

Transitioning Towards a Knowledge Society

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Qatar as a Case Study

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Abbreviations

DECC	Doha Exhibition and Convention Center
FIFA	Fédération Internationale de Football Association
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GERD	Gross Domestic Expenditure on Research and Development
GSDP	General Secretariat for Development and Planning (Doha, QA)
HDI	Human Development Index
HMC	Hamad Medical Corporation
ICT	Information and Communication Technology
IDI	ICT Development Index
K-12	Kindergarten to the 12th Grade
LNG	Liquefied Natural Gas
MENA	Middle East and North Africa
MIA	Museum of Islamic Art
MICE	Meetings, Incentives, Conferences and Exhibitions
NRI	Networked Readiness Index
PISA	Program for International Student Assessment
QBIC	Qatar Business Incubation Centre
QF	Qatar Foundation
QIA	Qatar Investment Authority
QNCC	Qatar National Convention Centre
QNDS	Qatar National Development Strategy
QNL	Qatar National Library
QNRF	Qatar National Research Fund
QNV	Qatar National Vision
QP	Qatar Petroleum
QR	Qatari Riyal
QSTP	Qatar Science and Technology Park
QU	Qatar University
R&D	Research and Development

STM	Science, Technology and Medicine
SWOT	Strengths, Weaknesses, Opportunities and Threats
TIMMS	Trends in International Mathematics and Science Study
UAE	United Arab Emirates
VPN	Virtual Private Network

Introduction

Once rapidly grown due to large oil and gas reserves, the governments of the Gulf Cooperation Council (GCC) states are nowadays aware of ending resources and declining demand of oil- and gas-burning countries due to electric mobility and enhanced ecological awareness. Additionally, new oil production methods as hydraulic fractioning, increasingly used, for instance, in the USA, intensify competition on the oil markets.

One GCC member, the state of Qatar—a region that is on the threshold of change these days, which conducts a rather unusual type of economy and whose population has to prove itself in its own country—makes great plans for the era after the oil. Its government has the task to bring the country and its people on the right track—a track that transforms Qatar into a knowledge-based society (QF, 2013¹). To achieve this goal and to spread the nation’s task, the previous Emir of Qatar, Sheikh Hamad bin Khalifa Al Thani, and his political supporters introduced the Qatar National Vision (QNV) 2030 in 2008.

The National Vision defines broad future trends and reflects the aspirations, objectives and culture of the Qatari people. By shedding light on the future, the Vision illuminates the fundamental choices that are available to Qatari society. Simultaneously, it inspires Qatari people to develop a set of common goals related to their future (GSDP, 2008, p. 2²).

For the supplementary Qatar National Development Strategy the main goal is to build on knowledge:

As Qatar’s economy diversifies more from its reliance on gas and oil, success will increasingly depend on the ability to compete in a global knowledge economy. Educating and training Qataris to their full potential will be critical to continuing progress (GSDP, 2011, p. 122³).

¹QF. (2013). *Qatar Foundation Strategic Plan 2013–2023*. Doha, QA: Qatar Foundation.

²GSDP. (2008). *Qatar National Vision 2030*. Doha, QA: General Secretariat for Development Planning.

³GSDP. (2011). *Qatar National Development Strategy 2011–2016*. Doha, QA: General Secretariat for Development Planning.

Our study tries to clarify to which extent the plans and strategies are implemented until now. Is the country on a good path to build up a knowledge society and to establish knowledge-based development?

What does “knowledge society” mean? And why did we choose Qatar as a case study?

These days, in many countries of the world, a transition into an “information society” or a “knowledge society” takes place (Webster, 2006⁴). An “information society” is technologically defined; it is based on information and communication technologies (ICT). A knowledge society is an information society as well; however, here knowledge will be available for everyone at any time and any place (Linde & Stock, 2011⁵).

Information societies as well as knowledge societies are varieties of a “network society” (Castells, 1996⁶): there are information networks (e.g. the Internet), and there exist knowledge networks (between knowledge workers or members of the “creative class”; Florida, 2005⁷, 2012⁸). “Knowledge” includes both tacit knowledge (bound to persons) and explicit knowledge (bound to documents) (Barth et al., 2017⁹). As the body of knowledge is subject of change, lifelong learning is necessary.

