Cairo Jazz Club) offer opportunities for live shows hosted by alternative bands. However, and unlike in Brazil where pubs and clubs offer a for-profit venue for alternative bands (Mizukami and Lemos 2008), nonprofit cultural venues are the main outlets for Egypt's alternative musicians since there are only a few bars that host a live music scene in the country.

Given the high ratio of earnings from live performances as compared to copyrighted sales in the mainstream pop star context, what is the situation like for alternative musicians? I attempted a similar exercise, based on accurate information provided by the lead musician of the leading alternative band, Iftikasat (Ousso interview 2007). This band produced one CD as the winners of the competition organized by Al Mawrid Al Thaqafi. They also

frequently perform in the popular outlets (Al Sawy Cultural Center and Cairo Jazz Club). With the help of the band leader, I estimated their annual earnings out of live concerts at $4800, compared with annual earnings out of the CD at $360. This represents an earnings ratio of 13.3, weighted even more strongly in favor of live performances than the ratio of 4.7 obtained for the mainstream pop star.

It is to be noted that this band is one of the few alternative bands that have had a CD produced. It is more often the case that an alternative band's earnings out of copyrighted recordings stand at absolutely zero, and hence the band's livelihood depends solely on the live performance. One may philosophically argue that for zero earnings out of copyrighted recordings, the ratio of live performance to copyrighted items earnings is indeed infinity for Egypt's alternative musicians.

### *The artists' perspective on incentives and access*

What do alternative artists themselves think about the tension between expanding access versus preserving financial incentives at the heart of the copyright debate? To find their perspective, I put this question to three such artists.

Iftikasat is one of two bands leading Egypt's alternative scene. For Ousso, the band leader, the Internet is a key element of success for alternative musicians. "Best way to promote music is put it freely on the Internet as a promotion to the bands. Next will come the live performances, and this is where the artists can make money." Ousso thought that this type of free access is only relevant to the realm of alternative music, where tunes and lyrics are more representative of peoples' lives and are more likely to be identified with. The mainstream artists reap higher financial rewards through copyrighted business models but, in Ousso's view, catering to this market comes at a price: "It is fair to say that the music is the voice of the people, especially that the lyrics of commercial music have deteriorated tremendously" (Ousso interview 2007).

The second is Wust Al Balad, one of the Egyptian alternative bands that managed to consolidate a solid, wide base of audiences across the nation. In their open air concerts, one finds thousands of fans, particularly young men and women, repeating vehemently after them their theme song *Wust Al Balad* (vernacular for "downtown"), a self-tribute to the fact that their music has reached everyone, from the intellectual to the man on the street.

The band started by playing in pubs like After 8 and then quickly moved to the more inclusive cultural spaces such as Al Sawy Cultural Center. Their streams of income reside primarily in live concerts, be it regular or seasonal performances. Although they recently released their first CD, direct monetary returns is not the strategy that the band is eying right now. "Wust Al Balad seeks to reach the average Egyptian and to touch him or her through music. In seeking that, we care about developing a wide listenership base more than financial returns," says Hani Adel, the lead vocalist and guitarist of the band. Adel pinpointed the challenges of trying to pursue the traditional way of getting a production company to release an album for them. "Production companies are risk averse when it comes to new music genres or alternative music. They prefer going for conventional Arabic music as a guaranteed and secured income. [Moreover], music production companies can enslave the artist if he/she does not watch out," says Adel (Adel interview 2007).

Fathi Salama is another success story in the alternative milieu. After a long career as an arranger for pop stars who belong to the mainstream tradition, in 1988 he created his own band, Sharqiyat, where he composes and plays music that does not fit the commercial scene of the pop star. "I made some millionaires, but not myself," he said in an interview with the *Daily Star Egypt* (Al-A'sar 2007). He was then put in a dilemma, namely producing music with meaningful content as opposed to making money through the mainstream commercial scene. He lamented how local producers had no interest in content. "Those companies do not want to change, they will only do what they think will sell. They are not open to any different direction" (Salama interview 2007).

The artists' quotes shed light on the incentive versus access debate. What they seek is recognition and appreciation of their music, rather than monetary incentives. This is reminiscent of the unique qualities of music, which here shows itself not to be a private good that lends itself to the usual market forces and price mechanism. Indeed, on one level, one does not really see a contradiction between the interests of music creators and those of consumers.

### *True commons for alternative musicians: free music*

Besides live performance outlets for alternative musicians, where there is still some form of monetary gains for the artists, there are also venues through which alternative music is provided totally free. This can be considered a genuine manifestation of the commons. A visible example is free street

festivals held to promote the bands as well as music that is made available through free CDs.

First, the Save our Souls (SOS) festival (www.sosmusicfestival.com) is a free full-day concert of alternative bands that takes place bimonthly in Cairo and in Alexandria with the sole purpose of promoting the music. The SOS organizers have created a website, which serves as a venue of interactive communication among lovers of alternative music in the country and the region. In line with that regional scope, the organizers have also started to involve alternative bands from Morocco and Lebanon in SOS festivals. They are also exploring means of providing the bands' music freely and legally downloadable on the Internet to fans of alternative Arab music all over the world (Ousso interview 2007).

The purpose of SOS is to provide bands with access to a large audience and attract the interest of the media and the entertainment industry in general. Although the festival is free, invitations are provided based on answers to a questionnaire posted on the website. This initial screening of the audience is meant to ensure attendance by music lovers and avoid potential party misbehavior, placing high emphasis on quality rather than quantity of attendees (Ousso interview 2007). In some sense, this may reflect the emphasis placed by the organizers on maintaining the reputation of the party and the quality of music rather than on expected profits that would ensue as a result of the promotion of the bands to the largest possible number of people. In general, the SOS model resonates with the nature of alternative music that chose to be accessible to people and hence can only thrive through community support and irrespective of the profit motive as an incentive to music creation.

Another example of the free commons for alternative bands is manifested in the offer of free music CDs. In one case, Rania Shaalan, a singer from the alternative scene, gave away free CDs of her music after her concert. Another initiative was taken by Kawalees Masr (literally meaning Backstage Egypt), where a compilation CD of songs by independent musicians is produced bimonthly and made available to the public for free. The Kawalees Masr team is also involved in preparing an annual festival in Alexandria (Independent Music Festival). It discussed plans to provide Arabic music within social networking sites, a vehicle that would be most suitable for the culture of young people in the region (Samy interview 2007). These initiatives suggest that alternative Egyptian bands are increasingly looking

to leverage the marketing potential of giving their music away for free, and might stand to benefit from adoption of Creative Commons licenses.

While not yet widespread in Egypt, the promotion of musicians through free CDs is comparable to the Brazilian story of musicians in the city of Belem, where many alternative musicians are taking advantage of the new digital technologies to cheaply produce CDs (Mizukami and Lemos 2008). These may be sold at concerts, but are also frequently given away for mass copying by black market street vendors. Although the musicians will not directly earn proceeds from these sales, they know that having their music in circulation will boost their popularity and thus result in more invitations to give live performances (ibid.).

The story of Egypt's alternative musicians shows how alternative bands depend on the live music scene to an even greater extent than the major pop artists; indeed for their livelihood. Alternative music is sometimes offered for free, in an effort to promote the musicians and their bands. The practices adopted by alternative bands represent a de facto commons in the sense that music is experienced and shared as a group activity within social gatherings and personal interaction, with little to do with the profit motive and nothing to do with copyright.

## Two stories and illegal music copying

The stories relayed above scan two different models in Egypt's music business. Cutting across these is a third branch of the industry, namely the world of unauthorized copies of recorded music and illegal Internet downloads. In one instance, there is illegal access through purchasing bootleg cassettes and CDs on the street; in another there is illegal access through Internet downloading and file sharing by the end user. In both models, the customer is reaching for an alternative that is less expensive than the original. And in both models, complaints are voiced on the part of the music labels and business interest groups, while domestic authorities follow an existing but seldom enforced domestic copyright law. Artists also have a voice in the debate.

### *The rise of the illegal copy and eclipse of the copyrighted recording*

Markets in Egypt are flooded by illegally copied cassette tapes and CDs. The International Intellectual Property Alliance (IIPA), a coalition of associations

representing US copyright-based industries, reports that 60% of music distribution in Egypt is of black market copies based on illegal replication of one single original copy (IIPA 2009). A report by the American Chamber of Commerce in Egypt stated that for every Arab artist there is at least one illegally copied album on the market. In fact, the master recordings of the album of a top Egyptian pop star were once leaked from the studio and were illegally copied and released to the market even before the release of the original album (AmCham 2005). Although these reports come from sources with a particular agenda, the picture they paint accords with the observable reality of daily life in Egypt.

A popular form of illegal copying is the creation of music compilations of top hits by different singers on cassette tapes and CDs commonly known as "cocktails." The sale of cocktail cassettes represents the bulk of overall music sales in Egypt, especially in poorer and distant parts like Upper Egypt, the Delta and Cairo outskirts (Sameh Morcos, owner of DJ Recording as quoted in AmCham 2005). Selling spots take the form of street kiosks as well as "copy shops," some of which have the option of burning CDs on the spot (ibid.). Illegally copied tapes and CDs are often seen in kiosks on the sidewalks of Cairo, sometimes at the heart of downtown, where certain streets are dubbed the streets of *madrouba* (slang for copied) recordings, due to the wide availability of music and film copies. There, a network of shops, street vendors, and small-scale replication plants controls the informal business.

In parallel to the street scene, illegal music downloading from websites and file sharing are also practiced in Egypt. The table below offers an example

**Table 4.2: Popular websites for illegal music downloads**

| Alexa traffic rank* | Online music site | Egyptians as % of total users |
|---|---|---|
| 20 | mawaly.com | 54.00 |
| 25 | mazika2day.com | 86.20 |
| 41 | 6rbtop.com | 29.50 |
| 60 | 6trb.com | 18.00 |
| 63 | Nogomi.com | 66.20 |

* Rank among top websites visited in Egypt, as compiled from Alexa.com.

of illegal download websites with the highest traffic in Egypt according to Alexa.com. These are accessed from home computers or in Internet cafes, many of which have computers with unlicensed software that allows users to illegally download music from the Internet (AmCham 2005). The IIPA, which represents business interests, reports that illegal downloads represent 97% of all digital distribution of music in the country (IIPA 2009). Unfortunately, there is no sufficient information to verify this estimate, except that legal music download websites are not among the top 100 websites frequented in Egypt (Alexa.com).

Peer-to-peer (P2P) file sharing of Arabic music is not uncommon in Egypt via the globally known software – LimeWire, BearShare, Kazaa, and eMule. In addition, music file sharing takes place via websites of social network forums (see Table 4.3). Visitors to these popular websites get news, upload and download files, programs, songs, movies and pictures as well as participate in discussions and chat rooms. Unlike with peer-to-peer file sharing software like LimeWire, music files are exchanged without a requirement for the music file source to be available already online; users can send any file they have on their computers and receive files from the central server.

### *Producers' discontent*

Music recording labels complain that illegal music copying has led to a decline in sales and discouraged investments in the music scene. According to Samer Adel Maher, general manager of Mirage, a distribution firm,

**Table 4.3: Most frequented social forums that offer file sharing in Egypt**

| Traffic rank in Egypt | Site | Egyptians as % of total users |
|---|---|---|
| 10 | Myegy.com | 63.90 |
| 39 | As7apcool.com | 45.20 |
| 42 | Arablionz.com | 83.40 |
| 57 | Shobiklobik.com | 55.90 |

Source: Alexa website.

illegal online and physical music copying has been the main reason that sales of CDs with Arabic content have dropped to 5,000 CDs, as opposed to 200,000, CDs in the period from 1996 to 1999 (Maher interview 2007). He also cited other forms of social networking sites and music forums as reasons behind the drop in CD sales. These, he argued, are hard to follow because these companies can close and open overnight under a new name and a new IP address (Maher interview 2007). Moreover, the Egyptian government has no jurisdiction to shut down websites that are hosted on servers located outside Egypt (AmCham 2005).

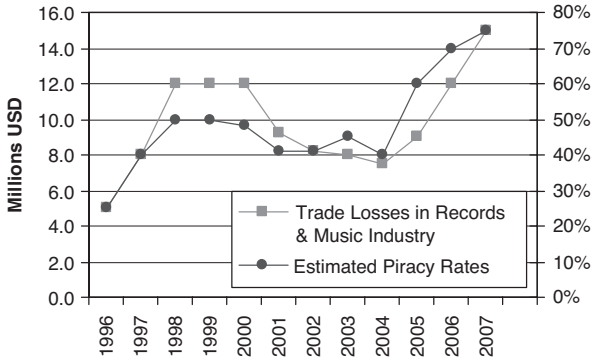
Representatives from the music business argue that illegal music copying and downloading have a negative impact on both the producer and the consumer, as the former has less incentive to develop and market music, and the latter is deprived of the higher quality recordings (Tosson as quoted in AmCham 2005). The IIPA, which represents copyright-based business associations, estimates Egypt's losses from illegal music copying at more than $15 million in 2007, which is three times the value in 1996 (Figure 4.2).[14] Such a claim is supported by the similarly oriented International Federation of Phonographic Industries (IFPI), which estimates that 50% of all music sales in Egypt in 2005 were illegal copies (AmCham 2005). Barakat, the former product manager at Mazika.com, estimated the market for illegally accessed music in Egypt to be worth $12 million (Barakat 2007b).

### *The artists' stand*

The concerns about illegal copying coming from representatives of the music labels are not always echoed by the musicians themselves, or in some cases, by producers of alternative music. One mainstream musician blatantly said in a newspaper interview, "I do not care about profits earned by the label as much as I care that my audience enjoys my music, regardless of where they get it: online or through pirated CDs or any other way. Whether the label wins or loses does not concern me" (Al-Masry Al-Youm 2009). For alternative artist Fathi Salama, illegal copying does not matter either. In response to a question on copyright protection, he responded "Now if someone takes a piece of music from me and plays it I will leave it to be played, because this

14 The IIPA's chagrin with Egypt's illegal copying is evident in its call for placing Egypt on the US Trade Representative's "priority watch list," labeling Egypt "a nightmare market for right holders, stunted by piracy, difficult bureaucracy, and almost unparalleled market access hurdles" (IIPA 2009).

**Figure 4.2:** IIPA estimated piracy rates and trade losses in records and music industry in Egypt due to copyright infringement




Source: IIPA, various issues.

is the only way people can listen to it" (Attalah 2005). Makan's El Maghraby recounts that the Center's releases have been subject to illegal copying, although his concern was not for lost revenues: "I found one of my records pirated, so I did some searching and found the person who does it and gave him actually the master because if he's going to distribute it, at least [he can] distribute it in good quality" (El Maghraby interview 2007). Moreover, an Egyptian musician and producer of the independent label "100 copies" indicated his interest in making all the music he produces freely available on the Internet, perhaps through radio streaming (Refaat 2007).

Indeed, throughout our interviews with Egyptian alternative musicians, not one expressed concern about illegal copying. This sanguine attitude of musicians reflects two facts. First, Egyptian musicians overwhelmingly reap their financial rewards through live performances rather than sales of recorded music. Second, whereas for the labels the concern is ultimately about profits, the musicians have several incentives, including nonmonetary ones, which cause them to appreciate the benefits of a wider distribution of their music. Indeed, from the musician's perspective, their music's value comes at least in part from its status as a "gift" shared with the public, which may be devalued by rigid insistence on payment.

### *The consumers: the socioeconomic dimension*

For consumers as well, copyright is not a factor in their decision-making. The generous and pervasive gift culture typical of Egyptians means that it is socially unacceptable to refuse to loan or share a possession with a friend, or

to refuse a request to copy an admired CD.[15] Music recordings, among other items, are warmly exchanged and generously shared. Copyright concerns pale in such contexts; copyright may actually be disruptive to social norms. If and when there is awareness of the concept of copyright infringement, it is viewed as a harmless deed, rationalized as possibly depriving the recording labels of potential revenues rather than actual tangible income. By copying a song, the user is not robbing the copyright holder of any money he or she already possesses; what is being denied is the potential revenue that the copyright holder might theoretically have earned.

Aside from this normative dimension, there is undeniably an economic one as well. For users, an illegal copy of the song is a significantly more affordable alternative. The price of an original CD of Arabic music ranges between LE35 and LE50 (roughly $6-9). The illegally copied CD is sold at less than 10% of the price of the licensed recordings. In Egypt, 97.5% of the population live on below $10 a day (World Bank 2007). Indeed, music industry insiders themselves have estimated that 60% of Egypt's population cannot afford an original tape, which is already much cheaper than a CD (AmCham 2005). For many consumers, therefore, the choice is between an illegal copy or none at all. The following excerpt, taken from an Egyptian newspaper article, illustrates the extent of relevance of copyright to the layman in Egypt:

> "What is copyright – what does it mean?" The taxi driver inquired, perplexed. "I've never heard of any such thing" As it turned out, this reaction was far more common than one might expect – extending across classes and groups; some university students showed the same unfamiliarity with the concept. (Ezzat 2007)

For those involved in illegal music copying, however, the small profit margin to be made on unlicensed CDs matters significantly to their livelihood. Illegal "cocktail" cassettes can secure LE1.50 profit per copy (less than $0.30), and these are sold on a large scale to the poorer segments of

15 An interesting example of the precdence of cultural norms with respect to sharing of cultural goods is found in Lawrence Lessig's *Remix*, albeit in a different environment. Lessig recounts how a teenager sitting next to him on the plane was offended by Lessig's offer to pay for watching one of the young man's (copied) DVDs, as the latter explained that he "was happy to lend" without any interest in a monetary return for such sharing (Lessig, 2008, 145). It is the youth culture this time, but it is a reminder that the price mechanism which can be loosely taken as a proxy for copyright, can be over-ridden by cultural norms.

society. In the context of the low level of people's incomes in Egypt, this makes "pirating [...] a very lucrative industry indeed" (AmCham 2005).

