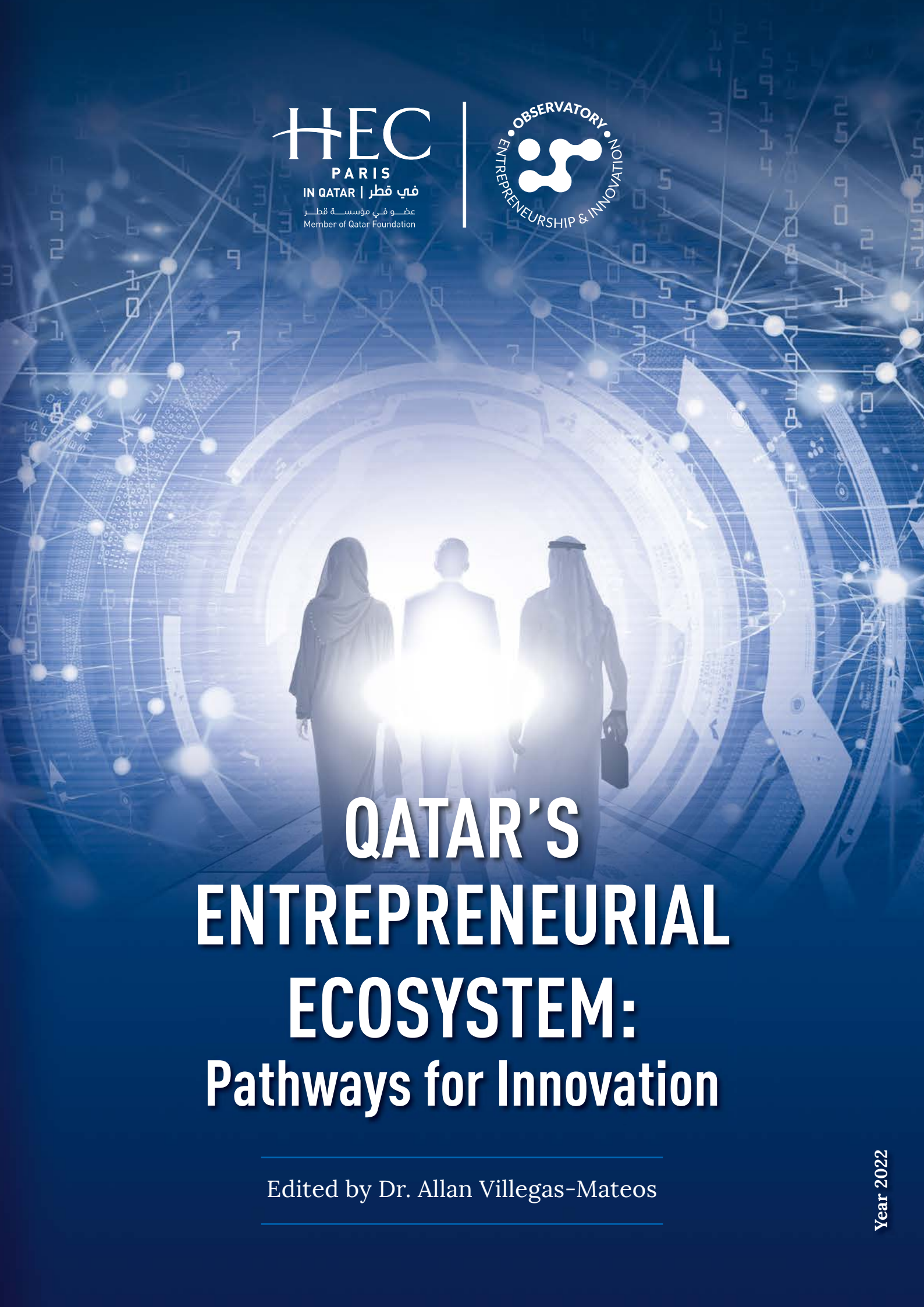
HEC PARIS IN QATAR | في قطر
عضو في مؤسسة قطر
Member of Qatar Foundation

OBSERVATORY ENTREPRENEURSHIP & INNOVATION



QATAR'S ENTREPRENEURIAL ECOSYSTEM:

Pathways for Innovation

Edited by Dr. Allan Villegas-Mateos

Year 2022

Acknowledgements

I would like to express my deepest appreciation to the entrepreneurs, managers, investors, academics, policymakers, and representatives of the key stakeholders in Qatar's entrepreneurial ecosystem who contributed their time, knowledge, and ideas to this study. This report would not have been possible without such community collaboration and knowledge sharing. I sincerely thank the incubators, accelerators, universities, and co-working centers that invited me to visit their spaces and become part of their programs either as a lecturer, mentor, coach, or jury member. It was invaluable to witness the reality of the ecosystem and capture the findings in this research. Kudos to HEC Paris in Qatar, member of Qatar Foundation, for sponsoring and supporting this project since the beginning, with thanks to all the HEC people who continuously make it all possible. Special gratitude to Dr. Pablo Martin de Holan, Dean of HEC Paris in Qatar, and Dr. Deval Kartik, Senior Case Writer, for their reviews and to the HEC's Partnerships and Growth team for their support. Foremost, my sincere gratitude to Qatar Foundation members and its people that contributed directly or indirectly. Finally, my personal thanks to our external contributors, Hamda Al-Boinin, Maryam Al-Khalaf, Mohsin Ali, Savanid (Nui) Vatanasakdakul, and lastly, Wohaib Khalid, for providing invaluable insights as an active member of the entrepreneurial students' community.

Disclaimer

The views and opinions in this publication are solely those of the authors based on the data collected. Errors and omissions remain the responsibility of the authors and do not reflect or represent the position of Qatar Foundation, HEC Paris in Qatar, or any of the institutions that are mentioned throughout the report.

The Editor's Bio

Dr. Allan Villegas-Mateos

Dr. Allan Villegas-Mateos is a Senior Research Fellow of entrepreneurial ecosystem studies at HEC Paris in Qatar, where he did a postdoctorate. He holds a Ph.D. in Business Administration with a major in entrepreneurship and innovation from the EGADE Business School of the Technological Institute of Monterrey in Mexico. He also graduated from the same institute's bachelor's program in Business Creation and Development, founding his first business while in the last year of college with public investment seed grants obtained. He is a native of Mexico City and is currently a member of the National System of Researchers of the Mexican National Council of Science and Technology and a lifetime member of the international business honor society Beta Gamma Sigma. His research interests are the macroeconomic determinants of entrepreneurship in emerging economies, entrepreneurship education, women entrepreneurship, and university-based entrepreneurial ecosystems. Dr. Allan is the author of the book "Qatar's Entrepreneurial Ecosystem – Edition 2021: Empowering the Transformation" and has published in peer-reviewed journals like the Journal of Entrepreneurship in Emerging Economies, Sustainability, and the International Journal of Entrepreneurship as well as book chapters in recognized editorials such as Emerald Publishing Limited, Edward Elgar, IGI Global, and De Gruyter. He has presented at Babson's College Entrepreneurship Research Conference, appearing at the Frontiers of Entrepreneurship Research Conference Proceedings and the Academy of Management Annual Meetings, among others. Dr. Allan is Qatar's coordinator of the international research projects: Global University Entrepreneurial Students' Survey (GUESSS), the Global Leadership and Organizational Behavior Effectiveness (GLOBE), and is a certified researcher by the Global Entrepreneurship Monitor Consortium. Also, Dr. Allan is a serial entrepreneur, consultant, and angel investor in the technology, manufacturing, and retail sectors. He has spent his free time mentoring at different international incubators and accelerators since 2015, including in Qatar, the Digital Incubation Center, TASMU Accelerator, Founder Institute Doha, and Qatar Business Incubation Center.

Dr. A. Villegas: villegas@hec.fr

Foreword

Accelerating the development of Qatar's Digital Economy is one of the catalysts in Qatar's pursuit of economic prosperity and sustainability. In line with our QNV2030, the Ministry of Communications and Information Technology (MCIT) launched the Smart Qatar (TASMU) countrywide program, which has positively impacted Qatar's digital economy through implementing digital strategies, enablers, key infrastructures, and investments. We see our role as helping to establish regulations on ideating, testing, deploying, and commercializing emerging technologies to help sectors deliver services to people, and strives to continuously deepen understanding of emerging technologies and innovation in priority areas and industries.