Knowledge production, information dissemination as well as knowledge consumption became essential factors in knowledge-based economies and knowledge societies. Knowledge production generates scientific articles, technological patents, governmental information, everyday knowledge and—probably most important—graduates ready for knowledge-intensive jobs. Information dissemination (Stock & Stock, 2013¹⁰) happens digitally via ICT or physically, be it face-to-face or through physical documents, e.g., books. Knowledge consumption presupposes skilled people who are able to comprehend and understand all knowledge items they retrieved and are further able to transform found knowledge into meaningful actions. The integration of knowledge into products and services leads on to knowledge economy; the integration of knowledge into politics and administration results in knowledge-based development.

Anyway, in a knowledge economy or in knowledge-based development, knowledge itself is not an end product. No man can live from knowledge alone.

⁴Webster, F. (2006). *Theories of the Information Society*. Abingdon, UK: Routledge.

⁵Linde, F. & Stock, W. G. (2011). *Information Markets. A Strategic Guideline for the I-Commerce*. Berlin, Germany, New York, NY: De Gruyter Saur.

⁶Castells, M. (1996). *The Rise of the Network Society*. Malden, MA: Blackwell.

⁷Florida, R. L. (2005). *Cities and the Creative Class*. New York, NY, London, UK: Routledge.

⁸Florida, R. L. (2012). *The Rise of the Creative Class: Revisited*. New York, NY: Basic Books.

⁹Barth, J., Fietkiewicz, K. J., Gremm, J., Hartmann, S., Ilhan, A., Mainka, A., Meschede, C. & Stock, W. G. (2017). Informational urbanism. A conceptual framework of smart cities. In *Proceedings of the 50th Hawaii International Conference on System Sciences, January 4–7, 2017, Waikoloa Village* (pp. 2814–2823). Washington, DC: IEEE Computer Society.

¹⁰Stock, W. G., & Stock, M. (2013). *Handbook of Information Science*. Berlin, Germany, Boston, MA: De Gruyter Saur.

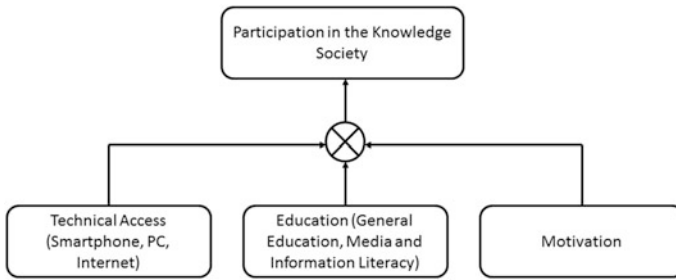


Fig. 1 Factors of successful participation in the knowledge society. *Source* (Linde & Stock, 2011, p. 95) (modified)

However, knowledge takes full effect if implemented in products and services, in entire markets and industries as well as in public governments. In such a way, “smart” products, “smart” services, “smart” industries, “smart” cities and “smart” countries may emerge. A necessary condition for the performance of a knowledge economy is the participation of a well-educated and motivated workforce.

What are the conditions for people to participate successfully in the knowledge society? Access to devices (such as smartphone, tablet, laptop or PC) and to the Internet as well as the possibility of financing these is a necessary condition. However, it only becomes a sufficient condition when it is joined by the motivations for dealing with the particularities of the knowledge society, and when levels of general education as well as of media and information literacy are reached that facilitates an adequate usage of digital media and knowledge sources (Fig. 1). So participation in the knowledge society does not hinge on technology and on knowledge and education alone. Additionally, it is important that the people really want to participate, thus there is adequate motivation (Linde & Stock, 2011, pp. 95 f.). In countries, where some citizens exhibit kinds of “rentier mentality” (Beblawi, 1987¹¹)—and Qatar is such a country—it could be problematic to change people’s habits in terms of participation in the knowledge society or even in their willingness to work hard.

Based upon research on informational urbanism and informational (or “smart”) cities (Stock, 2011¹², 2015¹³), a study on all major cities on the coast of the Arabian

¹¹Beblawi, H. (1987). The rentier state in the Arab World. In H. Beblawi & G. Luciani (Eds.), *Nation, State and Integration in the Arab World. Vol. 2: The Rentier State* (pp. 49–62). London, UK: Croom Helm, New York, NY: Methuen.