In fact, one cannot study law enforcement in the music industry, or in any other industry for that matter, in isolation from general development indicators, especially poverty. If one adds the perception of music as a "light" field – a luxury good – then it is not difficult to understand the poor man's perception that no one is hurt by the prevalence of illegally copied CDs. Copyright loses its meaning in this context.

### *The legal reality*

But the law is there, and in place. Copyright protection falls under Egypt's IPR Law no. 82, passed by the government in May 2002 in line with the country's obligations to the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.[16] By virtue of the law, copyright protection is offered to artistic and literary works, computer programs and audiovisual works. The law grants musical recordings copyright protection "for 50 years from the recording date if owned by a company and for 50 years after the death of the author if owned by an individual" (Egypt IP Law no. 82 2002, Arts 160-165). Copyright violations are subject to monetary penalties and imprisonment – fines ranging between LE5,000 (roughly equivalent to $900) to LE10,000 (roughly equivalent to $1800) per infringement and/or prison terms of at least one month (Egypt Law no. 82 2002, Art. 181).

While the copyright law is there, its enforcement in Egypt is weak. Responsibility for enforcement of copyright falls under the jurisdiction of the Information Technology Industry Development Agency (ITIDA) for software, and under the jurisdiction of the Ministry of Culture for other materials including music. According to IIPA, Egypt's Ministry of Culture has not been active enough in checking copyright infringement, and in most cases the results are described as "non-deterrent fines" (IIPA 2009, 1). In 2007, the fine for the first lawsuit regarding Internet piracy in Egypt by order of a preliminary court ordered the defendant to pay LE10,000 ($1800), which IIPA considers insufficient (IIPA 2009, 3).

16 Even before becoming a party to the Trade-Related Aspects of Intellectual Property Rights (WTO 1994), Egypt was a party to other international agreements aimed at protecting intellectual property rights, including the Paris Convention for Protection of Industrial Property (1883), the Berne Copyright Convention (1887), and the Madrid Convention (1954).

This pattern of weak enforcement may be partly because the seriousness of illegal music copying or downloading in Egypt pales in comparison to crimes with more visible victims. In addition, in a country with a political makeup like Egypt's, cracking down on illegal music copying may be viewed as a low government priority compared to political dissidence, especially at times when political stability is contested. The same applies to Internet downloads and file sharing, the gravity of which is overshadowed by the potential political threat coming from the Internet content of bloggers. It may thus understandably be a low government priority.

In an attempt to promote compliance with the law without dedicating significant financial resources to enforcement, the government has also resorted to religious condemnation of illegal music copying. Indeed in 2002, Egypt's grand mufti condemned piracy as "one of the worst forms of theft and [...] prohibited by Islam, hence adhering to the religious discourse to the fight against piracy" (AmCham 2005).

An additional problem associated with enforcement of the law is bribery. In one case, counterfeit cassette tapes were confiscated in a raid on an illegal replication plant and the counterfeiter was arrested. When it was time for evidence to be presented, however, a bribe was paid and the bootlegged copies were replaced by the original legal tapes, which led to the case being dropped (Tosson, in AmCham 2005). There have, however, been other more successful efforts at catching illegal copying. A famous case is when a police raid in 2003 caught 2 million counterfeit cassette tapes of Arabic music. This was done in coordination with IFPI and the Egyptian Central Association of Audio Producers (ECAAP), an official body representing the interests of the recording industry in Egypt (Attalah and Said 2003, IFPI 2003).

In short, while the legal system has been formally laid out, in practice the level of IP enforcement has been modest at best. Efforts at fighting illegal copying are sporadic and inconsistent. Although the IIPA and the American Chamber of Commerce call heatedly for improved enforcement, one may argue that these efforts are unfitting to the economic and sociocultural realities of the country.

In particular, Lessig's call for "reforming law" is very relevant to Egypt, especially as he calls for "decriminalizing the copy" and "decriminalizing file sharing" (Lessig 2008). Both copying and file sharing are rampant in Egypt. Efforts and resources allocated by the state to stop them are not

effective, and, as we have seen, are not stopping flourishing models of music production and delivery either. Egypt's scarce resources, therefore, could be better directed toward devising suitable IP models that fit and encourage the existing commons-based nature of music production and delivery in Egypt, taking into account the country's socioeconomic realities and weak institutional structures.

## Conclusion: two verses, a "common" refrain?

While enforcement of copyright on music is weak in Egypt, a vibrant live music scene is thriving outside the IP system, thanks to the culture of wedding performances and live parties. In both the mainstream and alternative music worlds, live performances and not the copyrighted recordings constitute the prime source of musicians' incomes. From the perspective of musicians and their fans, then, the relevance of copyright becomes questionable. At best, the copyrighted recording becomes a reputation device to promote the musician; a goal served even more efficiently by the free sharing of music, legally or illegally.

For both the popular stars and the alternative musicians, the live music scene offers profitable models of music generation and delivery, flourishing in parallel to an existing but seldom respected or enforced copyright law. This creates a world of de facto commons, wherein the interests of musicians and users are brought closer, without much need for copyright protection. This commons-based approach to music production aligns very well with the nature of music as a quasi-public good, and seems to be a more suitable platform for Egyptian artistic production, which is born to a gift culture that rejoices in sharing and gives little attention to individuality.

The importance of recorded music sales to musician incomes in Egypt has been greatly exaggerated. Both the mainstream and alternative music stories present a scenario whereby direct monetary benefit to the musician out of copyrighted recordings is quite modest. Whether the musician gets a percentage of reported sales or a lump sum, what reaches him or her at the end of the collection chain – given the leakages, the illegal copying and downloading, the decline in music sales, and questionable accounting – ends up as negligible. In this context, copyrighted recording and video clips mainly serve as reputation promoters or marketing devices. The primary source of earnings for musicians is the live performance, which flourishes thanks to the country's social and cultural heritage.

Whether pop or alternative, the musician will always seek the live performance, through which he or she will receive the direct return on creativity. The social commons acts as a medium of bringing music creators and users together, without much need for the label, nor indeed copyright. Because the livelihood of musicians ultimately depends on the social commons as the means of music production and delivery, it will continue to be secure, regardless of any spread of illegal music copying. In fact, there are strong reasons to believe that a freer trade in recorded music would boost musicians' incomes. Recorded music whets the public appetite for live performances which, particularly for alternative acts, are the only way for a greater variety of musicians to have a shot at entering the industry.

Only the distributors of copyrighted recorded music stand to lose from this freer trade, because their monopolies over particular artists will disappear. They will be forced to really compete with other distributors. But, this is a loss only from a very narrow perspective. This fuller competition opens up business opportunities for smaller actors, online distributors and street distributors, eliminates the cost to the state of policing illegal copying, enhances consumer access through the lower prices that competition generates, and protects the moral rights of artists to perform and distribute their works wherever they want. From an ethical frame of reference that maximizes benefit to artists and consumers, the choice seems clear.

As such, the de facto commons that emanates from the bottom-up practices of Egypt's music industry should be embraced as an appropriate solution toward resolving the tension between promoting incentives for music creators and access for music users. This is a more suitable alternative for the country than maximalist copyright protection, which deals with music as a private good and works primarily to the benefit of the record label rather than that of the artists and the users. Egypt should capitalize on and expand models that rely on the social commons and that allow music to be experienced as a social good. The commons-based approach is more in line with the notion that music is a quasi-public good, whose value increases with the number of users.

Embracing a more commons-based approach to music does not mean that there will be no profit-making opportunities for large companies. As described in this chapter, the major Egyptian labels already profit from the distribution of music on a commons-based model, by broadcasting video clips on satellite channels and generating revenue through advertising and

SMS contests. Mobile phone companies and Internet service providers also stand to gain from increasing access to free music, which will drive more Egyptians to seek subscriptions. Another suggestion in this regard is an online subscription model that incorporates social networking, virtual gift giving, and holding virtual parties. Such formats would be highly suitable to the Egyptian culture and practices of accessing music.

The live music scene in Egypt offers a special form of the commons. I call it de facto commons because it represents practices that have naturally emanated from the bottom up without any deliberate action or conscious decision on the part of any organizing agency. Considering the earlier analysis of music as a quasi-public good, perhaps what the live scene in Egypt exemplifies is a model of a quasi-commons: to a large extent non-rivalrous, but still excludable. Many are invited to listen, some pay, but prices are significantly more affordable than buying an authorized CD. Not everyone gets in. In most venues, some people are excluded, because there is a shortage of space or because the group needs to charge an entry fee to cover their costs of production.

On a wider scale, music is freely shared and exchanged, sometimes formally in the case of alternative musicians, at other times illegally in the case of unauthorized copied and shared music. Perhaps it is time Egypt's music scene expanded into a fuller commons accessible to all audiences, including the poor and the geographically marginalized. This fuller commons is realized to the extent that recording technologies make it possible to expand the audience beyond the live one, and copyright barriers to file sharing, radio broadcasting, and CD sales are removed, or ignored, to make the music affordable to a wider audience. Musicians will continue to earn from the live scene, and indeed, many more musicians may become known through the wide and free sharing of music and alternative distribution mechanisms. Enabling aspiring musicians through such venues is an added value from an access to knowledge perspective.

Acknowledging and accommodating the de facto commons in Egypt's music industry though a more flexible IP regime can ensure that tension between creators and users will be further eased, officially this time, albeit at the expense of the middleman. But that is precisely one characteristic of the digital economy: the shrinkage, or at best evolution, of the role of the middleman in light of the prevalence of the Internet as a medium of bringing producers and consumers closer together. The trade-off between access and incentives will be further resolved, as free access to consumers

will act to promote the musicians who will still find space for expanding their earnings from the ever flourishing live scene.

On a final note, the lessons learned from Egypt's music industry echo other models that create value based on the free sharing of knowledge and that are witnessed in other industries. In the software industry, for example, for-profit business models are built around freely shared open source software. As a knowledge-embedded good, digital music shares its cost structure with software: expensive to produce the first copy, yet inexpensive to reproduce and distribute additional ones. A similar cost structure may exist in the area of pharmaceuticals, where significant research expenses are involved at the early stage, but later manufacture can be achieved at low cost. In such circumstances, resolving the incentives-access trade-off does not require creating an IP monopoly, but rather realizing and taking advantage of the economic virtues of sharing. The common refrain, then, is also heard in the case of other knowledge-embedded goods, where knowledge sharing can be incorporated into business models that generate value for both producers and consumers, offering a more suitable alternative to intellectual property protection.

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CHAPTER FIVE

# The Software Industry in Egypt: What Role for Open Source?

Nagla Rizk & Sherif El-Kassas*

Open source software (OSS) is software whose underlying programming source code is freely available to users to access, modify, and redistribute under the same or less restrictive distribution terms. This may be contrasted with proprietary software where the copyright holder – individual or a company – sets restrictions on its use, copying and distribution. The terms of use for proprietary software are outlined in a licensing agreement that typically does not allow the free distribution of the software, nor the modification or inspection of its inner workings. OSS is the product of a long time movement toward software that is developed and improved by volunteers from all around the world collaborating together on a network. It offers a new form of knowledge production based on peer collaboration and community based innovation. OSS is also associated with knowledge liberalization as it provides accessible platforms of knowledge that do not commodify information by imposing barriers to its acquisition.

The objective of this chapter is to assess the current and potential impact of OSS on the access to and creation of knowledge, economic growth, and ultimately development in Egypt. At the heart of this work is the belief in the power of knowledge creation in promoting human development, and the viability of business models based on platforms created by peer collaborative production in creating economic growth. In Egypt, a potentially strong base

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of human capital makes a fertile territory for the software industry to flourish in general. OSS in particular is at a nucleatic stage, which can be developed into an overall organized platform, provided the ecosystem incubating it facilitates this growth.

In this chapter we analyze OSS within the overall software industry in Egypt, and examine whether and the extent to which OSS might contribute to access to knowledge (A2K). Through a careful analysis of the existing ecosystem for the software industry in Egypt and a series of in-depth interviews with different stakeholders, we give a picture of the OSS landscape in the country, highlighting the variety of business models that companies are adopting. We also examine the barriers identified during the fieldwork, and which stand against the flourishing of OSS in Egypt. Finally, we present suggestions and alternatives for an improved ecosystem that would best enable the use of OSS to promote access to knowledge in Egypt.

## OSS as paradigm shift

OSS is a paradigm shift in the software business. This is because it changes some of the fundamental assumptions about software products such as intellectual property right (IPR) protection. The mainstream IPR-based model depends on the premise that innovators, namely implementers and producers of software products, will be able to create a form of artificial scarcity by controlling the production of their software via the legal framework of a maximalist intellectual property regime. Perhaps the ultimate example of the success of this model presents itself in off-the-shelf products (e.g., Microsoft's office product suite). This business model allows software companies to recoup the costs of development by collecting payment for the same product from a large number of users. Overall, however, this business strategy has drawbacks for the state of competition and for society as a whole. Such a model creates a system that obeys the law of increasing returns. That is, clients will tend to gravitate toward the leader in a given product category and move away from other producers (Roeding et al. 1999). This suggests a high barrier to entry for newcomers; such an environment would not be optimal for a new and budding software industry that is unlikely to be able to compete against well-established companies (ibid.).

On the other hand, OSS presents an alternative business model, one that depends more on identifying the differentiating factors for companies, and

collaborating on the non-differentiating ones.[1] This may be appreciated if we think of software as a system made up of a number of components, some of which are necessary but non-differentiating, while others contain the innovative work and are differentiating in nature. Indeed, Perens argued that "90 percent of the software in any business is non-differentiating. Much of it is referred to as infrastructure, the base upon which differentiating technology is built" (Perens 2005). The essentially generic nature of non-differentiating technologies implies a benefit in collaboration as per open source models, and a waste in duplication as in proprietary models. Within the proprietary model of software development, competitors must each maintain the entire working systems as one closed unit. Each of the competitors would typically work separately to create their own version of the non-differentiating components within their final product. This is redundant and results in higher overall cost for the companies and their clients.

OSS then, becomes a wise choice for pushing down the total cost of ownership (TCO) of the technology infrastructure, which is the non-differentiating factors, such as servers, operating systems, databases, etc. This is especially relevant for countries where labor costs are low, as in Egypt, where TCO would otherwise be dominated by paying a license fee for the proprietary software (Weerawarana and Weeratunge 2004). OSS as an alternative model and a paradigm shift can help redefine the business environment in a manner that is more advantageous for budding industries. This may be more relevant for developing countries, as it may be best to build on knowledge that is already accessible through an open source platform and take that as a starting point.

Advantages of OSS accrue to different parties, from software developers, to service providers, to users. For example, software vendors can benefit from previously developed components and save the time and effort of redevelopment; service providers, such as web hosting companies, can benefit from existing OSS software to deliver services to their clients while saving on licensing fees; and users may use software freely and benefit from cost saving and community support.

1 Differentiating factors represent the strengths and innovative contributions of technology producers and may transcend both hardware and software. For example, IBM may consider collaborating with competitors on the development of an operating system, such as Linux, because the operating system is non-differentiating from its point of view. Pursuing this collaborative strategy enables IBM to unify its heterogeneous platform and sell more hardware in the process – its differentiating factor. Similarly, a database company, such as Oracle, might find that an operating system is non-differentiating while the database engine itself constitutes its main business (Valduriez, 2002).

Because of these advantages, the new paradigm offered by OSS has also become a reality that has imposed itself on the world arena. Over the past decade, OSS has expanded to overtake the web server market.[2] Apache has been the leader in the web server market since the 1990s and already dominates 71.94% of the market in 2009 (IDC 2008b). On average, Microsoft has had a steady growth rate in the web server market, which may indicate that Apache has been eating up the shares of web servers other than Microsoft. The market for Linux servers has grown at an annual rate of 11.8%, which exceeds the 9.8% growth rates in markets for Microsoft servers (ibid.). According to International Data Corporation (IDC), the worldwide generated revenue from "standalone" OSS was $1.8 billion in 2006, and the expected growth rate from 2006 to 2011 is 26%, with revenues expected to reach $5.8 billion in 2011 (IDC 2007).

While desktop and office software, which is closely associated with software in public perception, is one area where proprietary solutions continue to dominate, OSS has also been successful in a variety of other areas. Examples include web browsers such as FireFox, used to surf the Internet; email clients such as Thunderbird; productivity applications such as OpenOffice; telephony systems such as Asterisk. OSS has even found its way to mobile phones such as Google's Android phone platform. FireFox gained a market share in 2008 of 4% on the expense of the proprietary browser Internet Explorer, which faced a decline of around 8% for the period from April 2008 to February 2009 (Net Applications 2009).

## Conceptual framework

The software industry in Egypt sits at the heart of two related issues. The first has to do with the business structures within the software industry, given that it is a knowledge production industry. The second is concerned with software as an infant industry in developing countries, and the presence and type of protection that is accorded for the industry to flourish as a source of economic growth.

2 Web servers are systems that are used by content providers to deliver content to clients. They are special programs that typically run on dedicated machines which are able to respond to users' requests made through web browsers and other clients. Web servers implement, among other things, the server side of the Hyper Text Transfer Protocol (HTTP) and its variants. Hence, web servers are among the most important software components, because the web is seen as the preferred platform for application delivery in many situations; it enables enterprises to save on client software update, maintenance, and deployment.

### *Production structures: vertical versus horizontal platforms*

The recent developments in digital technologies have posed an interesting paradox in the economics of knowledge creation. On the one hand, the expansion of information and communication technology has facilitated the flow of information, a decline in barriers to market entry and exit, and the emergence of flatter production structures providing new opportunities for small players at the firm and country levels. The commonly viewed models of business process outsourcing and offshoring are cases in point. In many ways, the argument may be made that digital technologies are bringing economies closer to the textbook model of perfect competition.

On the other hand, as the unique cost structure for the creation of knowledge gives a strong potential for economies of scale and increasing returns to investments in knowledge, it can also lead to vertical production structures. These are monopolies that are built around the production of knowledge and knowledge-embedded goods. The private protection of intellectual property rights is a key factor in the emergence and sustainability of these monopolies.