It is important to highlight that achieving this transformation and realizing the benefits requires a joint effort across the public and private sectors. No one entity can achieve this alone, we must support and work collaboratively and share knowledge. Universities and academia are an integral part of it to help innovation, research, and development in ideating new solutions. It also requires cultivating a fast-growing community of tech start-ups and SMEs with large pools of investment capital. Having multi-national corporations co-found joint assets to create high-value jobs and develop local research expertise only enhances our collective work. MCIT has supported a diverse ecosystem of stakeholders to collaborate in a meaningful way to achieve the Smart Qatar agenda for our country. The Ministry has established and is actively creating a more comprehensive and diverse network of partnerships at a local and international level to create a space where we all share learnings, knowledge, opportunities and findings, including Qatar Science and Technology Park, Invest Qatar, Ooredoo, Microsoft and Meta.

Various ministries and entities, such as the Ministry of Commerce and Industry, Qatar Financial Center, Qatar Development Bank, Qatar Foundation, Qatar Science and Technology Park, Hamad Bin Khalifa University, HEC Paris in Qatar, Qatar Free Zone Authority, Invest Qatar, among others including us, are all working towards creating a business-friendly ecosystem for the tech sector and enhancing the competitiveness and attractiveness of Qatar. We've seen opportunities in the ecosystem and collectively have established several initiatives to fill them and support startups. The Innovation Lab, the Digital Incubation Center, the TASMU Accelerator, and TASMU Digital Valley, a some of the flagship program launched to achieve interconnectedness among various stakeholders to utilize the full potential of our diverse ecosystem. To cater to the new needs of the community, we will soon be launching two new programs in 2023, the "TASMU Now Scale" program and "SME Go Digital" program. Both will contribute towards strengthening support to matured and promising growth stage startups, digital companies, and SMEs that have potential to scale rapidly and help SMEs use digital technologies and build stronger digital capabilities to seize growth opportunities in the digital economy.

We will be looking to you, the entrepreneurial community and supporting stakeholders, to help us shape Smart Qatar. An active country where every business and individual have an equal opportunity to contribute to its success.

H.E Reem Al Mansoori
Assistant Undersecretary of Digital Society Development at the Ministry of Communication and Information Technology (MCIT).

Prologue

Building a start-up needs a strong set of fundamentals: talent, knowledge, a market, a team, and investment. From my experience, Qatar has a wealth of young talent. This is due in no small part to investments like Education City, home to some of the world's best universities. What the country lacks are experienced entrepreneurs. But through attractive regulations and tax exemptions, we have managed to bring world-class companies here to Doha and we are making sure both interact with each other.

For young entrepreneurs, having access to advice and start-up boost grants is crucial for building minimum viable products. Qatar offers this in the form of incubation and acceleration centers such as Qatar Business Incubation Center, Qatar Science & Technology Park, Scale7, and more.

Through Qatar Development Bank and Qatar Science & Technology Park, investment is available to them, while the private sector continues to build venture capital knowledge.

There is most certainly considerable potential for Qatar's entrepreneurial ecosystem to grow in venture capital investments.

Hamad Al-Hajri
Co-Founder and CEO of Snoonu
HEC Paris in Qatar Alumnus

Preface

It is with great pleasure that HEC Paris in Qatar presents the second edition of Qatar's Entrepreneurial Ecosystem. This report updates and expands the 2021 edition because, like the city of Doha, entrepreneurial (eco) systems are constantly evolving as new institutions appear, new missions are given, and new policies are implemented.

Entrepreneurship is central to each pillar of Qatar's National Vision 2030. Entrepreneurs and their businesses, small and big alike, unleash innovations, bring inventions to market, and create solutions for the challenges we face every day. Encouraging, nurturing, and developing entrepreneurs of all kinds is essential for transitioning to an economy based on ideas and respect for the environment. The State of Qatar has invested amply in developing a robust entrepreneurial ecosystem that both unleashes and channels innovative ideas into new ventures. But as we say in our courses, ideas are the easy part; the difficulty lies in execution. To make implementation easier, one needs an entrepreneurial ecosystem.