¹²Stock, W. G. (2011). Informational cities: Analysis and construction of cities in the knowledge society. *Journal of the American Society for Information Science and Technology*, 62(5), 963–986.

¹³Stock, W. G. (2015). Informational urbanism. *Journal of Systemics, Cybernetics and Informatics*, 13(6), 62–69.



Fig. 2 Dusk at Qatar's Education City

Gulf (Gremm, Barth, & Stock, 2015¹⁴; Kosior, Barth, Gremm, Mainka & Stock, 2015¹⁵) determines Doha as the city with the highest potential to become an informational city, thus a prototypical city of the knowledge society. Based on these results, we decided to get to the bottom of it by bringing more detailed aspects into question and by understanding Qatar's aims and the nationals' way of thinking, living and working. Do they really have the potential to become a knowledge society as it is announced in the country's master plans?

In comparison to other oil-producing countries, Qatar and some other Arab states bank heavily on the development towards a knowledge society. When we take a look at Venezuela, which is one of the largest oil exporters on a global scale, we are not able to identify strategic plans towards knowledge economy or knowledge society. Many people in Venezuela live in poverty; the economy is in dire straits; there is social unrest. The dependency of Venezuela's economy on oil production and export, connected with rentier mentality of the political elite, led to maldevelopment and underdevelopment (Kingsbury, 2016¹⁶). In contrast to Venezuela, Qatar nowadays is a prospering and forward-looking state. When we visited Qatar, we found world-class infrastructures of knowledge institutions (Fig. 2).

¹⁴Gremm, J., Barth, J., & Stock, W. G. (2015). Kuwait is the past, Dubai is the present, Doha is the future: Informational cities on the Arabian Gulf. *International Journal of Knowledge Society Research*, 6(2), 51–64.

¹⁵Kosior, A., Barth, J., Gremm, J., Mainka, A. & Stock, W. G. (2015). Imported expertise in world-class knowledge infrastructures: The problematic development of knowledge cities in the Gulf region. *Journal of Information Science Theory and Practice*, 3(3), 17–44.

¹⁶Kingsbury, D. N. (2016). Oil's colonial residues: Geopolitics, identity and resistance in Venezuela. *Bulletin of Latin American Research*, 35(4), 423–436.

Another reason to select Qatar as a case study lies in the starting position for the transformation process towards a knowledge society. About two or three decades ago, in Qatar there was nothing we could associate with knowledge economy: no functioning education system K-12, nearly no universities, no knowledge-intensive companies, no knowledge-based development. In contrast, in “old” countries as the USA, the UK, France or Germany, knowledge institutions look back to centuries of history. In Qatar, we are able to study the transitioning towards a knowledge society from scratch, thus from the very beginning.

Qatar acts very successfully in terms of economic development, wealth of the native population and constructing the knowledge society—possibly even too successful. However, apart from envy, Qatar’s position between two blocs of states culminated in the diplomatic crisis in 2017. On the one side, there is the Saudi-led Sunni bloc, on the other side the Iran-led Shiite bloc, Qatar is in the middle with relations to both. Due to the shared exploitation of the largest gas field of the world, Qatar and Iran have common interests and good relations in terms of business and foreign policy. There are also distinct economic and political relations as well as family ties between Qatar and its neighbouring countries, Saudi Arabia, UAE and Bahrain and the other GCC countries, Oman and Kuwait. The good relation between Qatar and Iran has annoyed Saudi Arabia for years. Furthermore, Qatar supported (and continues to partly support) foreign political parties as Egypt’s Muslim Brotherhood and Palestine’s Hamas both by financial aids as well as by media support through Qatar’s Al Jazeera network. This foreign policy is not in line with Saudi Arabia’s and emphasizes the special position of Qatar in the Middle East and North Africa (MENA). In June 2017, on the basis of fake news, some Islamic states (including Qatar’s neighbouring states Saudi Arabia, UAE and Bahrain) cut off their diplomatic ties and isolated Qatar in the region. However, Qatar still maintains good political as well as economic relations to Japan, South Korea, India and China, to Turkey, Russia and to the USA as Qatar hosts the largest US military base in the entire Middle East region. As you can see, Qatar plays a particularly prominent role in the whole MENA region.