To an economist, the above is a typical illustration of the argument that the digital economy is characterized by two concurrently opposing forces: one is the creation and spread of small firms and the other is the growth and expansion of larger structures. This is most accurately depicted by Martin Baily as "centrifugal" and "centripetal" forces of the new economy, where the impact of information technology on transaction costs changes the boundaries between firm and market, encouraging small firms (centrifugal) while simultaneously expanding mergers and acquisitions into larger structures (centripetal) (Baily 2000).

In the context of the software industry, we argue that similar opposing forces are at work. OSS provides a potential for small players to engage and proliferate. At the same time, intellectual property rights allow for larger conglomerates to grow around proprietary code. This provides interesting nuances in the interplay between intellectual property and competition. Maximalist IP protection will encourage and perpetuate large monopolistic structures built around knowledge creation; flexible IP regimes will enable the creation and spread of smaller firms. Therein lies the universal tension between intellectual property and competition.

This is highly relevant to software as it embodies the typical characteristics of a digital knowledge good: a reproducible knowledge output with high costs of production yet next to zero costs of reproduction. Given the wide scope of

networking and distribution allowed for by information and communication technology, this provides the potential for massive economies of scale, but also for loss of income through large-scale illegal copying that releases a perfect replica of the original. More interestingly, borrowing terminology from Yochai Benkler, software ranks high on three characteristics: "modularity," "granularity" and "low cost integration" (Benkler 2002, 2006). In that sense, it is subject to extreme fragmentation and feasible division of collaborative labor, making it a strong candidate for peer collaborative production through a commons-based model (ibid.).

This new mode of production offered by OSS was presented in Ghosh (1998), Raymond (1999), and Tapscott and Williams (2006). While Raymond compared proprietary and OSS models respectively to a cathedral and a bazaar, Ghosh presented OSS production as a "cooking pot" for this information good - its non-rivalrous nature ensuring that there would be enough for everyone in the end. Tapscott and Williams presented OSS as an example of "mass collaboration" among contributors from all over the globe. Indeed, OSS is an illustration of a production "mode" which Paul Adler depicted as one that depends on communities cemented by trust (Adler 2001). He argued that for the production of knowledge, the community/trust combination is superior to both the market/price and the authority/hierarchy modes (ibid.).

The software industry thus provides the potential for horizontal platforms of peer collaboration around which flexible and innovative business models can be built. The very nature of software suggests the strong potential for the success of peer collaborative production, which is made easy by developing networks diffused by information and communication technology. As geographical boundaries become irrelevant, this provides a level field with new opportunities for contribution to knowledge from intellectual capital based in developing countries.

### *The infant industry argument in a new light*

OSS also sits at the heart of a second major debate: whether a developing country can afford the growing pains of creating knowledge through smaller and younger production structures as opposed to relying on ready-made technologies that are imported from the developed world. This is highly relevant to the potential impact that OSS can have in developing countries, where a belief in this potential would necessitate attention on the part of governments to protect the infant industry. It is also a modified enactment of

the "infant industry" argument, where economists since the early nineteenth century have argued for protection through imposing import barriers in order to allow the local infant industry to eventually "grow up," as it develops economies of scale free from the threat of competition from the advanced imports.[3] Historically, this argument has been applied to heavy industries, typically the automobile industry.

Now the infant industry debate is no longer over physical industries that are products of the industrial revolution. Rather, it is a debate over protecting knowledge industries that are indeed much less tangible and that embody a unique cost structure of production, reproduction and distribution. Such a cost structure provides a strong potential for economies of scale in both proprietary and open source models. Yet this potential is captured by the larger proprietary firms whose products are in essence the outcome of imported knowledge. Effectively, OSS remains the infant domestic industry that needs protection. In this case, protection does not refer to blocking imports by imposing tariff barriers, but rather to shielding OSS firms by freeing them from the threat of market dominance by larger business structures, which is partly due to proprietary IPR protection.

The question becomes: to what extent is the growth potential of the infant open source-based companies constrained by unfair competition from the large proprietary software companies? Instead of protecting the infant industry by imposing import barriers as per the classical argument, we ask whether the present ecosystem of software industry in Egypt is protecting the aged proprietary firms by virtue of IP barriers? Is OSS production in Egypt, then, an infant exposed?

This issue fits into the developmental potential of OSS and the impact of domestic policies that work to "protect" it. In fact, Debroy and Morris (2004) argued that OSS by itself does not form the basis and roots for a local software industry that can compete globally. They acknowledge that open source business models built around the personalization and adaptation of the software to the needs of the companies may sustain profits that are enough to keep a few companies alive. They also recognized the advantages of OSS ranging from low cost, existence of local talent, and freedom from monopolizing Western software vendors. Yet they argued that different

3 This argument is most notably associated with Friedrich List in Germany in 1841 (supporting the protection of infant German industries from competition from English industries).

business models of open source are not economically sustainable since they are built on a service that can be very easily copied and imitated by any other company, and this lowers the price of the final product. Thus, they concluded that if the government chooses to support open source companies, it should aim at raising awareness about OSS and not foreclose all the usage of proprietary software. Companies can then choose the software that best suits their demands. This, in fact, does not depart much from our standpoint; namely, that a healthy ecosystem of a software industry should involve the diversity of both open source and proprietary models.

In contrast to this, a strong case for OSS for development is presented by the United Nations in the *Ecommerce and Development* report (UNCTAD 2003). The message of the study is that OSS promotes competition in a sector that was once out of reach, and has given developing countries the opportunity to develop their human capital and promote innovation and creativity. The report also included the argument that the cost advantage of OSS will increase the software diffusion in the country and that the money saved from paying for software licenses could be used to train people in software development. This will enhance the skill level of human capital in developing countries. Moreover, OSS adoption in developed countries may act as an incentive for developing countries to export OSS, and may also open opportunities for outsourcing (UNCTAD 2003). This is relevant to Egypt as it has recently been expanding as an outsourcing haven due to the diverse language skills of its young population, with increasing investments in outsourced activities, most notably in service industries from Europe.[4]

In line with this, Weerawarana and Weeratunge described the case for developing countries to adopt open source strategies as "compelling," where the choice of OSS is not just "a mere product choice" (2004, 5). Rather, such choice should reflect "an alternative strategy for building, maintaining and changing the rules that govern information flows in the economy" (ibid). These authors suggest that OSS will create value "through the key drivers of business opportunities, reduced investment cost and greater efficiency and to "effectiveness of government" (ibid.). They add that the actual implementation necessitates collaboration between the different players: government, universities, other educational institutions and private firms. In

4 In 2008 Egypt was awarded "Offshoring Destination of the Year" by the UK's National Outsourcing Association. http://www.noa.co.uk/index.php/awards/winners2008/.

particular, they stressed localization, and argued that the success of an open source strategy will depend on the capacity of local industry to implement OSS as well as the traditional and other capacity building measures such as educational and training programs. They maintained the importance of targeting capacity building through developing new OSS products alongside other capacity building measures (Weerawarana and Weeratunge 2004).

A similar view is held by Weber (2000), whereby he attempted to identify the economic, social and legal structures which are behind the uniqueness of the OSS model. He examined the OSS development process in both micro and macro contexts. According to him, the study of OSS lies in three distinct sets of issues: the motivations, the economic structure of OSS development, and the social and political structures that organize, manage, and coordinate this complex process. Weber demonstrated that the OSS model succeeded in producing software that is widely used and trusted and hence should not be overlooked; this model, in fact, can be extended to other sectors of the economy, for it yields a new mode of production based on collective action rather than private investment (Weber 2000). In essence, that is a call for expanding horizontal business structures built around the creation of knowledge for the benefit of developing countries. This would also mean providing more room for "infant" OSS-based firms to expand away from possible market dominance by the larger establishments built around maximalist IP protection.

The promise of OSS for development was recognized by some developming countries whose governments took positive steps to encourage the industry. For example, Malaysia adopted an OSS master plan to promote the use of OSS in the public sector. The plan was launched in July 2004 as an outcome of a government decision, whereby an organizing body called the Open Source Competency Centre (OSCC) was formed and made responsible for the close guidance, coordination and monitoring of the adoption of OSS in the public sector. A clear strategy was devised with the plan divided into phases. Starting in 2004 with Phase 1 (called "awareness"), Malaysia moved on in 2007 to Phase 2 ("accelerated adoption"), expanding OSS adoption to all public sector bodies nationwide, in order to ultimately reach Phase 3 ("self-reliance"). The Malaysian vision to provide an enabling environment to OSS is evident in the following statement by the OSCC: "[A] full eco-system to allow natural growth of demand and supply in OSS is targeted to be achieved in order to move forward to Phase III – Self Reliance in the near future" (OSCC 2009).

In other countries, there have been efforts at encouraging OSS adoption by the government. In Vietnam, the Ministry of Information Technology has issued instructions to government agencies and their clients to use OSS and train their personnel accordingly; computer traders have been requested to sell personal computers installed with open source and not "cracked" software (Vietnam Net Bridge 2009). In India, six local governments have adopted OSS in several fields such as education, e-government, and food and civil supplies departments (MCIT, 2009). At the national level, India's ruling party agreed to adopt a "hands-off" policy in choosing between OSS and proprietary software, leaving the decision to individual government agencies (Ribeiro 2009).

### *Where Egypt stands in these debates*

As stated above, the software industry in Egypt sits at the heart of the above two issues. While vertical models of proprietary knowledge creation perpetuate monopoly structures, flatter horizontal models of knowledge creation involve a pool of creators and tend to give rise to smaller firms. These would require an enabling environment where these firms are shielded from market threats originating from the larger, older market players. This has important implications for policy debate on how best to promote the Egyptian software sector, including OSS as an infant industry.

In Egypt, there is very limited scholarship on the software industry; most of the literature may be found in a few consultancy reports (AmCham 2007, IDC 2008a, 2008b). Apart from a few news editorials (Al-Ahram 2004 Schewe 2005), there is nothing written specifically on OSS in the country. An earlier study of the Egyptian software industry by Rizk (2002) examined the potential of the industry to take Egypt into the "New Economy." The study offered a preliminary review of the industry's performance trends, strengths and weaknesses. It concluded that Egypt possessed a potential comparative advantage for software development, most notably in the low-cost and well educated pool of human resources. However, the country lacked hands-on training and offers a labor supply to a market that is restricted by managerial and organizational imperfections, most notably in the heavy bureaucracy, in addition to the lack of access to credit and venture capital. The paper included an examination of the economic effects of the industry, arguing that achievements then fell short of the expectations set by the government at that stage. Given that the industry was then at an even earlier stage of development, there was no coverage of any existing or potential presence of OSS.

Perhaps this absence of literature on OSS in Egypt reflects a certain lack of belief that open source can expand and compete given Egypt's environment that is highly dominated by proprietary software. At present, and with the growing belief worldwide in the role of OSS in promoting economic development, it is important to see how Egypt's software industry will evolve in the coming years. It is from this background that we move to explore the incidence and impact of OSS within the ecosystem of Egypt's software industry. We consider this within a broader techno-economic conceptual framework concerned with market structures and with growth potentials for developing countries.

## The Egyptian software industry landscape

The software industry has been hailed as a potential engine for Egypt's economic growth. This is partly attributed to Egypt's human capital, given a tradition of a free system of university education where engineering schools graduate thousands of young Egyptian men and women every year. Given that the country has a population of more than 75 million people, 60% of whom are less than 25 years old, Egypt is argued, often by the government, to embody a strong potential for human capital in the software industry. Public policymaking involved in the Information and Communication Technology (ICT) sector has always emphasized Egypt's position as a potential leader in the software industry for the Arab region.

In fact, Egypt has historically assumed the role of a cultural leader in the region, and has been considered an especially strong center of potential creativity in the Arab software market. In particular, the government continuously announces its support for the software industry, albeit not once mentioning OSS. It is therefore important to note which model best suits Egypt's peculiarities and maximizes A2K.

### *Market structure*

There are no published figures on the size of Egypt's software market. The only published figure is an IDC estimate of $131.95 million as the size of Egypt's packaged software market in 2005. This is considered to be the highest ratio of software to total IT market size in the Middle East. Projections for the domestic market are relatively modest, expected to reach $231.68 million in 2010 (AmCham 2007). Within that, the share of Linux-based systems is a modest 1-2% of Egypt's software market

(AmCham 2007, Interviewees). A few Linux-based systems are sold to the Egyptian government, which has close ties with the major proprietary vendor (AmCham 2007).

According to the Business Software Alliance figures, piracy rates for Egypt are high, estimated at 59% in 2008, which is lower than 2003's figure of 69% (IIPA 2009). We have three estimates for Egypt's software exports: a government-announced figure of $500 million in 2006, an IDC estimate of $145 million in 2005[5] and an American Chamber estimate of $70-90 million for 2005 based on an earlier study by AT Kearney. Despite the variation in the figures, there is an agreement within all three sources on the strong potential for export and outsourcing by Egypt's software firms (AmCham 2007).

The third source offers some detail on the companies as the estimate is based on a 2006 American Chamber of Commerce survey of major software companies.[6] The total exports of these companies were estimated at around $66 million projected to reach $250 million by the end of 2008. The bulk of the exports of these companies was directed toward North America (more than 40%), the rest going toward the Middle East (28%), Europe (19%) and Africa (8.3%). The share of North America was expected to reach 50% by the end of 2008 (AmCham 2007). To our knowledge, there are no updated sources to confirm whether this target has been achieved.

The Egyptian software sector is mostly focused on customizing existing software for specific businesses (e.g. providing the service of customizing banking or human resource applications). Egypt's comparative advantage lies in labor-intensive services as opposed to "one-time products" (AmCham 2007). This is consistent with the apparent global trend within the software industry to become more service oriented. Cusumano (2008) suggested that the move toward service oriented work is "related to lagging growth in product sales and total sales, as well as the recession that followed the Internet boom." This, in fact, provides an argument in favor of adopting OSS platforms, given the lower cost of ownership and lower barriers to entry as well as their apparent suitability for service oriented models. This is particularly relevant to services related to end-user products such as word processors, since such

5 This figure of $145 million is divided as follows: IT products ($15m), content ($30m), localization ($15 m) and IT services ($85m) in 2005.

6 List of 23 companies, mostly proprietary with the exception of open craft, IBM, Oracle, Cisco, ITworx and SysDsoft.

products/markets seem to follow the law of increasing returns. OSS offers a great equalizer for those who want to develop differentiator products that may be commercialized as add-ons to existing end-user products. For example, a company that wanted to market a product enabling Arabic handwriting recognition would have a much easier time integrating its offering with the OSS OpenOffice than with the proprietary Microsoft Word.

Looking to the future, the largest share of Egypt's projected exports is expected to come from offshore development activities. This would be the outcome of centers created at large multinationals (IBM's Technology Development Center and Microsoft's new Innovation Center) as well as software outsourcing by companies like ITWorx and Harf. Call centers are expected to be the next biggest, followed by professional services and content. IT services and Arabic content are predicted to be the fastest growing sectors, with a compounded annual growth rate through 2010 of 27% and 46% respectively (AmCham 2007).

The Middle East market offers a strong potential for Egypt's software industry, especially with Arabization and the increasing interest in Islamic content. This is a public policy interest and one of the priorities of Egypt's Ministry of Communication and Information Technology; a discussion of the government's efforts in the field of Digital Arabic Content is presented by Sherif Kamel in his chapter in this volume. Meanwhile, large companies like Google and Microsoft have started to capture this opportunity. According to the American Chamber of Commerce report, Google released most of its products in Arabized versions, and Microsoft has expanded its Arabic offerings "dramatically", which included the launch of a technical support site for Microsoft Office that is fully Arabized. Smaller companies too, like Harf have specialized in Islamic content and developed Islamic calendars, prayer time calculators and interactive Qurans (AmCham 2007).

## Profiles of software business models in Egypt

This section outlines the main classes of software related industry sectors that are within the scope of our study. The classification builds on the work presented in Roeding et al. (1999), and reflects commonly accepted industry norms, but has been customized to address the current Egyptian software industry and its relation to the open source movement. The main classes addressed are: 1) software resellers and support providers; 2) producers of their own intellectual property; 3) software service providers; 4) IT and Business

consulting firms; and 5) other IT service providers. We argue that each of these classes of businesses may potentially benefit from greater adoption of OSS products, although in different ways in addition to lowering the total cost of ownership, which is a common advantage across all business models.

***Software resellers and support providers (Business Model 1)***

Businesses in the first category typically act as agents or resellers to other software vendors. Common examples include companies acting as agents for off-the-shelf software products, such as Microsoft Office or Adobe Photoshop, or Red Hat in the case of OSS companies.[7] In such cases companies typically offer license and installation media sales services; in many cases they also act as the first line of support for the products they sell. The resale aspect requires a minimal amount of technical knowledge as it is essentially a form of goods moving. A standalone reseller model is typically based on off-the-shelf software products (such as productivity tools).

For software systems that are typically classified as enterprise solutions, such as Oracle financials and SAP Enterprise Resource Planning solutions, the support aspect of such business can range from simple assistance with the basic use of the software to sophisticated consulting and customization. The consulting side of this business is very rewarding as estimates suggest that 70% of the cost of such projects would be directed toward consulting and high quality services. Much of the consulting and customization work is typically directed to business aspects of the solution rather than the pure technical ones (e.g. to follow a legally mandated work process or produce a report in a specific format). This suggests that a large portion of the needed expertise is solution-independent. In turn, this suggests that if a localized open source product proves itself to be of high quality then this would attract system integrators wanting to bring down project costs while at the same time delivering high-quality services to their clients.

With the exception of very few solution independent companies,[8] most establishments currently in this category in Egypt are linked to proprietary

7 Linux Plus is a company that describes itself as a "Red Hat Advanced Partner" providing a number of reselling, training, and consulting services centered around Linux-based technologies from Redhat, Oracle and others (http://www.linux-plus.com/).