This work presents a detailed map of Qatar's current entrepreneurial ecosystem, which has expanded considerably in the last few years thanks to improved regulatory systems and policies. These changes were inspired by the desire to create a world-class hub for entrepreneurial ideas, especially those based on science and the myriad technical and technological innovations happening, as we speak, in education institutions, large corporations, and the public sector.

At HEC Paris in Qatar, we believe in "evidence-based" management, that is, decisions based on a deep and textured understanding of the realities surrounding that decision. Our sincere hope is that this "map" of the entrepreneurial ecosystem helps decision-makers and entrepreneurs make better decisions, create more sustainable businesses, and ultimately contribute to creating a knowledge-based economy. In so doing, they will build a better, more sustainable world by addressing the challenges of our times and launching innovative initiatives to solve them.

Behind every project, there are people, sometimes unseen but central to its success. Our appreciation goes to each one of our community members who contributed to this report, to whom we remain deeply grateful for their time and generosity.

Doha, September 2022.

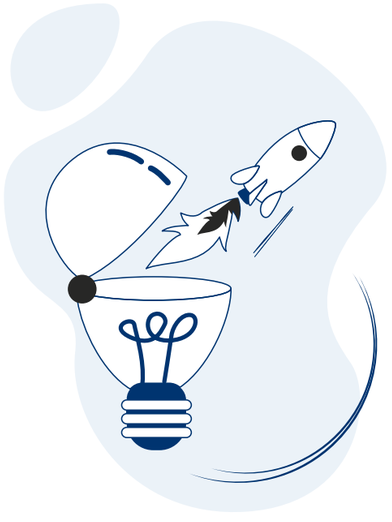
Pablo MARTIN DE HOLAN Ph.D.,
Dean, HEC Paris in Qatar.

Content

CHAPTER 1

An Introduction to Sustainable Entrepreneurial Ecosystems

Allan Villegas-Mateos



This report is about understanding how to build *sustainable entrepreneurial ecosystems*. This term is derived primarily from two research fields: *entrepreneurial ecosystems* and *sustainable development*. It will delve into how these two terms combine and introduce the concepts of *sustainable innovation*, *social capital*, and *communities* as drivers of the ecosystem's development. The report is intended for entrepreneurs, academics, researchers, policymakers, investors, or a combination of these, to learn more about how an individual or institution, from any part of an entrepreneurial ecosystem, can actively enhance sustainable economic growth through innovation. Anyone can become an entrepreneurial ecosystem builder from any position they hold in their community. This report explores the aspects that trigger innovation-driven entrepreneurial activities to differentiate from traditional business activities (e.g., coffee shops, beauty salons, flower shops, etc.). It addresses it from the macro- to the meso- and micro-levels to provide a broader context with institutional and individual factors within the ecosystems that act as enablers of entrepreneurs' innovation activities.

In the entrepreneurship literature, the term ecosystem has several implications, depending on the measured outputs. It can be used to refer to policies (Wessner, 2004), regional clusters (Kenney and Von Burg, 1999), and even national systems of entrepreneurship (Acs et al., 2014). Due to its attractiveness and elasticity, the ecosystem concept has been used to explain various phenomena from a range of academic perspectives and by varying adjectives, such as innovation, business, technology, platform, entrepreneurial, knowledge (Thomas and Autio, 2020), and more recently, sustainable ecosystems (Theodoraki et al., 2021; Volkmann et al., 2021). The main differences between them are the ecosystem outputs and the unit of analysis that are related to a thematic area, although they share the view of interdependent actors and factors as entrepreneurial ecosystems definitions do (Cohen, 2006; Isenberg, 2014; Mason and Brown, 2014; Stam, 2015; Cukier et al., 2016: Audretsch and Belitski, 2017; Spigel, 2017).

The literature on entrepreneurial ecosystems is an emerging field that has the potential to expand our understanding of ecosystems (Theodoraki et al., 2017).

However, over the last 15 years, there has been an increase in interest and publications by academics and practitioners focusing on entrepreneurial ecosystems as a fundamental theory to foster resilient economies based on entrepreneurial innovation (Autio et al., 2018; Fernandes and Ferreira, 2021; Roundy et al., 2018; Spigel, 2017; Theodoraki et al., 2021).