For Abdulwahed and Hasna (2017, p. 6¹⁷), there are four main drivers of Qatar’s contemporary innovation- and knowledge-based economics. The first one is the Qatar National Vision, which is in close relationship to the second driver, namely the instability of oil and gas prizes. The mastering of the preparations for the Soccer World Cup (in 2022) and partly associated mega projects (including a new metro system, and with Lusail a new “smart” city) appears to be the third driver. Finally, the fourth driver is the market situation on the Arabian Peninsula with Saudi Arabia and the United Arab Emirates as Qatar’s main competitors.

There are few other monographs on Qatar which appeared during the last years. “Demystifying Doha” by Salama and Wiedmann (2013¹⁸) is on Qatar’s capital city,

¹⁷Abdulwahed, M., & Hasna, M. O. (2017). *Engineering and Technology Talent for Innovation and Knowledge-Based Economies*. Cham, Switzerland: Springer.

¹⁸Salama, A. M., & Wiedmann, F. (2013). *Demystifying Doha*. Farnham, UK: Ashgate.

its architecture and urbanism; however, Doha's position as a city of the knowledge society is not addressed. Kamrava's "Qatar. Small State, Big Politics" (2013; with a new preface 2015¹⁹) is a book about Qatar's politics, its international relations and its economy, but not on its knowledge society or knowledge economy.

Our book is arranged into four parts consisting of all in all 13 chapters. Part I (Chaps. 1 and 2) is on *Context*, namely the GCC states in general and Qatar as our case study. In the following Part II (*Concept*), we define in Chaps. 3 and 4 the basic concepts of knowledge society and introduce methods to operationalize the concepts. Part III (*Connection*) describes in Chaps. 5–12 the empirical research results of our studies on and in Qatar. Finally, Part IV with Chap. 13 is the *Conclusion* of our endeavours.

In Chap. 1, we will provide background information on informational ("smart") cities in the GCC states. To get an overview of Qatar, Chap. 2 gives basic information about the region and the country, the geographic and demographic data, the culture, the politics and the economy, the health care conditions and the education system. Chapter 3 will introduce the concepts of knowledge society and knowledge-based development and adds some further facts about Qatar by interpreting indicators of the development status of a country. Subsequently, the methods that underlie the study are described in Chap. 4. The above-mentioned strategies of the country as well as some others, like Qatar e-Government 2020 Strategy (ictQatar, 2014²⁰)—all related to the National Vision—drew attention to the topics discussed in Chaps. 5–12. In Chap. 5, we discuss different industries Qatar invests in to diversify its economy and to unlearn the reliance on oil and gas. The next chapter is about Qatar as an upcoming "inquiring, innovative and creative society" (GSDP, 2011, p. 11). The results of an e-Government study that analyses the government–citizen relationship are discussed in Chap. 7. Chapter 8 reviews the country's support of knowledge-based development. Chaps. 9–11 describe the higher education institutions and systems, its students and the graduates' ways into the labour markets. Chapter 12 completes—with an overview of the country's libraries, science parks and research funding—the information about the nation's knowledge-intensive institutions. A SWOT analysis in Chap. 13 will summarize all previous mentioned findings and points out Qatar's strengths, weaknesses, opportunities and threats on its way to a knowledge society.

One of the main research questions of our book is to identify problems and barriers of Qatar's way into the knowledge society. According to Qatar's master plans, this transformation will be finished in 2030. However, are those plans realistic? What is the state of the art of Qatar's institutions of higher education? Who does educate the students, Qataris or foreign talents? Do Qatar's people exhibit willingness, motivation and ability to create a knowledge society? Are there indeed jobs for highly educated native people or rather for expats? Based upon field

¹⁹Kamrava, M. (2015). *Qatar: Small State, Big Politics*. Ithaca, NY: Cornell University Press.

²⁰ictQatar. (2014). *Qatar E-Government 2020 Strategy*. Doha, QA: Ministry of Information and Communication Technology.

research on-site, desktop studies and qualitative interviews with experts in Doha, we found that Qatar's way into knowledge society is by no means easy, but very problematic and arduous.

The book's target audience are economists, sociologists, political scientists, geographers, information scientists and other researchers on the knowledge society, policymakers in Qatar, but also all researchers and practitioners interested in the Arab oil states and their future.

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