8 One such company is Valuesys, which, according to its official website, specializes in enterprise resource planning (ERP) in addition to IT infrastructure and security. It acts as a reseller of solutions including some open source ones, such as SUSE Linux. It also provides training, consulting and technical support services for a mix of open and closed source products (www.valuesys.net).

software producers (such as Microsoft and Oracle) and typically can only expect to gain low margins in return for their sales effort. Furthermore, such companies usually have to adhere to the business standards, practices and training guidelines of the software producer that may not be the best match for the local standards, culture and business practices. This can often create a lock-in situation for both the company and its clients.

In Egypt, software resellers and support providers range from tiny outfits of 10 people or fewer to larger players, an example of which are multinational giants such as IBM, and large local system integrators, such as RAYA. RAYA is one of the successful systems integrators in Egypt. Its line of business ranges from retail (e.g. mobile phones and personal computers) to specialized software development. The range of expertise within RAYA is quite diverse and includes sales, technical and business skills. We therefore suggest that companies such as RAYA stand to gain from the use and application of OSS. Essentially, OSS would allow them to leverage their business and technical skills to provide services to their clients without necessarily having to pay licensing fees to their suppliers.

We suggest that companies that do not have in-depth skills and depend mostly on reselling will probably not benefit much from OSS. However, Those which have the skills and depend on support and consulting, however, stand to gain from OSS. The second group can lower the total cost of ownership for their clients while maintaining better margins for their company.

### *Producers that own IPR (Business Model 2)*

In this subsection we examine companies that produce their own product, which may be classified under one of the known intellectual property forms, either copyright or patents. For the purpose of this discussion we have identified the following subcategories: 1) producers of standardized business products; 2) R&D-based products; and 3) embedded systems producers.

#### *Standardized business products*

Such firms typically produce their own software and sell licenses and support services to their clients. These include typical business applications, such as accounting applications, and vertical market applications, including hospital or hotel management systems. Such applications would be copyrighted and the companies would possess trademarks, but they would rarely hold patents. This is because the knowledge value added within such applications typically

does not include enough novelty to warrant a patent. The more standardized the products are – meaning the more likely they are to become off-the-shelf – the more competitive the market becomes (see Roeding et al. 1999).

A notable alternative example is OpenCraft.[9] This successful software company specializes in developing, maintaining and supporting open source systems for small and medium-size organizations. It reports that its revenues flow from customization of OSS, implementation and integration activities, and training, support and maintenance. It specializes in four important areas of enterprise computing, namely: customer relations management (CRM) systems; document management systems (DMS); content management systems (CMS) and Internet applications. The success of OpenCraft presents a good argument for the OSS model: it delivers value to its clients while minimizing the total cost of ownership because it depends on OSS building blocks. OpenCraft has attracted Egyptian investment giant EFG-Hermes, which now owns 40% of the company (Mardini interview 2007).

One would argue that such products will eventually follow the law of increasing returns. As such applications become more standardized and multinational companies continue to provide localized versions on their products, the top products will be the only ones to survive (as proprietary ones). Other firms that have not become the top players would/should move away from selling the products toward selling support and consulting services. This would enable them to leverage their business and technical knowledge. A move toward OSS would be beneficial for such firms as it would help reduce the total cost of ownership to their clients and potentially help the OSS firm gain more business. From the client's perspective, the actual product used is likely a non-differentiating factor (see Perens 2005), while the ability to perform the business task may well be so. That would suggest that clients, particularly in a price-sensitive market such as Egypt, would opt for the effective yet less expensive solution.

*R&D-based products*

These firms are able to produce unique products based on their own R&D and innovative work. In Egypt they work mostly on language-based Human Computer Interfaces (HCI). Such firms include RDI, Sakhr, IBM, ImagineIT, and others. For example, RDI is famous for the production of Arabic

9 The co-founder of OpenCraft, Abdelkarim Mardini, was interviewed extensively for this research.

voice-based systems (speech synthesis, recognition, and compressions) and has done some leading work in this area. Sakhr, in the meantime, is a leading producer of Arabic software and has done some pioneering work in Arabic language processing.

For companies in this group as possibly the unique owners of important technologies, it might be more advantageous to remain within the realms of traditional IP approaches as far as their innovations are concerned. Nevertheless, it could be beneficial for such firms to integrate their products with other OSS systems in order to reduce the total cost of ownership.

*Embedded systems producers*

These firms produce embedded applications that are either part of a larger system, such as industrial systems, systems controlling textile machines, or standalone devices, such as mobile phones, satellite receivers and others. They are sometimes characterized as hardware vendors since their products are often combined with hardware or industrial products. Such vendors tend to benefit from OSS because it lowers the cost of the non-differentiating elements in their products (Perens 2005). In general, vendors that provide combinations of software and hardware also benefit from OSS because it tends to reduce the overall product cost. One successful Egyptian company working in this field is Electronic Formations, which provides consultancy services by integrating, compiling and packing of software–both proprietary and open source. The firm has successfully developed and produced a Linux-based appliance for network security which is now used in many of Egypt's cyber-cafes.[10] For such companies, depending on the type of system or application, the use of OSS will be beneficial as it will help lower the TCO for their clients.

### *Software service providers (Business Model 3)*

These firms develop software for others.[11] Their business model is based on renting out their skills as software developers and consultants. Such firms typically charge their clients on the basis of man-days (labor/effort cost) and hand over

10 The Managing Director of Electronic Formations, Osama Abou Elsorour, is among our interviewees. According to the firm's website, "One of EF's strongest initiatives is the support for open source free software. By adapting such a class of software, businesses are able to deploy technologies that otherwise were unfeasible due to the high costs associated." About Electronic Formations, http://www.eformations.net/site/docs/about.asp, last accessed April 14, 2009.

11 An example of this model is offered by Phoenix Egypt, whose manager is among our interviewees.

the product to their clients who typically own the product IPR. These firms have no real stake in the produced IPR and often report that they work on whichever platform the client demands. They may save some costs on using OSS when it is non-differentiating. Some software firms have reported that they use OSS during the development phase of the software and then switch to the proprietary product at installation/deployment time (as required by their clients).

Such firms typically report that they are agnostic on the subject of OSS versus proprietary (e.g., ITWorx) since they typically do not own the end product. It should be noted, however, that adopting an OSS model may offer greater advantages to them. Such advantages may include the ability to reuse older work for a new client, thus improving the efficiency of their services, and it may enable them to move to different and more effective business models similar to producers that own their own IPR, as described above.

***IT and business consulting firms (Business Model 4)***

Such firms typically offer customization and consulting services for enterprise-level solutions. Examples might include SAP, Oracle financials, and similar systems. They leverage their IT and business knowledge to deliver such services.

On one side such firms may benefit from the brand names they represent. Most of their revenues are likely to stem from their business expertise and knowledge of local needs. Depending on which of the two factors is more important, the use of OSS might be better for such firms as it can lead to lower total cost of ownership (TCO) for their clients and greater margins for them. It should be noted that there is some overlap between such firms and software resellers and support providers described as Business Model 1 above. However, consulting firms tend to be smaller in size and to concentrate more on the customization and consultation aspect of the business. One may argue (based on the analysis found in Roeding et al. 1999) that consultation firms' success tends to be driven by their utilization of their resources. They also tend to be localized firms, either local firms or local branches of multinational consulting firms. Thus we should expect to see firms that are more inclined to promote OSS-based solutions when appropriate, as this would reduce the TCO for their clients.[12]

12 This prediction was borne out in an interview conducted with Mr. Abdelkarim Mardini of OpenCraft, who indicated that his company, which uses OSS technologies to provide software services and solutions, will be targeting new consultation clients in the coming period in order to raise their revenues.

### *IT service providers (Business Model 5)*

Such firms include Internet Service Providers (ISPs) and Application Service Providers (ASPs). Typically such firms offer hosting services and lease access to their infrastructure which may include network resources, systems and applications.

Such firms stand to gain from using OSS-based systems to deliver their services. This would enable them to lower their operational costs because they would not need to pay hefty licensing fees to software vendors or have their hands tied by prohibitions on software modifications. The so-called "cloud" of Web 2.0 is mostly driven by OSS; for example, firms such as Google, Amazon, Yahoo, and others use OSS to run their services and infrastructure.

We suggest that local ISPs and ASPs will benefit from complementing their infrastructure with OSS. One example is TE-Data, which is one of the leading local ISPs and provides typical connectivity and hosting services to its clients. Management at TE-Data took a conscious decision to use open source tools as the basis of the firm's service delivery. For example, it has used Linux as its main back-end operating system, qmail as its email server, and Apache as its main web hosting environment. This has allowed it greater operational flexibility and cost savings.

## Perspectives from the field

In this section, we present fieldwork conducted with Egyptian companies belonging to the different classes outlined above. Here we build on a conceptual framework of OSS layers based on the literature on OSS motivation and human capital (Von Hippel and Von Krough 2003, Perens 2005, Benkler 2006, Lerner and Tirole 2006 and 2006b) and what we have witnessed in the field. We start our fieldwork keeping in mind the premise that OSS is created through peer collaborative production that makes use of a global pool of human resources and that is cemented by trust. We consider this base to be the first layer of OSS creation, Layer 1: software developers and "techies." Contributors to such forms are motivated by factors that extend beyond mere monetary appropriation, e.g. self-gratification and reputation building. The next layer in this process is the utilization – still by producers – of OSS for further production of a good or service or both. This takes place through business models that are motivated by the profit incentive,

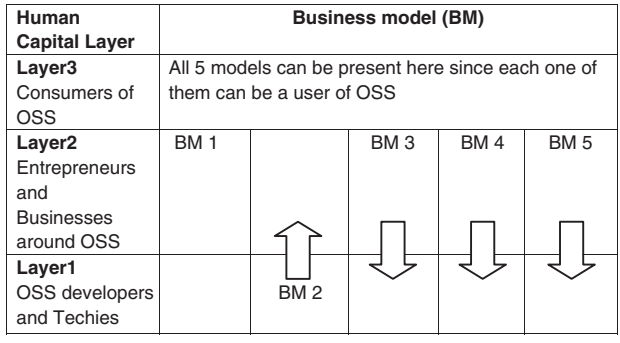
forming Layer 2: entrepreneurs and businesses around OSS. Building upon this framework, we argue for the presence of a third important segment represented by individuals and businesses that make use of OSS for their own purposes, Layer 3: consumers of OSS. (See Figure 5.1 below.)

We map the multilayered human capital for OSS across the software business models prevailing in Egypt as described in the previous section. We single out OSS companies in Egypt and place them within the relevant business model and identify the layer of human capital associated with the respective companies. Most OSS business models in Egypt are placed in the second layer, namely entrepreneurs creating businesses around OSS. The arrows indicate an expansion to include another layer of human capital. In the case of Business Model 2 (producers that own IPRs), these companies started out as OSS techies who eventually started their own business around OSS (most notably OpenCraft and IT Synergy). In the case of Business Models 3-5, these are businesses built around OSS that if encouraged would spin off into high quality individual OSS developers and techies.

In our analysis for Egypt, we consider the following:

1. To what extent are there in Egypt contributors to the creation of open source modules (Layer 1: software developers and techies)?
2. What are the current practices/business models in the open source sector, and how do they compare with models adopted in other countries (Layer 2: entrepreneurs and businesses around OSS)?
3. Do the current practices actually serve to maximize A2K in Egypt from the perspective of software users (Layer 3: consumers)?

**Figure 5.1:** OSS businesses within prevailing software business models in Egypt and across mutilayers of OSS human capital



4. For each layer, we ask the following questions:
   a. What is the size of people/firms included in this layer?
   b. Is using, programming or developing a business around OSS elitist in nature, in the sense that it requires and builds an elite class of technically savvy developers and users?
   c. What are the requirements for creating calibers of OSS programmers/users?
   d. What are the hindrances that stand in the way of creating such calibers (political, social, economic, legal, etc.)?
   e. What, if any, are the contributions of OSS firms to the Egyptian society/economy and to A2K?

To answer these questions, we conducted a set of interviews with different stakeholders including OSS community (Layer 1), OSS companies (Layer 2), multinational software companies (proprietary and OSS users), academia and government, and civil society (included in Layer 3). Note that Layer 3 members are dispersed among different categories of interviewees. Informants were mostly chairmen, managing directors and marketing managers.[13] They were asked about the OSS position in the Egyptian market, reasons for this position vis-à-vis proprietary software and chances for OSS to flourish. It is important to understand their responses as indicative keys to the industry's position in Egypt rather than as an exhaustive explanation of it.

There was a general consensus among the interviewees that the OSS movement in Egypt is in its infancy: the size, impact and role of OSS in Egypt are at best modest, if not marginal. The OSS community in Egypt includes about 500 people (mostly fitting the Layer 2 group), with a maximum of 50 people contributing proactively to global OSS development (Layer 1). OSS started in Egypt around 1999-2000, with the number of OSS companies now ranging between 11 and 30. The average number of employees in OSS companies ranges from 16-20 (Layer 2). Overall, the average age of members of the OS community varies from 16 to late 30s (survey questionnaire to interviewees).

Three major themes emerged in our interviews. The first is the potential benefits of OSS solutions for Egyptian businesses (Layer 2 capital), users

13 Companies interviewed may fit more than one business model; for example, IT Synergy and Open-Craft fit Business Models 2 and 3 above.

(Layer 3), and developers (Layer 1), as highlighted both by OSS vendors and users themselves. Despite these benefits, interviewees acknowledged that market share of OSS remains small. This observation brings up the second theme: the politics of market dominance by the larger proprietary vendors. Two main reasons emerged for this dominance. On the demand side, interviewees indicated that larger proprietary software companies are leveraging their market power to keep out smaller OSS competitors. On the supply side, interviewees noted that there is a human resources issue as well, as the necessary skill base for producing OSS may be lacking. This is the third theme emerging from the interviews: the paradox of OSS human capital, caught between constraints on labor supply and demand. These three themes are discussed in depth in the following sections.

### *The potential benefits of open source for Egyptian users*

The most obvious benefit of OSS is that it is typically free. This is evident at the level of software for personal computers for end-users who are faced with one choice, either the expensive proprietary package or the illegally copied version. The price of the latest proprietary personal computer software sold legally on the market in Egypt is LE800 (equivalent to $145).[14] This is at a time when 97.5% of Egypt's population live below $10 a day (World Bank 2007). This provides some context for the rate of software piracy in Egypt, reported as 59% by the International Intellectual Property Alliance, which represents the interests of IP-dependent businesses (IIPA 2009). It is fairly standard practice in Egypt to find illegally copied software bundled free of charge on the hard disks of personal computers sold on the market. While illegal, such practice does expand access to a knowledge good that is otherwise unaffordable to the layman in a developing country. OSS provides the legal alternative.

Despite that, price is not the only benefit, according to OSS industry insiders. Ensuring a competitive and high-quality service is another value added for the customer. Vincenzo Puliatti, Chairman of IT Synergy, a firm which provides OSS solutions, consultancy, training and support, explained: "The customer should understand that he is getting something more because with the closed source solution he is tied, forever." Providing open source solutions, argued Puliatti, "raises the bar for the quality standard,"

14 Market price in April 2009.

as OSS companies have an edge on price but also on quality, with an interest to retain the customer. Puliatti emphasized that OS business models are best suited to Egypt as a business environment. "Wealth is generated when you are building something new using the resources that were not exploited by somebody else. OSS by itself creates value added." He pinpointed the peculiar challenge for Egypt's use of OSS, saying, "OS has worked beautifully in a non-business environment, but the real challenge is how you can move this in a business environment" (Puliatti interview 2006).

From the perspective of the economy at large, OSS spares developing countries like Egypt leakages in the form of license payments made to foreign companies. Osama Abou Elsorour, Managing Director of Electronic Formations explained: "At least 70 to 80% of expenditures go to licenses and they don't even get injected back in the economy [in the case of proprietary software], thus all of this gets out of the country as royalties. This is like draining the amount of IT expenditure out of the economy. If it somehow gets recycled back it would make a lot of difference. Thus I saw a need in the market for alternatives" (Abou Elsorour interview 2007).

From a political perspective, OSS offers another element of comparative advantage over proprietary software, namely national security. In fact, a widely accepted security norm is that openness of systems makes them more trustworthy. This is because openness enables a more thorough review and scrutiny of the inner workings of such systems, which reduces the possibility of errors or trapdoors that might compromise security. One example is Borland's InterBase database application that allegedly had a back door, which is an illegal manipulation in the system that stayed for approximately six years and was only fixed after Borland released its product as open source in 2000 (Wheeler 2003). The importance of OSS for national security in Egypt was emphasized by more than one interviewee (Abou Elsorour, interview 2007, Tantawy interview 2007). "On the national level, national security is a major concern with the usage of proprietary software. OSS ensures a high level of national security," confirmed Abou Elsorour (Abou Elsorour interview, 2007).

Two OSS-using organizations interviewed are not involved in the IT sector at all, but are rather pure consumers of OSS, creating what we now call Layer 3. These parties on the customer end are not only using OSS to facilitate their business operation, but are actively promoting its use.

The case is manifest in the Arab Digital Expression Camp, a residential summer camp for children that aims to give them digital tools for self-expression and constant exploration of their identity through culture and heritage. The founders of this project made a conscious decision that the output of the children would be licensed under Creative Commons licenses. The children's contributions are put on archive.org and on an open blog in which they are stakeholders, but also where others can use and benefit from it. "We also want our curriculum to be open source, which anyone can use and teach elsewhere," the founders added (Shaath interview 2008, Yehia interview 2008).

The driving force of their concept is promoting collaborative work and information sharing at all levels of the camp, all of which are empowering tools of self-expression. The concept of using OSS as a catalyst for self-expression is meant to diffuse largely amongst different sectors of society since it encourages the participation of children from different backgrounds and various parts of the Arab World. Children learn "blogging, collaboration" as the program highlights "the power of a person in a community – completely individual yet part of a global community." Through deploying open source techniques, children get to learn that the Internet is "a network of people not a network of computers." Although open source solutions in certain areas like animation and multitracked offline editing are not yet optimal, the camp still uses them, since its mandate is to teach the children self-expression rather than filmmaking per se. This tendency is relevant given the emerging trend of independent cinema, low-budget productions and experimental filmmaking (Shaath interview 2008, Yehia interview 2008).