> ***"Anyone (individual or institution) from any part of an entrepreneurial ecosystem, can take active actions to enhance sustainable economic growth through innovation."***

The report explores the literature on entrepreneurial ecosystems to benefit from previous evidence and understanding. It will be helpful to policymakers and researchers since it encompasses all types of entrepreneurial activities (Stam, 2015; Cao and Shi, 2020). Nevertheless, the report particularly examines sustainable entrepreneurial ecosystems (SEEs) in the Middle East from the macro-level (world, regions, countries, and communities) to the meso-level (population and organizations) and the micro-level (individuals), with a strong emphasis on Qatar. A sustainable entrepreneurial ecosystem implies integration with environmental, social, and governance objectives aligned with the United Nations (UN) Sustainable Development Goals (SDGs) (Liguori and Bendickson, 2020; Volkmann et al., 2021; Theodoraki et al., 2021). Volkmann et al. (2021) argued that many researchers had mistreated the opportunity offered by ecosystems for promoting sustainable development.

As argued before, there is a broad spectrum of different types of ecosystems: some consider them business or platform ecosystems (Zhang and Guan, 2017), others as innovation ecosystems (Dedehayir et al., 2018), knowledge-based ecosystems (Clarysse et al., 2014), or as in this case, SEEs (Bischoff, 2021; Pankov et al., 2021; Volkmann et al., 2021; Theodoraki et al., 2021). In a previous study of Qatar's entrepreneurial ecosystem, Villegas-Mateos (2021) argued that most of the ecosystem models from practitioners and academics share conditions that provide a general ecosystem framework which includes five of those primary required conditions (see **Figure 1**). Consequently, this report presents a solid base, building on these conditions that have been updated and analyzed through the lens of their performance to enhance sustainable development.

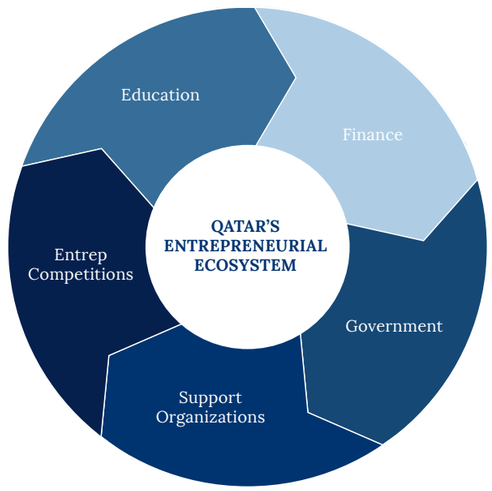


Figure 1
Qatar's entrepreneurial ecosystem framework conditions
Source: Villegas-Mateos (2021)

To analyze ecosystems, there are four main approaches: (1) (eco)system approach (Cohen, 2006; Isenberg, 2011; Stam, 2015), (2) configurational approach (Spigel, 2017), (3) network approach (Stangler and Bell-Masterson, 2015), and (4) practitioner-oriented approach (e.g., World Economic Forum reports, Organization of Economic Development (OECD) reports, Global Entrepreneurship Index, Global Entrepreneurship Monitor, Global Startup Ecosystem Ranking, etc.). Throughout this report, you will find studies derived from the scope of these four approaches to ensure a complete understanding of Qatar's entrepreneurial ecosystem and its competitive advantage in the Middle East region. On the other hand, you will find different methodologies used in the chapters. The applied methodologies in entrepreneurial ecosystems research are exhaustive, from theoretical studies to literature reviews, qualitative methods, quantitative methods, mixed, and other methods (Theodoraki et al., 2021). According to Theodoraki et al. (2021), 33.6% of methods used in entrepreneurial ecosystem research are qualitative, 26.1% are quantitative, 10.9% are mixed methods, 27.7% are theoretical or literature reviews, and the remaining 1.7% are others (such as social networks and simulation). The various methods are explained since entrepreneurial ecosystems are an emerging field of study, and despite the growing interest, there is no clear consensus on the best level of analysis yet (Scheidgen, 2021).