Sharing similar goals of OSS promotion, Da'm for Information Technology was established in 2006 with an aim to break information monopoly and difficulty of access, and to find parallels between information and ways to save it and share it. The means for this end is an attempt to provide information by depolarizing it and making it accessible from one side and breaking software monopoly by promoting the use of OSS from another side (Abdel Hamid interview 2007). With a mandate to service researchers of all kinds, Da'm has used Linux to start a portal dubbed *al-daftarkhana*, (literally translated as "the archive") where it digitizes, stores and classifies news stories and features from 45 different Arabic-speaking newspapers on a daily basis, providing one of the most elaborate news databases in

Egypt. In their mission statement, Ahmad Kheir and Khaled Abdel Hamid, the initiative's founders, wrote, "Da'm is an attempt to break the prevailing gloominess in the information world in Egypt, with the lack of a culture of information sharing and the lack of a law regulating it". Kheir and Abdel Hamid 2006. Their decision to use OSS exemplifies their commitment to use free and non-mainstream platforms of knowledge sharing, which is symbolic of their project's mission.

The previous two models of OSS use represent not only a shift from proprietary software to OSS for more suitable solutions, but a profound belief in OSS as a concept and tool conductive to information liberalization and access to an incumbent yet scattered body of knowledge in Egypt that is in dire need of digital dissemination. The nature and crux of their operations stand to benefit from their establishment of a wide access to knowledge, which can best be implemented through the use of OSS. The use of OSS maximizes an uncontrolled access to their products, which is the prime goal of their operation.

### *The politics of market dominance*

To a great extent, the continued infancy of the OSS movement at this point has been attributed by our interviewees to market dominance by proprietary software in Egypt. The currents of centripetal forces mentioned earlier in this chapter are much more powerful than those of centrifugal forces on the scene of software production in Egypt. Indeed, the ecosystem of the software industry reflects the tension between the large proprietary corporations and smaller businesses built around OSS. This does not give much room for the infant OSS industry to grow. This is reminiscent of the argument made in the first chapter of this volume, namely that the negative impact of monopolies is more pronounced in the case of small developing countries, given the smaller size of their markets that are already dominated by "at most a limited number of firms" (Stiglitz 2006, 119). This renders the costs of privatizing knowledge greater and the benefits smaller in the case of developing countries (ibid.)

The economic dimension of this market control has been intertwined with evolving politics that ended up fostering this control. Abou Elsorour, from Electronic Formations, expounded on the reasons behind this scenario:

> For the big players, a market like that of Egypt is very easy to shape, and to direct as they want. [It is also] very easy to strike deals with the government because when the government depends on one major proprietary vendor they spend millions of dollars worth of licenses every year so they can lobby them to do anything, which is what happens. (Abou Elsorour interview 2007)

Abou Elsorour had asked about the possibility of using OSS in the "Computer for every home" initiative, a government-supported scheme to provide computers with a downsized version of proprietary software at LE1500 (equivalent to $270).[15] The response he got from people in charge indicated the difficulty of a shift to OSS, given how the major proprietary vendor is a main sponsor of this government initiative (ibid.).

Another main problem related to the growth of OSS in Egypt is lack of awareness. This was experienced first hand by Tamer Zaki, Manager of Phoenix Egypt, a firm that provides training, maintenance, support and some application development on the open source Linux operating system. According to Zaki, 60% of the clients to whom the firm made demonstrations about their services had no idea what Linux is. "They did not accept the idea that there are other alternatives to the major proprietary vendor," he added (Zaki interview 2007).

For Ahmed Tantawy, technical director at IBM Middle East and North Africa, there is a psychology of need for the brand name; consumers do not place high value on free Linux and OSS as they equate price with value. "Most companies prefer big names and brands to use rather than Linux," added Tantawy. He explained that consumers go for the brand name in the belief that this will grant them support and ensure minimum risk (Tantawy interview 2007). In some respects, the limited use of OSS in Egypt may be interpreted as a story of standard consumer preference (or bias) for reasons that have to do with compatibility, accessibility, awareness, and usability.

A political aspect of this dynamic was highlighted by Zaki, from Phoenix Egypt, whereby larger proprietary software conglomerates are able to leverage their market-dominant position to lower the potential for OSS market access. In the case of IT exhibits, market conglomerates participate

15 You can read more on this initiative in the chapter of this volume entitled "Information and Communications Technology for Development: Building the Knowledge Society in Egypt" by Sherif Kamel.

as partners and sponsors and are reluctant to accept the presence of an OSS company. Exhibit organizers may turn a blind eye to such practices in order not to lose the participation and partnership of the conglomerate (Zaki interview 2007). As a result, the OSS operations suffer and remain in the shadows of the big firms, where unfair hampering of potential competition decreases market awareness of OSS.

Market dominance becomes particularly critical when it is based on agreements with the government, which is still a main player in the market. For example, the major proprietary conglomerate helped the government boost ICT indicators through charging them a flat annual rate for services that include the provision of operating system software for computers in government offices and universities, contracting also to return part of the sales revenue to support programs in e-government and training. The rate is charged irrespective of the volume of sales, which offers a huge potential for disseminating proprietary software and eventually leads to curbing potential competition from OSS firms. These aggressive sales tactics create difficulty for OSS competition to remain active in the market (Mardini interview 2007). This could be one of the explanations for why the OSS operation is still lagging in Egypt, as OSS firms are not allocated a significant market share. The issue becomes more of a competition law concern than an IP one.

### *The paradox of human capital*

Placing the companies surveyed against the layer classification of OSS producers and users presented earlier in Figure 5.1, we find that the Egyptian companies that contribute to the open source systems are usually not the original creators or main contributors to such systems. Instead, it seems that those who contribute do so in more of a one-off fashion that is driven by direct client demand rather than long-term investment and planning. This is also embodied in their practice of delivering a customizable wide spectrum of products rather than specializing in a given area. This may be due to the fact that Egyptian firms are unable to commit to longer-term choices that imply taking the greater risks (and rewards) which specialization may bring. This in turn may be driven by the lack of risk taking partners (venture capitalists and the like) that are willing to participate in OSS-related projects in Egypt.

A requirement to fit the Layer 1 caliber of programmers in Egypt is to have some IT background. This alone may prove the hypothesis that an elitist group is required here, at least no less elitist than prospective developers

in proprietary firms. The primary reason for limited participation of this caliber in OSS development is the lack of awareness of this type of production, in part because the educational system's training programs overwhelmingly prepare developers for proprietary models (Mardini interview 2007). Yet this training focus itself reflects broader market conditions: the political influence of proprietary firms, the need of developers for a secure job and guaranteed income, and the limited personal initiative amidst harsh economic realities. "If you look at the demand in the market you will never find someone making a job posting demanding experience with open source, while you will find many asking for Oracle expertise, Microsoft, IBM experience," said Abou Elsorour from Electronic Formations (Abou Elsorour interview 2007).

But there is demand by OSS firms for qualified human capital. Puliatti from IT Synergy had the opportunity of hiring graduates from the Information Technology Institute (ITI), which had just graduated the first batch of graduates of open source geographical information systems (GIS). All seven were hired before they graduated. "There is a complete circle that we have to fulfill," explains Puliatti. On the one hand, it is not desirable to have too many graduates that will not be absorbed by the market, and on the other, there is an unfulfilled demand as companies "do not find the educational institution that can provide the type and level of education" they need (Puliatti interview 2006). The mismatch between supply and demand of labor for OSS firms is a hindrance to the expansion of OSS businesses in Egypt

In no instance was technology cited as the major obstacle hindering the modest yet growing trend for OSS. The reason the number of OSS developers is limited is the overall shortage of skills: poor quality of education, large number of graduates who are formally educated yet have no hands-on training and have never developed source code (Mardini interview, 2007). There is already a very small pool of those who measure up to international standards, e.g. contribute to projects on Sourceforge (Abdel Fattah interview 2007, Hassan interview 2007, Mardini interview 2007). Training in educational institutions is usually on conventional proprietary software. Awareness of the potential of this new model is very limited among users, developers and government officials. For these and the wider group of those involved in the OSS business trying to survive, pressure comes from the liaison between the government and the big players, in this case the large multinational and its service vendors.

Notwithstanding the above, technology does represent a hindrance in one way: it is the reason given by the government for not embracing open source. Namely, the argument is that Egypt is at an infancy stage with respect to ICT, and thus cannot afford experimenting with new technologies. In particular, the argument goes, there are not sufficient human skills to provide support for OSS in the Egyptian market, as compared with the available and competent technical support teams for proprietary software (Abdel Latif interview 2007, Adel interview 2007, Hashem interview 2007).

This statement brings out a paradox inherent in the OSS labor market in Egypt. On the one hand, the government does not encourage the adoption of OSS because of the lack of human skills to offer technical support for it. But this very lack of human skills is itself the product of a public education system that does not encourage OSS given the prevalence of proprietary software in university curricula and laboratories. It is not surprising that OSS firms expressed an unfulfilled demand and complained about the lack of OSS-qualified human capital in the market (Puliatti interview 2006, Mardini interview 2007).

The system of IT education is best described as "skewed" in favor of proprietary software (Mardini interview 2007). Mardini explained that Egyptian university curricula and laboratories (which are mostly government controlled and imposed) do not involve OSS adoption, training or development (ibid.). Although some of the OSS companies mentioned that they offer seminars about OSS in a number of universities, these seem to be rather limited in scale and scope. For universities, major vendors typically offer a bundle of software development tools at a low cost, which automatically translates into a reduced incentive to try out OSS alternatives (ibid.). This is expected, as noted above, given the government's contract with the major proprietary software vendor to provide software for government bodies and national universities. In our context, this means a lack of sufficient room for OSS to grow, dooming it to remain an infant within Egypt's software industry.

Human skills training within OSS companies is limited. Some companies provide training for the client's employees, although it is generally basic training in usage of the software. If at all, intensive training is only given to the IT specialist in the company or network administrator. The current scope of employee training provided by the OSS companies does not suffice

to create skilled human capital capable of contributing to open source development, in terms of quality and quantity.

In the meantime, efforts at training and raising awareness seem to take place in a more grassroots, less institutionalized manner. Ahmad Mekkawy, team leader of system administration in E-Space, an Alexandria-based OSS developer, is an active member of a flourishing OSS community in Alexandria that started with no more than ten techies. The group has been touring different institutions to give awareness and training sessions about OSS. One of their activities has been a ten-day OSS intensive training at the faculty of engineering in the University of Alexandria, besides other training sessions conducted elsewhere such as at the Bibliotheca Alexandrina. Their website eglug.net serves as a platform for further community building and fostering ties and expansion (Mekkawy interview 2009).

### *The future*

Interviewees' perception of the future of OSS is mixed. One interviewee spoke of a potential bright future for OSS in Egypt, in anticipation of the healthy maturing of the infant industry. According to Puliatti from IT Synergy, "There is and there will be potential for OSS in Egypt." Puliatti expects that in ten years, major proprietary vendors will be selling open source solutions. "They will not sell software per se, they will sell services, training, support, and they will give software for free" (Puliatti interview 2006).

Other parties interviewed predicted a more mixed future. With the lack of awareness among customers in Egypt, Abou Elsorour from Electronic Formations suggested the simultaneous use of proprietary and open source solutions is likely to continue. He has found that in some cases it was more beneficial for the client to have a combination of proprietary and open source, rather than focusing purely on open source. "You still end up saving money; you still end up profiting the economy, and providing the solution" (Abou Elsorour interview 2007). The mix of proprietary and open source services is also suggested by Tantawy from IBM, as it allows companies "to respond more comprehensively to all market needs." Tantawy explained that IBM started providing Linux-based solutions ten years ago in order to respond to the need of some customers for open source. "Although the investment cost of making any software work on two platforms is high, IBM continues to do so" (Tantawy interview 2007).

At the end of the day, the limited OSS operation in Egypt's software landscape is the outcome of limited demand and supply. On the one hand, there is a limited pool of qualified OSS human capital and venture capital to indulge in such risky and less known development. On the other, there is limited demand by the government and very little awareness on the part of consumers. This suggests, in our view, that the future of OSS in Egypt ultimately depends on strong government action to create greater space for open source and an enabling environment for a more competitive and dynamic software ecosystem. Policy reforms are needed, especially in the area of IT procurement as well as education and training. In the final part of this chapter, we review the conclusions that emerged from this research and identify specific recommendations to achieve this goal.

## Conclusion

The fieldwork undertaken within this study sheds new light on the current reality of the Egyptian software ecosystem and the potential for OSS development. Our research reveals an OSS sector that is still in its infancy, but with strong potential to contribute to knowledge liberalization and economic growth in Egypt, if properly supported. Below we summarize the key findings of our research and specific policy recommendations.

### *Why OSS?*

Based on our research, we argue that the existence of a healthy business sector based on OSS will have several advantages for Egypt as a developing country rich with Arabic content whose potential has not yet been realized in the digital world. Below we identify five benefits of a healthy OSS in Egypt from economic, technical, social and political standpoints.

First, OSS is perceived as a form of knowledge liberalization as opposed to knowledge protectionism and fragmentation. Its role in contribution to, and democratization of, knowledge through an innovative regulatory framework is instrumental. Highly relevant here is Eric Von Hippel's concept of "democratizing innovation," where democratizing "the opportunity to create is important beyond giving more users the ability to make exactly right products for themselves," and leads to radical and rapid improvement in users' ability to innovate (Von Hippel 2005, 13, 123).

Second, OSS encourages innovation and provision of training grounds for human capital. While both proprietary and open source involve costly

investment in human capital, investment in open source human capital "is not tied to a particular imported technology," and hence "stays in the country" and contributes to its knowledge capital, whereas with proprietary software "you'll never catch up, and you'll have to pay forever, without ever learning anything yourself" (Linus Torvalds interview in Weerawarana and Weeratunge 2004). Accordingly, the "real advantage of open source ends up being able to build up your own knowledge base" (ibid.). Such a base would provide a critical mass of intellectual capital, which would boost an infant industry in a developing country rich in young human resources like Egypt.

Third, on grounds of economic efficiency, the presence of effective OSS companies would result in lower total cost of ownership (TCO) for much needed, but mostly non-differentiating, IT infrastructures. This would result in higher efficiency of businesses depending on IT (almost all mid-sized and larger companies in Egypt). In the absence of hefty licensing fees and training costs, the adoption of OSS models would create lower barriers to entry for IT firms that would leverage OSS to deliver services and new products. Moreover, the mere coexistence of open source models alongside proprietary ones encourages competition and market diversity, providing potential for the emergence and thriving of small players.

Fourth, on another level, OSS provides potential for localization, creating and enabling Arabic software, and offers opportunities for customizing applications to suit the local business culture. Such localization will be beneficial for local capacity building and establishing a knowledge base grounded in indigenous resources that address local needs.

Finally, the OSS model works within the existing IP system, and provides a flexible legal alternative to the mainstream which is associated with high rates of piracy. OSS offers an affordable legal alternative to the consumer in a developing country like Egypt. It also enables coders to earn a livelihood without requiring the already overstretched state to perform the role of software police.

### *Prospects for OSS in Egypt: potential and barriers*

Although the emergence of a strong OSS sector would have several advantages from the Egyptian perspective, our research indicates that this sector is currently weak and will take time and effort to develop. There is hardly any presence in Egypt of a peer collaborative model of the type that provides

a wide platform for OSS as observed in Europe and in other advanced developing countries (Layer 1). There does, however, exist a nucleus for businesses to be created around OSS (Layer 2). These are struggling to survive against demand and supply constraints partly caused by political and market limitations. In other words, Egypt does not yet participate in the global OSS market as a major contributor of code, but does have an infant OSS industry composed of companies that gain from selling and customizing OSS to Egyptian clients.

Looking at the software industry as a whole, two parallel worlds exist. On the one hand, the old economy presides, with its strict proprietary rules, conventional market signals, firm hierarchy and authority, and a reality of high rates of software piracy. On the other hand, an alternative is offered by the rather limited, yet slowly growing, new trend of peer collaborative production represented by a small community of OSS developers (Layer 1). These form a subset of the total group of those owning or running companies involved in OSS production and distribution. This wider group also includes people who are merely involved in limited local Linux services and distribution (Layer 2).

The less optimistic, but perhaps more realistic, approach for Egypt would be to focus on encouraging Layer 2 small businesses created around OSS rather than hope to create the elitist human capital that will form Layer 1 of OSS contributors. This can be framed within the infant industry argument. Given the scarcity of Layer 1 caliber of OSS contributors, the limited awareness and the dominance of the major proprietary conglomerates, OSS will continue to be out of the mainstream. It is thus the case that Egypt is unlikely to have room to develop a strong OSS knowledge base of Layer 1 intellectual capital, on which are built the businesses developed by Layer 2 human capital. Rather, the country will have to rely on knowledge created elsewhere. It has two choices: either pay the high price tag placed on proprietary software, or build on freely available knowledge. Egypt should take the latter option, i.e. start businesses around OSS (Layer 2).

Based on our research, we find that the potential benefits of OSS discussed earlier have hardly been realized in Egypt. Such benefits can be realized, however, if there are conscious efforts by the government to provide an enabling environment that encourages the thriving of OSS businesses within a healthy ecosystem of software production in Egypt.

Economic efficiency through OSS-based companies in Egypt is feasible and strongly recommended. The expansion of shared non-differentiating platforms would expand domestic production, lower barriers to entry, and encourage competition and market diversity alongside proprietary models. In particular, this would allow the country to retain foreign currency that would otherwise have gone to pay for software royalties to multinational owners of intellectual property.

By reducing the cost of owning the tools, the use of OSS in Egypt eliminates barriers to accessing knowledge tools and helps contribute to original knowledge creation. As it stands, we find that there is much untapped potential for OSS to promote access to knowledge in Egypt, and this remains limited by political and other limitations discussed earlier in this chapter. While the use of pirated software remains widespread, controls are being enforced over time. This makes it more pressing to push for alternatives to the mainstream – be they OSS or other options offered by proprietary companies – as a healthy ecosystem for Egypt's software industry would also mean continuing to seek alternatives within available proprietary models.

Currently, however, the OSS world in Egypt is governed by a set of intricate political, sociocultural, economic and technical constraints. Of concern there is businesses' lack of readiness to switch to open source solutions. Given an already established platform built on proprietary models, an extra effort is needed to fight lock-in and bear the costs of switching to new open source models.

Additionally, the software market structure in Egypt reflects a competition issue. Dominance is supposedly curbed by the competition law that Egypt passed in 2005. However, the law has been very modestly enforced, resulting in only one court case with regards to a cartel in the cement industry. The law is therefore not working as a deterrent in an aggressive way that would prevent dominant players through fear of legal prosecution. Competition law implementation is still at its early stages, with underdeveloped institutional capabilities and limited application. In such an environment with limited regulation, dominant firms may leverage their market power to place themselves in a more favorable position with respect to the law than smaller firms. Within the opposing currents of the digital economy discussed earlier in this chapter, the forces toward establishing vertical production structures built around knowledge creation (centripetal forces) tend to overtake the opposite current toward smaller structures (centrifugal forces) in the case

of Egypt's software industry. Given this scenario, Egypt's OSS industry is indeed an infant exposed, and one that is unlikely to grow unless there is a conscious stance to proactively promote its demand and supply.

### *Recommendations for policy reform*

In light of the above and at this stage, we conclude that a healthy ecosystem for an efficient software industry in Egypt should entail encouraging OSS-based businesses that are mostly focused on profit creation, and that would coexist alongside the current proprietary models. The spread of such OSS businesses would lead to creating a wider community of Layer 2 human capital and eventually give birth to communities of higher caliber OSS developers (Layer 1) as a spin-off. It will also allow for the growth of platforms for applications that promote human development through corporate and nonprofit uses (Layer 3).

To achieve this goal, the government has an important role to play, both on the supply and the demand side for OSS businesses. It is essential that domestic policies provide an enabling environment for OSS businesses to thrive, including a firm implementation of the competition law alongside offering business incentives to OSS companies, such as tax breaks and favorable utility pricing. Introducing OSS alongside proprietary software in educational curricula will help develop well-trained human capital that can be part of the OSS business sector (Layer 2) and individual developers (Layer 1), helping to relieve labor market bottlenecks. The government should utilize the thin yet strong body of OSS developers (Layer 1) in different endeavors, specially the ones concerned with direct knowledge production. This group can be perceived as a seed for OSS flourishing on many levels, especially with regards to curiccular development and training in general. Overall, devising stronger links between OSS companies, universities and civil society initiatives will increase awareness and expand the use of open source by the community. The government can play a strong role as orchestrator of such synergies.

Moreover, for the OSS sector to flourish, the government should adjust its procurement policies to favor OSS, acting as a consumer to drive demand for open source solutions. Support may come in other forms as well, as where the government promotes OSS on an equal footing with proprietary software in trade shows, training programs, or initiatives such as the Computer for Every Home initiative. This may mean forfeiting some of the financial

incentives that proprietary software companies would offer in exchange for security of their market dominant role. The long-run benefits for Egypt of enabling OSS, however, will be substantial in both economic and non-economic terms.

On a final note, a belief in a role for OSS should be at the heart of a vision to expand the whole software industry as a driver for Egypt's development. This vision should be translated into a concrete strategy with clearly defined objectives and tools. The Malaysian model referred to earlier in this chapter is a good example. As a knowledge producing industry with the promise of positive externalities, economies of scale and building human capital, the software industry presents Egypt with an opportunity that should not be missed and a strong potential that should be maximized for promoting human development.

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CHAPTER SIX

# Information and Communications Technology for Development: Building the Knowledge Society in Egypt

Sherif Kamel

Since ancient history, Egypt has witnessed massive information flows through different means. This included inscription on Rosetta stones and papyrus papers, and the establishment of the Library of Alexandria, the world's first and most famous library and the gateway for knowledge creation and accessibility (Kamel 1998a). During the middle ages, Arabic manuscripts became one of the most common means for information and knowledge dissemination. In the modern age, paper printing and publishing started in Egypt during the nineteenth century, witnessing publication of the first journal in Egypt in 1826. A few years later in 1830, Egypt witnessed the establishment of the first national archive system (Kamel 1998b).

However, in the twentieth century prior to 1985, a number of characteristics identified the status of information in Egypt. The country was rich in data but poor in information; known for accumulated bureaucracy through red tape; computers were viewed as ends and not means and there were islands of innovation with no bridges (Kamel 1998b, 1999). From a government perspective, the focus was more on technical issues and not decision outcomes; there was poor multisector coordination and no synergy between information and socioeconomic development strategies.

Given this reality, even as information and communications technology (ICT) was increasingly becoming a necessity for socioeconomic development (Press 1999), the government of Egypt recognized the need to take proactive measures and build the required information infrastructure. The strategy deployed followed a two-tier approach, inviting society with its different stakeholders to contribute in shaping the infostructure, which in turn would effectively contribute to the socioeconomic development (World Bank

2006). Between 1985 and 2007, the government announced nine major policy initiatives to promote the development of Egypt's information society. Table 6.1 demonstrates the development of the information society in Egypt during the twentieth and twenty-first centuries (Kamel 2007).

Since the early 1990s, Egypt has been undergoing a liberalization program of its public sector. The government has announced that it will invest in its human capital, encourage foreign direct investment (FDI) and emphasize innovative ICT as a platform for business and socioeconomic development (Kamel 2005a). The government in collaboration with the private sector through a variety of public-private sector partnerships has announced the restructuring of sectors such as education and health as well as working on closing the digital divides and promoting social inclusion.

This chapter examines the introduction and diffusion of ICT into Egyptian society, and the role it played in providing awareness and access to knowledge to different clusters in the community. The chapter addresses four main research questions. These are: To what extent has ICT become a vehicle for development and a platform to access knowledge? How did ICT for development (ICT4D) policy and strategy formulation and infrastructure deployment evolve? What were the challenges and the lessons learned from efforts aimed at using ICT for socioeconomic development? What are the implications of diffusing ICT for access to knowledge in Egyptian society?

**Table 6.1: Development of the information society in Egypt**

| Program | Year |
|---|---|
| Open Door Policy | 1974 |
| Economic Reform Program | 1985 |
| Information Project Cabinet of Ministers (IPCOM) | 1985 |
| Information and Decision Support Center (IDSC) | 1986 |
| National Information and Administrative Reform Initiative | 1989 |
| Egypt's Information Highway | 1994 |
| Ministry of Communications and Information Technology (MCIT) | 1999 |
| National Information and Communications Technology Master Plan | 2000 |
| Egypt Information Society Initiative (EISI) | 2003 |
| Egypt ICT Strategy 2007-2010 | 2007 |

## ICT4D in Egypt since 1985: from an information society to a knowledge society?

The idea of information and communications technology for development (ICT4D) came into vogue in the early 1980s when Egypt was faced with multiple chronic challenges common to developing nations, including foreign debt, economic reform, public sector reform, a balance of payment deficit, a high illiteracy rate, poor technological and telecommunications infrastructure, constrained financial resources, unemployment, environmental protection and cultural heritage preservation. During that period, Egypt was striving to implement a nationwide strategy toward its socioeconomic development objectives and ICT was identified as a catalyst for that process. Therefore, the government of Egypt adopted a set of information based projects leading to the establishment in 1985 of the Information and Decision Support Center (IDSC), a think tank affiliated with the Cabinet of Egypt. The IDSC's objective was to develop and implement, using a supply-push strategy, large informatics projects to achieve socioeconomic development using state-of-the-art ICT (El-Sherif and El-Sawy 1988).

During the 1990s, technological innovation and economic and social organization became more tightly linked than ever. Continuous innovation in ICT geared industry and society toward information acquisition and knowledge dissemination (Branscomb 1994). Consequently, innovation has transformed the activities and relationships of individuals and organizations into a new information society, or "knowledge society," in which ICT services pose both challenges and opportunities (Shapiro and Varian 1999). The knowledge society refers to a second-generation information society. Whereas an information society aims to make information available and invent the technology necessary for this, a knowledge society aims to generate knowledge, create a culture of sharing, and develop applications that operate via emerging ICT like the Internet (ESCWA 2005).

The knowledge society is now a force for fundamental global change (Garito 1996). Knowledge and ICT innovation are becoming important values for business, socioeconomic development and wealth creation – with implications at the macro and micro levels (ESCWA 2005). The changeover is complex, requiring new forms of partnership and cooperation between public and private sector organizations (Kamel and Wahba 2002). This is best achieved through collaborative strategies that diffuse best practices and develop ICT applications, with the primary objectives of promoting

growth and strengthening competitiveness. For many emerging economies such as Egypt, formulating strategies and policy frameworks to support the growing knowledge society could significantly accelerate development. In the context of Egypt, the goal of joining the knowledge society is to fulfill societal needs, create wealth, and sustainably enhance the community's quality of life (Kamel 2009).

For millennia, the basic needs of humankind have been food, clothing and shelter. Now it is time to add information to this list. Information and knowledge are nowadays the drivers in the global society, much more than land, capital or labor. The capacity to manage knowledge-based intellect is the critical skill of this era; a firm or a society with a strong base of knowledge can leverage that base to create further knowledge, increasing its advantage over its competitors (Kamel and Wahba 2002). ICT innovations are making a growing impact on business and socioeconomic development by introducing and diffusing the concepts of knowledge sharing, community development and equality. These impacts are felt at the individual, organizational and societal levels. ICT is not an end in itself, however, but a means of reaching broader policy objectives. The main objective of ICT should be to improve the everyday lives of community members, fight poverty and advance the Millennium Development Goals (MDGs). In this respect, ICT is delivering the key productivity gains that enable lives of material comfort for many around the world that would have been unthinkable only two centuries ago. Expanding access to knowledge through these new channels and tools creates emerging opportunities for learning and employment with strong implications for social and economic development.

These technology innovations could have remarkably positive implications for developing nations, if they are properly introduced and managed. However, if they are not well supported, or if ICT is marginalized in the development process, inequities may increase between the developed and developing worlds. It is a commonplace in development literature that the developing world lacks access to ICT – a condition often dubbed the "digital divide." Nevertheless, it is important to note that such a divide also exists within nations, both developed and developing. This internal digital divide, also referred to as a gap between "haves" and "have-nots," relates the possession of ICT resources by individuals, schools and libraries to variables such as income level, age, ethnicity, education, gender and rural/urban residence (Kamel 2005b).

The usual causes of this divide include, but are not limited to, expensive personal computers that are unaffordable for most developing country citizens, poor or limited telecommunications infrastructure especially in remote locations, and high illiteracy rates and poor educational systems (Kamel and Tooma 2005). However, the major obstacle is the ICT ecosystem, including the complexity of the necessary operational details that need cultural adaptation and localization. For societies to develop, grow and benefit from the ICT revolution, nationwide introduction, adoption, diffusion and adaptation of ICT should occur. Yet this is rarely seen in developing nations where most of the ICT implementations and infrastructure are focused in capitals and major cities.

The knowledge society promises to capitalize on emerging ICT to create economic and social benefits. It encompasses ways in which various high technology businesses, including ICT, universities and research institutions, can contribute to the economy of a nation while enabling economic sectors to operate more efficiently and effectively. In this context, Egypt has made efforts toward adapting to the changing global and technological conditions while catering to local markets. The ongoing restructuring of the ICT sector to serve development is liberalizing the telecommunications sector and opening the market to new competition. This restructuring has involved designing laws and regulations related to telecommunications, electronic commerce, intellectual copyrights and industry development; investing in human resources and promoting innovation and research and development.

To be sure, ICT is not the only enabler of the knowledge society. The European Commission (2003) defined the knowledge society as characterized by a number of interrelated trends, including major advances in diffusing and using ICT, increased emphasis on innovation in the corporate and national context, the development of knowledge-intensive business service economies and knowledge management, in addition to trends toward globalization and economic restructuring. The most highly valued and profitable assets in a knowledge society are intellectual: knowledge and expertise acquired by workers. Culture is one of the most important factors in formulating the knowledge society: universities, education and training institutions from both the public and private sectors will also need to cooperate to realize the knowledge society paradigm.

As the impact of the availability of information on socioeconomic development became apparent, governments around the globe started to invest in national

information infrastructure (Petrazzini and Harindranath 1996). Egypt too has heavily invested in its technology and infostructure to become the platform for the economy's development and growth (Kamel 2005a). During the period 1985-1995, a government-private sector partnership had a remarkable impact on the build-up of Egypt's infostructure (Kamel 1995, 1997). Hundreds of informatics projects and centers were established in different government, public and private sector organizations targeting socioeconomic development (Kamel 1998b). These projects included human, technological and financial infrastructure development. Such elements represented the major building blocks necessary to establish a fully fledged infostructure capable of keeping pace with the developments taking place globally (AmCham 2002).

In 1999, ICT was identified as a priority at the highest policy level and a new Cabinet office was established, namely the Ministry of Communications and Information Technology (MCIT). MCIT was charged with the task of creating an information society, which started with preparation of the national ICT plan. MCIT has articulated a strong vision and strategy on development and infrastructure deployment since its first national plan in 1999. Due to changes in global and local markets, both vision and strategy were amended in 2000 and 2004 (Kamel 2009). MCIT took concrete steps like establishing the National Telecommunications Regulatory Authority (NTRA) in 2003 and the IT Industry Development Agency (ITIDA) in 2004, and radically modernizing Egypt National Postal Organization (ENPO) in 2002. The partnership between these institutions and the ICT private sector accelerated ICT growth over the last two years, reaching 20% in 2006 and surpassing 25% in 2007 (AmCham 2007). The ICT sector is driving the gross domestic product (GDP) growth in many nations and Egypt is no exception.

As will be discussed in more detail in the next section, the government of Egypt has formulated various initiatives to promote ICT and pave the way for an electronically ready community that can benefit from public, universal access to knowledge. Other factors, however, will also be critical to closing the digital divide and promoting social inclusion within the digital economy: the legal and regulatory environment, awareness and capacity development, and mechanisms needed for collaboration between different sectors in the economy. This underscores the importance of developing national ICT strategies that recognize the role of ICT in enabling access to knowledge. In the final analysis, the challenge is to

leverage ICT as a platform for knowledge dissemination in the community, and the focus should always be on outcome assessment for this strategy.

## Promoting ICT4D: an overview of current programs and initiatives

The evolution in the knowledge society heralds a new socioeconomic order. This era is witnessing the emergence of knowledge-based economies, with traditional economic, industrial and business activities moving toward more knowledge-driven processes and the progressive transformation of advanced economies into knowledge-based, technology-driven, services-dominated economies. These shifts are increasingly laying emphasis on economic activities with intellectual content and knowledge, enabled by the development and exploitation of new information and communications technology within all spheres of human endeavor.

Against that background, Egypt's government has announced efforts aimed at developing its information and knowledge base through investments in ICT and human capacity development, improving and broadening universal access to quality higher education and training with an emphasis on lifelong learning and creating digital content accessible to the society. Egyptian efforts for ICT development are government-led in collaboration with the private sector and civil society. In that respect, Egypt has developed a number of policies and strategies to facilitate socioeconomic development and accelerate the transformation of the nation's economy and society to become information-rich and knowledge-based.

In May 2007, the Ministry of Communications and Information Technology (MCIT) released its 2007-2010 national ICT strategy (MCIT 2007b). The plan paved the way for the Egyptian Information Society Initiative (EISI), which represented the vision of the ICT strategy translated into specific initiatives and programs to diffuse ICT connectivity (MCIT 2005a, 2005b). The EISI is structured around seven major tracks, each designed to help bridge the digital divide and progress Egypt's evolution into an information society (MCIT 2005b).

There follows an evaluation of some of the initiatives and programs implemented by the government to capitalize on emerging ICT and to disseminate knowledge throughout all segments, sectors and communities of society. Rather than attempt to cover all seven elements of the EISI, the discussion will emphasize efforts in the eReadiness, eLearning and eCulture areas considered of greatest relevance to the access to knowledge theme.

**Table 6.2: Seven tracks of the Egyptian information society strategy**

| | |
|---|---|
| **eReadiness** "Equal Access for All"<br>• Enabling all citizens with easy and affordable access to new technologies<br>• Developing a crucial robust communication infrastructure<br>• Providing continuous training for doctors<br>• Developing the tools for building a national health network. | **eLearning** "Nurturing Human Capital"<br>• Promoting the use of ICT in education<br>• Shaping a new generation of citizens who understand ICT and are comfortable with its use in their daily lives |
| **eGovernment** "Government Now Delivers"<br>• Delivering high quality government services to the public in the format that suits them<br>• Reaching a higher level of convenience in government services<br>• Offering citizens the opportunity to share in the decision-making process | **eBusiness** "A New Way of Doing Business"<br>• Creating new technology-based firms<br>• Improving workforce skills<br>• Using electronic documents<br>• Developing ePayment infrastructure<br>• Using ICT as a catalyst to increase employment, create new jobs and improve competitiveness |
| **eHealth** "Increasing Health Services Availability"<br>• Improving citizens' quality of life and healthcare workers' work environment.<br>• Using ICT to reach remote populations.<br>• Providing continuous training for doctors<br>• Developing the tools for building a national health network. | **eCulture** "Promoting Egyptian Culture"<br>• Documenting Egyptian cultural identity by using ICT tools to preserve manuscripts and archives, and index materials.<br>• Offering worldwide access to cultural and historical materials.<br>• Generating and promoting interest in Egyptian cultural life and heritage. |
| **ICT Export Initiative** "Industry Development"<br>• Fostering the creation of an export-oriented ICT industry.<br>• Developing an ICT industry that will be a powerful engine for export growth and job creation. | |

## Electronic readiness: ICT for All

Digital inclusion and equality are becoming integral factors in the electronic readiness of different societies (Kamel 2007). Therefore, the government of Egypt announced that it was launching efforts aimed at universal, easy, affordable and fast access to ICT for all citizens while raising awareness of the potential in ICT tools and techniques. The MCIT has implemented different programs promoting computer literacy and encouraging the use of ICT across the nation. One of these programs is "ICT for All," also known as the electronic readiness (eReadiness) building block of the EISI. Recognizing universal access to ICT as key to socioeconomic development, the program is devised with two main objectives. First, it aims to assist the government policy to integrate ICT in government and public services by: 1) increasing ICT penetration; 2) fostering inclusion in the knowledge

society and better public services and quality of life; and 3) expanding the use of post offices to provide public services. Second, and more obviously, this strategy aims to facilitate ICT access for all citizens by: 1) increasing PC penetration; 2) expanding the reach of Internet connectivity and broadband to all communities; 3) raising youth employability through ICT training; and 4) encouraging government employees to attain international accreditation in ICT skills. There follows a description of three selected projects aimed at promoting electronic readiness: the Free Internet Initiative, Egypt PC 2010, and IT clubs. All three employ an implementation model of public-private partnerships in which the government's role is to articulate policy and regulatory frameworks for the private sector and civil society to implement. At the close of this section, the impact of these projects will be examined through the lens of representative indicators and secondary analyses, to assess the nation's progress in achieving its eReadiness goals.