> ***"An interconnected group of actors in a local geographic community committed to sustainable development through the support and facilitation of new sustainable ventures."***

Similarly, the sustainable entrepreneurial ecosystem concept is an emerging field of research (Cohen, 2016; Adner et al., 2013; Ács et al., 2014; Spigel, 2015; Theodoraki et al., 2017). Cohen (2016) defines it as "an interconnected group of actors in a local geographic community committed to sustainable development through the support and facilitation of new sustainable ventures." SEEs are linked to the UN SDGs but also adhere to the use of digital and information technologies.

The concept of sustainable development expects firms to develop innovations that reconcile economic, environmental, and social goals, what we understand as sustainable innovations (Cillo et al., 2019). In 2015, the UN General Assembly emphasized the cross-cutting contribution of Information and Communication Technologies (ICT) to the newly defined SDGs, given that ICT can accelerate the progress of sustainability. Bischoff and Volkman (2018, inspired by Cohen, 2016) found with their research model that stakeholder support and collaboration are essential for engaging in sustainable entrepreneurship and building SEEs. Therefore, this report adopts the concept of a sustainable entrepreneurial ecosystem to analyze the status of Qatar's entrepreneurial ecosystem. It follows different approaches and methods, including a regional benchmark of the challenges and future directions for stakeholders aiming to promote sustainable development.

The Global Startup Ecosystem Report (2022), which features Qatar for the first time, ranks the country among the top 10 countries in the Middle East and North Africa (MENA) region for affordable talent and knowledge. This approach reminds us of the importance of regional analysis. Sternberg et al. (2019) argued that a regional comparison is the most appropriate spatial level to identify and measure entrepreneurial ecosystems since the regional entrepreneurship literature provides striking evidence that entrepreneurship is primarily a regional (or local) event. In contrast, most studies have focused almost exclusively on ecosystems in large, urbanized regions and metropolitan areas located primarily in developed economies. However, the prevalence of small cities across the globe and the increasing acknowledgment that entrepreneurship in small towns is a crucial determinant of their economic development and rejuvenation suggests that research on entrepreneurial ecosystems would benefit from a broader lens of inquiry (Roundy, 2017). Hence, studying SEEs in the Middle East and, specifically Qatar, is relevant for these reasons:

- Countries in the MENA region are characterized by extensive oil and gas reserves and similar socioeconomic structures; however, the resources will not last indefinitely, and many have produced national development strategies and vision initiatives (Riazi, 2010; Al-Kuwari, 2012). Consequently, many of these countries are investing heavily in building knowledge-based economies away from dependency on hydrocarbons towards achieving sustainable development.

- The Middle East's Gulf Cooperation Council (GCC) is collectively known throughout much of the world as an oil-producing region whose wealth and large-scale economic development have attracted people from around the globe to help support its efforts. Nevertheless, in today's world, GCC countries are increasingly engaged in prioritizing global sustainability to reach better outcomes (Al-Saidi et al., 2019).

- The GCC alliance comprises six members: Saudi Arabia, Bahrain, Kuwait, Qatar, the United Arab Emirates (UAE), and Oman. This group of countries is socioeconomically very similar, and they all have experienced accelerated economic transformation and diversification strategies in the last 40 years since the alliance was established. All have variants of a comprehensive economic development strategy (Bahrain Economic Vision 2030, Kuwait Vision 2035, Qatar National Vision 2030 – QNV 2030, Oman Vision 2040, Saudi Vision 2030, and UAE Centennial 2071 with respective variants in the emirates, such as Abu Dhabi Vision 2030 and UAE Vision 2021). These development strategies and vision initiatives represent efforts by the individual countries to pursue sustainable development by diversifying economic sectors, promoting innovation and entrepreneurship, digital transformation, job creation, and economic growth.

- Despite the historical rivalry of the GCC countries, they are more alike than different. Therefore, a single case study contributes to understanding this region's phenomenon. The report focuses on the single case of Qatar and employs an in-depth study design with several methods and approaches previously used in entrepreneurial ecosystems research (Yin, 2003; Germain et al., 2022). Where possible, the report introduces cross-country comparisons to illustrate the positioning in the region.

- Theoretically, there is evidence of studies done in small cities and a debate as to whether small-town ecosystems are alike or different from their larger counterparts, impacting several strategies used by small-town entrepreneurial ecosystems to overcome their limitations (Roundy, 2017). In this case, within the GCC alliance, Qatar is the second-smallest country after Bahrain in terms of land area and population but has the highest gross domestic product (GDP) per capita, ranking above the UAE. Qatar is practically a

one-city country, with 90% of the population concentrated in Doha, the capital. Additionally, on December 2, 2010, Qatar won the FIFA World Cup 2022 bid, becoming the first Middle Eastern country chosen to host the global festival of this football tournament, bringing urban development and social change to the country (Scharfenort, 2012). In 2030, Qatar will host the Asian Games, and like the rest of the GCC countries, it has the QNV 2030, issued in 2008. The vision's four pillars create an optimum enabling environment for sustainable innovation.

- **The pillars are:**

1. Human Development
2. Social Development
3. Economic Development
4. Environmental Development

- Lastly, Qatar has shown remarkable resilience and adaptation to change. Amid its preparations for the FIFA World Cup 2022, in 2017, the GCC countries initiated a commercial blockade against Qatar, stopping foreign trade activities and free mobility of its citizens. The blockade brought challenges and opportunities, which included accelerating the need to diversify the local production of products to meet basic needs (Villegas-Mateos, 2021). The report covers aspects of this crisis and how social capital correlates with entrepreneurs' performance and affects their resilience (Dimitriadis, 2021). The blockade ended at the beginning of 2021, in the middle of the COVID-19 pandemic, and the studies in this report collected data from this period. The resilience developed by Qatar following its exposure to different crisis events creates a case study unique in the Middle East.

Structure and Outline

The report is structured into chapters with different levels of analysis of the ecosystem. In this regard, Chapters 2 and 3 focus on exploring the composition and interactions of the ecosystem as drivers of sustainable innovation. Chapters 4 and 5 focus on studying entrepreneurship education and women's inclusion. Chapter 6 examines the impact of regulations and policies to support minorities in the entrepreneurial community.

Chapter 2 starts with an ecosystem mapping of the stakeholders and identifies newcomers and potential gaps that need to be addressed to build an entrepreneurial culture that will drive the ecosystem outputs.

Chapter 3 analyzes the existing indicators measuring the impact of innovation activities and compares them across the strategic sectors for sustainable development.

Chapter 4 studies the support mechanisms and models of informal entrepreneurship education offered by the business incubators and its effectiveness according to entrepreneurs.

Chapter 5 reviews the literature on women's entrepreneurship in Qatar and provides a conceptual model to build a more inclusive entrepreneurial ecosystem.

Chapter 6 concludes by identifying and analyzing Qatar's current policies fostering and constraining entrepreneurial activities, with a unique distinction between expatriates and citizens. At the same time, the author provides policy recommendations based on research collected throughout the report's chapters.

References

Acs, Z. J., Autio, E., and Szerb, L. (2014). National Systems of Entrepreneurship: Measurement Issues and Policy Implications. *Research Policy*, 43(1), 476-494. https://doi.org/10.1016/j.respol.2013.08.016

Adner, R., Oxley, J. E., and Silverman, B. S. (2013). *Collaboration and competition in business ecosystems*. Bingley: Emerald.

Al-Kuwari, A. K. (2012). The visions and strategies of the GCC countries from the perspective of reforms: the case of Qatar. *Contemporary Arab Affairs*, 5(1), 86-106. https://doi.org/10.1080/17550912.2011.647417

Al-Saidi, M., Zidan, E. A., and Hammad, S. (2019). Participation modes and diplomacy of Gulf Cooperation Council (GCC) countries towards the global sustainability agenda. *Development in Practice*, 29(1), 1-14. https://doi.org/10.1080/09614524.2019.1597017

Audretsch, D., and Belitski, M. (2017). Entrepreneurial ecosystems in cities: Establishing the framework conditions. *Journal of Technology Transfer*, 42(5), 1030–1051. https://doi.org/10.1007/s10961-016-9473-8

Autio, E., Nambisan, S., Thomas, L.D.W., and Wright, M. (2018). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12, 1, 72–95.