***Free Internet Initiative (Internet and broadband connectivity)***

The Internet was first introduced to Egypt in 1993 by the Egyptian Universities Network of the Supreme Council of Egyptian Universities, originally serving two thousand users (Kamel and Hussein 2002). In 1994, in an effort to diffuse Internet usage among the broader society, the Cabinet of Egypt's Information and Decision Support Center (IDSC) in collaboration with the Regional Information Technology and Software Engineering Center (RITSEC) began providing free Internet access on a trial basis to public and private organizations. This was done with financial support from the government, in an attempt to boost global exposure of the local market and pave the way for commercialization of Internet services.

The free access formula was credited with accelarating the growth of Internet users, particularly within small and medium-sized enterprises and industry professionals (Kamel 1998b). In 1996, the government replaced its free access policy with an open access policy: commercial Internet services were privatized, and a dozen Internet service providers (ISPs) began operation (Mintz 1998). By December 2001, more than 600,000 Egyptians were online, but only 77,000 were paid subscribers, served by 51 private ISPs. Such limited growth was perceived as hindering the development of the knowledge society. Therefore, in January 2002, MCIT launched a new initiative providing free nationwide Internet access to all citizens (Kamel and Abdel Ghaffar 2003). This has contributed to rapidly growing use, with the percentage of the population

online rising from 5.5% (3.9 million users) in 2004 to 15.6% (11.4 million users) in 2008, still rising at a rate of 16.7% annually (MCIT 2008a, 1).

Egypt's free Internet initiative has made connectivity affordable to most citizens by enabling access on all fixed phone lines without additional monthly fees. The cost of dial-up access is the same as a local telephone call, less than US$5 per month (MCIT 2008a, 4). Dial-up modems, however, are generally capable of a maximum speed of only 56 kilo bites per second (kbps) and occupy the telephone line. To enhance the Internet experience, broadband (ADSL) connectivity, which supplies at least 256 (kbps) and does not disrupt telephone use, has been offered since 2004. The continued expansion of broadband service may be expected to positively affect access to knowledge on the web due to its reliability, stablity and capacity compared to the dial-up option.

At present, however, the higher cost of broadband connectivity still remains a challenge to its acquisition by more households. The broadband tariff initiated in 2004 has been revisited twice and in March 2009 was reduced again to LE95 (US$17) per month for a 256 kilobytes speed. This cost may be further reduced by sharing a connection across multiple households. More than half a million Egyptians now subscribe to the web through broadband service, yet this is small compared with more than 11 million total Internet subscribers (MCIT 2008a, 1). Nevertheless, fully 36% of Egyptian Internet users report accessing the Internet through a broadband connection at the end of 2008, up from only 24% a year before (MCIT 2008a, 4). This likely refects both the use of superior connections in Internet cafés, as well as sharing of a single broadband subscription across households. According to a survey by Arab Advisors Group released in April 2008, 63.4% of households in Egypt with ADSL subscription reported sharing the ADSL with neighbors, and 81.9% of those share it with more than three neighboring households (Arab Advisors Group 2008).

### *A computer for every home: Egypt PC 2010*

Egypt PC 2010 is an initiative to bring Egypt as a nation online. It is an amended version of the 2002 PC for every home initiative launched in collaboration with Telecom Egypt (TE) (MCIT 2007b). The first initiative offered locally assembled PCs with bank credit for up to three years, using ownership of a landline telephone as loan collateral. PCs could be bought on hire-purchase terms by anyone with a TE telephone line, with the periodic loan repayments included in the phone bill. In the original initiative, a limited variety of PC models and specifications were offered, which rendered the product unaffordable to

many. Additionally, only TE customers could participate, which limited the project's scope to urban communities. These two issues hindered the success of the program among the community. Five years after the launch of the 2002 initiative the Internet penetration rate had increased to only 7% (MCIT 2007a). Since, as noted before, dial-up service is available to any home with a telephone landline at no additional charge, the slow Internet penetration rate must be attributed to the continuing difficulties of acquiring home computers.

The PC 2010 initiative implements several lessons learned. The new program offers local and international brand PCs, from simple models for beginners to high-end desktops and laptops. Participants no longer need to be TE customers to be eligible for the extended payment terms because financing banks offer the required loans through facilitated retail banking procedures. Under the new scheme the PC can be purchased on installments for as little as US$8.50 per month, which comes to just over US$100 per year. Compared with Egypt's average GDP per capita of approximately US$4337 per year (UNDP 2007, 231), this rate is quite affordable. Additionally, the new initiative focuses on improving PC distribution in all provinces, with an emphasis on serving underprivileged communities through partnerships with civil society organizations.

### *Integrated computing and training through IT clubs*

Another example is the emerging network of IT clubs across Egypt's 28 provinces that provide citizens with access to information technology. Their primary objective is to open the global eSociety to Egyptian youth and rural and underprivileged communities by offering an affordable site for Internet access and training. The intial vision for the program was to open 300 such IT clubs (MCIT 2001, 2). The model proved highly replicable; today there are over 1747 IT clubs across the nation, a figure still growing by approximately 13.5% annually (MCIT 2008a). IT clubs give citizens the opportunity to become computer literate and electronically ready, regardless of their initial skill level or income, and can be used by small businesses, local organizations and individuals (Kamel 2007). These clubs are model knowledge disseminators since they provide both access to the technology as well as training in how to use it. Recently IT clubs have also been established in universities to bring up-to-date technologies into reach for all university students, not just those in educational programs with computer labs.

All stakeholders contribute to a typical IT club. MCIT provides all necessary equipment – including PCs, servers, printers, peripherals, Internet access and

networks – and supports the training and salaries of the club facilitators and administrators. Usually a local NGO or a university provides the space and takes responsibility for managing the IT club. To cater to the majority of the population, the IT clubs charge nominal fees of around US$0.18 per hour. The availability of these clubs in rural communities represents an open-ended and accessible platform for underprivileged youth to enter the digitized strata of education and employment. Regardless of the infrastructure and resources made available in it, the success of each IT club ultimately depends highly on the club's public advocates and management, as well as the eagerness of the local community to make use of its services.

The goal of distributing IT clubs widely through the country has largely been achieved. At the end of 2008, clubs were represented across the regions as follows: Upper Egypt governorates (623), urban governorates (543), Lower Egypt governorates (487) and borderline governorates (98) (MCIT 2008c, 10). Of the total existing IT clubs, 89.7% are connected to the Internet (MCIT 2008c, 14). Although clubs vary in their levels of success, overall their presence contributes strongly to developing a more IT-literate society. Notably, the majority of users served by IT clubs are women, with many benefiting from the exposure to information technology to improve their job opportunities (MCIT 2008c). MCIT has also introduced IT clubs specifically designed to meet the needs of disabled users (MCIT 2005c).

### *Assessing the impact of Egypt's eReadiness initiatives*

Through the efforts exerted as described above, significant progress has been made in achieving Egypt's eReadiness goals. As a reflection of this point, Egypt ranked 76th out of 134 economies surveyed for the 2009 Networked Readiness Index (WEF 2009, xvii).[1] Egypt also earned recognition as "an emerging outsourcing gateway in the Middle East" (WEF 2009, xiii), in part due to its competitive Internet usage charges (WEF 2009, 116). An alternative

1 The NRI is developed by the World Economic Forum (WEF) and INSEAD. The index is based on hard data produced by organizations such as the World Bank, the International Telecommunication Union and the United Nations, and survey data generated from the Executive Opinion Survey that is annually conducted by WEF. The three components of the index include the ICT environment created by the government, the readiness of the community's key stakeholders (including government, businesses and individuals) and the usage of ICT amongst those stakeholders. The index ranks Egypt 60th in terms of market environment and 70th in terms of IT infrastructure. While Egypt ranks 51st in government readiness, it is still lingering at 97th rank in individual readiness.

eReadiness index puts Egypt even higher, at 57th out of 70 nations, noting an upward momentum due to improvements in connectivity (Economist Intelligence Unit 2008, 3).[2]

Yet much additional work is still needed. The slow increase in fixed line density rates, in particular, has been identified as an element slowing down Egypt's electronic readiness. An external source reports that "Despite the moderate growth which Egypt's fixed-line market has continued to experience, the market has failed to keep pace with the country's expanding population" (Business Monitor International 2008). The report predicts a shrink in the sector in 2009, with more customers relying on mobile phones in place of fixed lines. A chance to move forward again is predicted, however, if competition enters the market: "The arrival of a new fixed-line operator sometime in the next two years could result in a new round of growth for the sector, particularly if the new entrant started providing fixed wireless services" (ibid.).

Taking the long view, significant progress on eReadiness has unquestionably been made. Over the last decade the ICT infrastructure witnessed massive developments in international links for telephony and the Internet backbone in addition to disseminating the Internet across Egypt's 28 provinces. The progress made toward Egypt's eReadiness goals – in terms of various aspects of ICT infrastructure build-out – is summarized in Table 6.3.

The ultimate goal, however, is not to achieve increased ICT adoption for its own sake. As the name "eReadiness" implies, these efforts merely lay the foundation to take advantage of ICT tools for development ends. With this in mind, the following section examines Egypt's efforts to date in leveraging ICT development for education.

## Electronic learning: ICT for education

Education and lifelong learning are central drivers of socioeconomic development and growth, and have particularly relevant implications for

2 The Economist Intelligence Unit's eReadiness ranking is based on a set of quantitiative and qualitative criteria that include connectivity and technology infrastructure, the business environment, the social and cultural environment, the legal and policy environment, the government's policy line and business adoption. The data are sourced from such institutions as the World Bank, the World Intellectual Property Organization, and the Economist's network of national experts and economists. In 2008, Egypt held an eReadiness score of 4.81 out of 10 as opposed to 4.26 in 2007.

**Table 6.3: Change in ICT infrastructure indicators, 1999-2008**

| Indicators | October 1999 | December 2002 | December 2004 | December 2006 | December 2008 |
|---|---|---|---|---|---|
| Internet Subscribers (millions) | 0.3 | 1.2 | 3.6 | 6.0 | 11.4 |
| ADSL subscribers | N/A | N/A | N/A | 206,150 | 593,042 |
| Internet Penetration per 100 Inhabitants | 0.38 | 2.53 | 5.57 | 8.25 | 15.59 |
| Mobile Phones (millions) | 0.654 | 4.5 | 7.6 | 18 | 38.06 |
| Mobile Phones Penetration per 100 Inhabitants | 0.83 | 5.76 | 9.74 | 23.07 | 50.7 |
| Fixed Lines (millions) | 4.9 | 7.7 | 9.5 | 10.8 | 11.4 |
| Fixed Lines Penetration per 100 Inhabitants | 6.2 | 9.8 | 12.1 | 13.8 | 15.2 |
| Public Pay Phones (thousands) | 13.3 | 48.0 | 52.7 | 56.5 | 58.0 |
| IT Clubs | 30 | 427 | 1,055 | 1,442 | 1,751 |
| ICT Companies | 870 | 1,533 | 1,870 | 2,211 | 2,621 |
| IT Companies | 266 | 815 | 1,374 | 1,970 | 2,012 |
| Communications Companies | 59 | 75 | 152 | 244 | 265 |
| Services Companies | 88 | 121 | 148 | 211 | 242 |
| Number of Employees in the ICT Sector (thousands) | 48.1 | 86.0 | 116.0 | 147.8 | 174.5 |

Source: MCIT Indicators Bulletins.

access to knowledge. Boosting performance on these measures, however, has historically been a challenge for Egypt. The country's adult literacy rate stands at only 71.4% (UNDP 2007, 231), indicating that a substantial proportion of the country must overcome barriers beyond the merely technological in order to take advantage of the Internet. Egypt's education system has been fully subsidized by the government for decades, yet challenges with regards to infrastructure and quality persist. In the public school system, class sizes of 70-80 pupils are common, teachers are poorly qualified, and the emphasis

is on rote memorization rather than problem solving (Kozma 2004, 14-15). Since 2003, the country's ruling National Democratic Party has declared education reform to be a key priority (Essam El-Din 2003).

One major component of such reform is embedding ICT in education to promote information acquisition and knowledge dissemination. The objectives of deploying ICT for education include: optimizing ICT investments to avail the required infrastructure that promotes education and lifelong learning; satisfying the ICT industry training requirements; creating an open learning environment by connecting the education community through broadband; and increasing the efficiency and effectiveness of education institutions and embedding ICT in the curriculum.

Toward those ends, MCIT is supposed to work closely and strategically with the Ministry of Education (MOE) and the Ministry of Higher Education and Scientific Research (MHESR). Accordingly, a number of projects were devised, most notably the Smart Schools Network, the Egyptian Education Initiative (EEI) and ICT for Illiteracy Eradication. These programs share the common target of increasing ICT awareness and promoting education and lifelong learning. Their strategy is meant to capitalize on the potential of ICT to provide universal access to knowledge and education to all constituencies in Egypt, irrespective of socioeconomic group, gender, age or background.

### *Smart Schools Network*

Begun in 2003, the Smart Schools Network (SSN) seeks to introduce innovative learning methods by using ICT-based applications, content creation, school administration software and interactive tools (Egypt ICT Trust Fund 2009a). SSN is established to diffuse computing literacy in Egypt whereby computers are readily available to students from an early age where they learn how to use them and, as a result, become comfortable with IT by the time they graduate from high school. To achieve this, SSN seeks to diffuse PCs in public schools at a rate of one computer per every ten students, as well as to provide appropriate software and support for teacher training. The network marks the first integrated move toward a comprehensive modernization plan for the local schooling system, with targeted goals to improve the effectiveness of schools in delivering knowledge and in administering their classes. The initial pilot phase – targeting 38 primary schools and benefitting 18,500 students – was formally inaugurated in 2005 (Smart Schools 2005).

A standard smart school has two computer labs, each lab with twenty computers for the students and one computer for the instructor. Computers

are also placed in libraries and in the teachers' rooms. Typically, all computers are connected to the Internet; some schools also have wireless connectivity. These connections allow all students and teachers within the Smart School Network to communicate with each other and to compete in various competitions. Usually, students spend four hours per week working on the computers during school hours. Labs may also extend services to the local community and students after school hours and during vacations, as a community learning center (CLC).

MCIT deemed the initial Pilot Phase a sufficient success to proceed with Phase Two, with fifty additional schools joining the network. By the end of 2009, the number of schools on the network should reach 185 schools and 800 teachers trained. The project's expansion is financially supported by the United States Agency for International Development (USAID 2002). To date, however, no formal evaluation of the program has been published. The extent to which the project is achieving its goals and offers a replicable model is thus difficult to ascertain. A progress report and evaluation of the SSN is likely to be issued, however, after the conclusion of the 2009 Phase.

### *Egyptian Education Initiative*

The Egyptian Education Initiative (EEI) is a public-private partnership launched in 2006 between the government, the World Economic Forum (WEF), the IT community and different ICT multinationals and organizations operating in Egypt. Bilateral agreements have been signed with Microsoft, Intel, IBM, Oracle, Cisco, Intel, Computer Associates, HP and Siemens, as well as more than twenty-five local partners, such as the British Council and The American University in Cairo, in technology sectors from connectivity infrastructure to electronic content development.

The overall goal of EEI is to better prepare students to engage in the digital economy by improving the educational content and delivery mechanisms in local schools and universities (WEF 2008). The specific objectives of EEI are formulated to include: improving the development and delivery of education for all citizens; raising the quality of education and training; developing the skills needed for the knowledge society; providing education and training to a larger portion of the population; preparing students and teachers for the digital workforce by enhancing their effective and creative use of ICT; and leveraging the environment of

national government commitment and corporate citizenship to build an educational reform model that can be exported and replicated throughout the Arab region (ibid.). EEI is divided into four tracks: pre-university, higher education, lifelong learning, and ICT industry development to cover the entire spectrum of learners.

Numerous projects in EEI capitalize on ICT for access to knowledge for the community. A prominent example is the Intel "Teach to the Future" electronic content program, which promises to prepare teachers for the digital age. It was approved by the Supreme Council of Universities (SCU) to be included in the undergraduate curriculum for future teachers. The program started with a pilot in 2007 in twelve different universities, training 120 staff members how to teach a course using ICT. The program has since been expanded to include additional staff members to meet the demand in the market. In parallel, 220 staff members and 4109 teachers were trained on ICT fundamentals through Microsoft's "Digital Literacy" program. Another example is the eLearning Competence Center (eLCC) which prepares most of the eLearning curricula. The project demonstrates another partnership between MCIT and Cisco. The creation of appropriate electronic content is a large task with many players and eLCC has a team of developers continuously creating Arabic courses. This step is laying the foundations of the eLearning industry in Egypt.

As of 2008, the Egyptian Education Initiative has collectively trained 100,000 teachers in digital literacy, provided 2,000 schools with broadband connectivity and delivered over 39,000 PCs to schools (Business Monthly 2008). Investment in human resources coupled with the provision of ICT infrastructure in the classrooms is enabling the blending of theoretical foundations with hands-on experience and practices, representing an invaluable component of the learning process. Significantly greater efforts are still required, however, to fully cater to the needs of over 16 million students from elementary to postgraduate education. Given the right resources, however, these programs have the potential to scale up. The degree to which introduction of advanced ICT actually impacts teaching methods and learning outcomes also remains to be evaluated. In this respect, the SSN may be considered to be more sophisticated than the EEI, since it places an explicit emphasis on ensuring that ICT is deployed to enable new and more effective methods of teaching. The EEI pursues a more basic objective, which is simply to enhance student familiarity and comfort with ICT.

### *ICT for Illiteracy Eradication*

Illiteracy is another challenging feature of Egypt's education landscape. Approximately 28% of Egyptians aged 15 and older are unable to read and write a basic statement about everyday life (UNDP 2007, 231). The continuing socioeconomic reality of poverty makes effective educational opportunities out of reach for many households. Within this context, the ICT for Illiteracy Eradication (ICT4IE) program was established in 2002, with funding through the Egypt ICT Trust Fund. Based on the General Authority for Literacy and Adult Education (GALAE) curriculum, the ICT4IE project produced electronic content for teaching Arabic letters and words and elementary mathematics. In addition, MCIT has established Training of Trainers (TOT) programs in 15 provinces to facilitate use of the software, in a mixture of taught and self-study approaches (Egypt ICT Trust Fund 2009b).

A successful initiative in this area was brought about by a partnership forged between ICT4IE and the Resala Association, a community-based NGO, to pilot the CD-based courses. According to a joint report by the partners, the pilot project attracted 230 illiterates to enroll in the course (Egypt ICT Trust Fund 2008). This response stood in marked contrast to the association's earlier offerings of literacy courses on the traditional method, which had attracted few students (ibid.). This experience indicated high demand for the ICT4IE project, with the use of PCs and CDs offering a substantial incentive for many illiterate adults to attend classes and learn to read. Moreover, 95% of students completing the course passed the associated exam (ibid.).

In 2005, GALAE and the Ministry of Education signed a memorandum of understanding to train 10,000 adults per year in basic literacy (ibid.). Progress toward this goal, although real, has been slower than hoped. As of late 2008, the program's website reported that approximately 5000 students had been enrolled in the electronic courses, with 2811 already graduated (ibid.). This slow progress reflects the small number of sites that participate in the program. Currently around 150 IT Clubs and NGOs offer access to the software (Egypt ICT Trust Fund 2009b). This may be compared to the total figure of 1747 IT clubs across the nation (MCIT 2008a). Significant further efforts are thus clearly required to meet the needs of millions of illiterate Egyptians. Expanding access to these educational tools presents a particular difficulty, as those Egyptians most in need of literacy training opportunities are precisely those who have the greatest difficult accessing ICT, for reasons economic, geographic and social.

### *Assessing the impact of Egypt's eLearning initiatives*

Although Egypt has made significant progress in achieving its eReadiness objectives, its eLearning programs are generally still at the pilot stage. According to a regional report, Egypt's ICT for education implementation was ranked at a maturity level of two out of four, indicating a number of sporadic projects and initiatives that had concrete impacts, but lacking the consistency and long-term vision for successful implementation and sustainability (ESCWA 2007).

Of the three eLearning programs detailed above, the Egyptian Education Initiative has had the greatest impact, training over 100,000 teachers in use of ICT. The Smart Schools Network, although still quite small, holds the potential to build on this success to use ICT in a way that truly transforms the educational experience. Finally, the ICT for Illiteracy Eradication project demonstrates that eLearning can be leveraged to achieve results in lifelong learning, even for those at the greatest educational disadvantage. To achieve a significant impact upon access to knowledge in Egypt, however, these programs must be greatly scaled up. This will require broader advances in access to computers and the Internet (eReadiness) than has already been achieved. Once this infrastructure is in place, however, the eLearning programs may benefit from the economics of easily reproducible open source software (OSS) to scale up with an efficiency of resources.

## Electronic culture: digital Arabic content

Egypt's eCulture initiatives seek to address the gap between the country's vast cultural riches which exist "offline," and the very thin nature of Arabic language content available "online." The production of electronic content is crucial for several reasons. Digital Arabic content may serve as a major contributor to eradicating illiteracy using new ICT; it can help preserve cultural heritage and enhance international understanding; it can serve as a resource of knowledge dissemination to meet the country's development needs. In addition to the direct and concrete benefits envisioned from the production of digital content, ehancing Arabic digital content may also increase opportunities for exports with an emphasis on goods reflecting the nation's unique cultural and historical heritage.

In an interview, Minister of Communication and Information Technology Dr. Tarek Kamel pointed to the promise and challenges of creating digital Arabic content. "The content is there, in books, newspapers, films and

tapes. We need to digitize it and put it online. It takes investment, money, initiatives, training, human resources, server equipment and investment in communication networks" (Attalah 2008). The needed investment must be generated through models that achieve both profitability and access. An ESCWA report on business models for electronic content suggested that bridging the Arabic digital content gap can be approached from two perspectives: a policy perspective, which will generate a positive social outcome; and a market perspective, which will produce direct economic gains such as job opportunities and investments (ESCWA 2008). Marrying both perspectives becomes imperative when approaching Arabic digital content initiatives.

With this perspective in mind, this section explores two electronic culture initiatives: the Initiative for Arabic eContent for Books and Software, and the Eternal Egypt project of the Center for Documentation of Cultural and Natural Heritage. In both instances, the discussion seeks to suggest how the projects might be improved in future iterations to maintain their valuable contributions while reducing the tension with the values of access to knowledge.

### *Initiative for Arabic eContent for Books and Software*

Announced in 2005, the Initiative for Arabic eContent for Books and Software seeks to digitize culturally significant materials from a variety of media – books, images, music and film – to create high quality electronic content (MCIT 2005d). The initiative's goals include enriching the Arabic content online and preserving Arabic culture for future generations as well as improving a national industry and its competitiveness, and creating job opportunities (ibid.). Throughout the protocol's four-year term, the Arabic digital content portal should have some 2000 addresses and 300 software programs (ibid.). The preliminary phase involved an agreement granting 24 publishers the rights to use and distribute the 165 books which had already been digitized in 2007, while the next phase involves 700 books. More initiatives and partnerships are in the pipeline. These include theatrical publications and 400 photographs, as well as images, maps, audio and video records (MCIT 2007).

The project's intellectual property arrangements, however, are problematic from an access to knowledge perspective. At the project's outset in 2005, MCIT agreed that all digitized books would become the

property of the Egyptian Federation of Publishers (MCIT 2005d). Similarly, any transformed content is owned by the Union for the Educational and Commercial Software Producers (ibid.). Both organizations committed to make the material accessible through a license during the duration of the project, with the end goal of charging for access to the content (ibid.). While the project represents a potential milestone to improving access to Arabic eContent domestically and internationally, the licensing component remains a limitation to a wide and free access. Materials long preserved by public institutions as part of Egypt's cultural heritage are now at risk of being lost to the public in the digital era.

### *Center for Documentation of Cultural and Natural Heritage*

Another project, Eternal Egypt, is managed by the Center for Documentation of Cultural and Natural Heritage (CULTNAT). The project documents significant aspects of Egypt's heritage in the form of an online museum. According to a brochure published by a corporate sponsor: "With multimedia animations, 360-degree image sequences, panoramas of important locations, virtual environments, three-dimensional scans, real-time photos from Web cameras, and thousands of high-resolution images of ancient artifacts, Eternal Egypt weaves together more than five millenia of Egyptian culture and civilization and makes it available to people all over the world" (IBM Corporation 2005).

The project has yielded a rich and innovative resource for learning about Egyptian culture, which is accessible to students domestically and internationally in the Arabic, English and French languages (www.eternalegypt.org). Beyond this significant achievement, the project also constituted an important experiment in the digitization of museum collections, relying on cutting edge three dimensional scanning of cultural artifacts (Rushmeier 2006). The digitization of these unique resources opens the door to many opportunities for further innovative reuses for this priceless electronic content, even as yet unimagined.

The value of this effort, however, may be compromised in unintended ways by the misguided use of intellectual property protections. The materials made available through Eternal Egypt cannot be reused by visitors without special permission. The website's terms of use indicate that no reuse of materials may be made without submitting a licensing inquiry; indeed, all images on the site have been digitally "watermarked" to prevent their suitable use.

This means, for example, that the materials may not be used by a blogger to promote Egyptian tourism, nor by a contemporary Egyptian artist seeking to reinterpret or repurpose a classical work for modern appreciation. The underlying technology of the website, too, has been patented, with the patent certificate proudly displayed as evidence of the project's originality. Even more impressive, however, would have been the licensing of such technology as OSS, inviting other Egyptian and foreign institutions to replicate and improve upon it in a collaborative style.

### *Assessing the impact of Egypt's eCulture initiatives*

The objectives of a new digital content intiative are to: develop high-value Arabic digital content industry and the necessary Arabic applications; use these products for socioeconomic development; increase the quality and accessibility of online Arabic digital content; and create an environment conducive to the sustainable production of this important and growingly used digital content. These objectives can be realized by supporting universities, research centers and ICT companies to develop research and development capabilities for digital content; encouraging local communities to develop digital content; and expanding broadband capacity nationwide. Moreover, they can be realized through a regulatory and legislative setting that can help in the process of expanding electronic documentation of Egypt's cultural heritage, and developing business models based on open sharing of this content.

At present, the current initiative has focused on protecting cultural heritage, devising a revenue sharing model between content and service providers, and providing legal protection for digital intellectual property through a legislative framework. This is problematic from an A2K perspective, as cultural heritage is indeed a cornerstone of Egypt's identity, and any such digitization efforts should be devised with the objective of expanding shared access to content. The challenge in this process becomes one of striking the balance between treating digital content as a profit-making, exportable commodity and a tool to maximize knowledge in society.

On the one hand, there is a desire to promote the digital content industry, which encompasses the creation, design, management and distribution of digital products – including companies producing traditional content, media and entertainment, software and multimedia, and electronic hardware and telecommunications services. These sectors are converging due to

rapid growth in ICT, the Internet and broadband access, which is driving demand for the electronic distribution of content. On the other hand, from a more holistic perspective of human development, digital content may be understood as directly valuable to the Egyptian people, celebrating our cultural heritage, inspiring future generations, and meeting the myriad needs of the Egyptian knowledge society. These two goals may be seen in tension, as the treatment of digital content as a commodity for export might conflict with expansion of access to digital content by preserving it as a public good. The premise of the access to knowledge framework, however, is that this potential tension can be resolved in a mutually beneficial way.

Studies sponsored by the World Intellectual Property Organization have consistently sought to persuade Egypt that the interests of its content industries lie in enhanced copyright protection (Alikhan 2000, Ghoneim 2003). This uncritically IP-maximalist view is discredited, however, by developing countries' recent insistence that WIPO adopt a more even handed and empirically based approach to the costs and benefits of IP protection for development. The work of Nagla Rizk on the Egyptian music industry presented in this volume also calls this premise into question, suggesting that IP protection may be neither necessary nor desirable to promote artistic creativity and a vibrant industry. Business opportunities are created in many ways by eContent, beyond the traditional conceptions of copyright licensing. Open materials, free for use and repurposing, are typically more desirable to both promote access to knowledge and create new business opportunities. Toward this end, a greater role should be explored for Creative Commons licenses and OSS in the government's eCulture initiatives.

Efforts to promote eCulture should also be encouraged from the bottom up. In parallel to the MCIT projects, initiatives on a grassroots level are also endeavoring to expand the Arabic-language presence on the web. The Arab Techies Group is a case in point. Convened in 2008, the group first met to discuss ICT issues that pertain to community support and access to knowledge, concluding that Arabic support problems are consistent. For example, existing Arabic search technology, an important pillar for research and development, does not match with the rapidly growing content on the web. The group also agreed that improving Arabic digital content will require a broader spread of language processing tools, ideally in the form of widely affordable OSS. Hence, the group came up with the idea of developing a code sprint, whereby they will work together on creating an open source

solution around language tools. The group has launched a website at http://arabtechnies.net and to convened its first intensive code development workshop in May 2009.

Initiatives such as this highlight the fact that increasing eContent will require collaboration between government and civil society, including noncommercial partners. Emergent ICT hold great potential to capitalize on open content and open source tools to stretch scarce public resources to greater effect. This requires sensitivity to the access to knowledge perspective when establishing intellectual property and licensing provisions around government supported projects.

## Conclusion

Over the last decade, Egypt has made significant progress toward realizing the vision of the knowledge society through information and communications technology. The developments of the initial phase addressed legal, technical and business fundamentals, enabling the ICT industry to develop significantly (IDSC 2005). These have been reflected positively in the overall growth of the sector, which exceeded 20% in the last two years and contributed to overall GDP growth by more than 7% (Fayed 2009). In the words of the ICT minister, the ICT sector has transformed itself "from a sector looking for support and subsidies to a sector contributing tangibly and intangibly to the economy with a total of 5.2 billion US dollars received by the treasury since early 2006" (Kamel 2008). The ICT sector has also served as a role model for other sectors of reform and liberalization, capitalizing on a free market economy and catering to different social groups and interests.

The National ICT Action Plan 1999-2009 was realized in many ways over the last decade, although not in its full capacity as envisioned in 1999. This action plan, set shortly after the establishment of MCIT, aimed to build a knowledge-based society that can boost socioeconomic development and entice economic growth. As originally conceived, the plan identified eight goals: 1) *Completing the ICT infrastructure build-up* to achieve universal interconnectivity among all 28 provinces including 520 local administrations and over 8000 cities and villages; 2) *Realizing infostructure interconnectivity* among value-added information networks in government, private sector and civil society organizations; 3) *Linking Egypt locally and globally* within the growing global digital market space; 4) *Investing in human capital* through lifelong learning programs and serving different segments of the community;

5) *Building an electronically ready community* capable of engaging in the global information society; 6) *Updating Egypt's information infrastructure* as a step in building the nation's information highway; 7) *Encouraging an ICT export industry* by promoting and supporting innovation, creativity and research and development in ICT-related areas; and 8) *Collaborating through public-private partnerships* engaging different stakeholders in high-tech projects with business and socioeconomic implications.

Although none of these objectives has been fully attained, the plan's achievements to date lie in gradually helping Egypt to bridge the nation's digital divide and in sharpening its competitive edge on the global ICT scene. Penetration rates are gradually increasing for infrastructure like Internet access, PCs and mobile and fixed phone lines. The liberalization of the telecom sector created competitive forces that are working for the best interest of the consumer. The action plan also helped create an ecosystem that is empowered by deregulation policies, which laid the foundations of the ICT sector's continuing development. The MCIT has gained valuable experience through a number of public-private partnership initiatives that can be expanded and improved upon to more fully achieve the vision of the knowledge society over the coming decade.

The development of the knowledge society cannot be left to market forces; it deserves and needs the attention of the highest political decisionmakers with a vision to expand access and contribution to knowledge. Nations like Egypt should prioritize information needs for business and socioeconomic development, just as they do already for sectors such as industry, agriculture, education and health. Governments are responsible for taking a strategic approach to the demands of an information-intensive global environment. This approach should include: creating a shared vision of the knowledge society, intensifying the process of information acculturation, generating the necessary human capacities, accelerating the development and deployment of ICT infrastructure, and building an electronically ready community.

A critical issue in the information age will be developing a win-win partnership between the government and the private sector. According to MCIT Minister Tarek Kamel: "Institutional build up is important. Transparency is important. Adherence to law is important. But I believe that the most crucial issue is genuine public private partnership including all the various stakeholders in the dialogue and in the development process" (Attalah 2008). The private sector is now seen as a major stakeholder in the

progress toward the knowledge society. Use of public-private partnerships will continue to be instrumental for the government's strategy. The nature of this partnership will be determined by the answer to this question: How will governance be exercised in the information-based world? While the framework is not yet defined, the private sector will probably provide information-based services while governments construct a supporting regulatory framework based on the greater public participation and consensus essential for a knowledge society.

The knowledge society requires not just an intricate web of legal measures but also a strong, comprehensive infrastructure, a human resource investment plan, good education and concrete incentives for local and foreign investments. Moreover, it requires full transparency in the transfer and use of data within an environment that encourages creativity and innovation. Information is power, and it is a factor in the manipulation of discourse about socioeconomic reform (Stiglitz 2002). Historically, in Egypt, the government has dominated the supply of information. The process of information sharing and dissemination was orchestrated by a number of public and private sector organizations led by the Central Agency for Public Mobilization and Statistics (CAPMAS), established in 1964 and considered the official source of data collection in the nation (El-Mikawy and Ghoneim 2005). This strategy has been gradually changing since the mid-1980s, when the government opted for a relatively more transparent strategy by collaborating with the private sector and by allowing research entities to conduct market studies, sharing findings and outcomes and generally contributing in the build-up of the knowledge society. This promising trend has opened venues for information sharing to the public, empowered the society and disclosed opportunities for business and socioeconomic development.

Access to knowledge will not reach all segments of the society across all provinces, however, until further efforts are expended. Despite significantly increasing ICT penetration rates, too many Egyptians are still excluded from the opportunity to participate in the knowledge society. Not only technological expansion is needed, but also educational opportunities and the economic resources for Egypt's people to avail themselves of the opportunities the new technologies provide. Moreover, a political revisiting and reform for media freedom will be conducive to improved access to information, which is currently still perturbed by a series of legal and extralegal restrictions.

A critical leveraging of the potential of OSS and open licensed content is also in order to expand access to eLearning and eCulture.

In this respect, access to knowledge emerges as an invaluable platform for development and growth in the global marketplace of the twenty-first century. With the increasing competition taking place around the world, investing in human capacities and disseminating knowledge through multiple channels is integral to business and socioeconomic development. Expanding access to ICT plays a pivotal role in this effort. Over the next decade, Egypt should further develop its ICT policies and programs within an overall ecosystem that encourages knowledge sharing and collaborative work, and which is guided by the notion that access to knowledge is the path to societal development and growth.

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