Bischoff, K. (2021). A study on the perceived strength of sustainable entrepreneurial ecosystems on the dimensions of stakeholder theory and culture. *Small Business Economics*, 56(3), 1121-1140. https://doi.org/10.1007/s11187-019-00257-3

Bischoff, K., and Volkmann, C. K. (2018). Stakeholder support for sustainable entrepreneurship: a framework of sustainable entrepreneurial ecosystems. *International Journal of Entrepreneurial Venturing*, 10(2), 172-201. https://doi.org/10.1504/IJEV.2018.092714

Cao, Z., and Zhi, X. (2021). A systematic literature review of entrepreneurial ecosystems in advanced and emerging economies. *Small Business Economics*, 57(1), 75-110. https://doi.org/10.1007/s11187-020-00326-y

Cillo, V., Messeni Petruzzelli, A., Ardito, L., and Del Giudice, M. (2019). Understanding sustainable innovation: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, 26(5). 1012-1025. https://doi.org/10.1002/csr.1783

Clarysse, B., Wright, M., Bruneel, J., and Mahajan, A. (2014). Creating value in ecosystems: Crossing the chasm between knowledge and business ecosystems. *Research Policy*, 43(7), 1164-1176. https://doi.org/10.1016/j.respol.2014.04.014

Cohen, B. (2006). Sustainable valley entrepreneurial ecosystems. *Business Strategy and the Environment*, 15(1), 1–14. https://doi.org/10.1002/bse.428

Cukier, D., Kon, F., and Lyons, T. S. (2016). Software Startup Ecosystems Evolution: The New York City Case Study. International Conference on Engineering, Technology and Innovation/IEEE *International Technology Management Conference*. https://doi.org/10.1109/ICE/ITMC39735.2016.9026150

Dedehayir, O., Mäkinen, S. J., and Roland Ortt, J. (2018). Roles during innovation ecosystem genesis: A literature review. *Technological Forecasting and Social Change*, 136, 18-29. https://doi.org/10.1016/j.techfore.2016.11.028

Dimitriadis, S. (2021). Social capital and entrepreneur resilience: Entrepreneur performance during violent protests in Togo. *Strategic Management Journal*, 42(11), 1993-2019. https://doi.org/10.1002/smj.3292

Fernandes, A. J., and Ferreira, J. J. (2021). Entrepreneurial ecosystems and networks: A literature review and research agenda. *Review of Managerial Science*. https://doi.org/10.1007/s11846-020-00437-6

Germain, E., Klofsten, M., Löfsten, H., and Mian, S. (2022). Science parks as key players in entrepreneurial ecosystems. *R&D Management*, In Press.

Hillery, G.A. (1955). Definitions of Community: Areas of Argument. *Rural Sociology*, 20(2), 111–123.

Isenberg, D. (2011). *The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy: Principles for Cultivating Entrepreneurship* (pp. 1-13). Dublin, Ireland: Institute of International and European Affairs.

Isenberg, D. (2014). What an entrepreneurship ecosystem actually Is. *Harvard Business Review*, 5, 1–7.

Kenney, M., and Von Burg, U. (1999). Technology, entrepreneurship and path dependence: Industrial clustering in Silicon Valley and Route 128. *Industrial & Corporate Change*, 8(1), 67-103.

Ligouri, E., and Bendickson, J. S. (2020). Rising to the challenge: Entrepreneurship ecosystems and SDG success. *Journal of the International Council of Small Business*, 1(3-4), 118-125. https://doi.org/10.1080/26437015.2020.1827900

Mason, C., and Brown, R. (2014). *Entrepreneurial ecosystems and growth-oriented entrepreneurship*. OCDE.

Moore, J. F. (2006). Business ecosystems and the view from the firm. *The Antitrust Bulletin*, 51(1), 31-75. https://doi.org/10.1177/0003603X0605100103

Mynatt, E. D., O'Day, V. L., Adler, A., and Ito, M. (1998). Network communities: something old, something new, something borrowed. *Computer Supported Cooperative Work* (CSCW), 7(1), 123-156.

Pankov, S., Velamuri, V. K., and Schneckenberg, D. (2021). Towards sustainable entrepreneurial ecosystems: Examining the effect of contextual factors on sustainable entrepreneurial activities in the sharing economy. *Small Business Economics*, 56(3), 1073-1095. https://doi.org/10.1007/s11187-019-00255-5

Riazi, M. R. (2010). Energy, economy, environment and sustainable development in the Middle East and North Africa. *International Journal of Oil, Gas and Coal Technology*, 3(3), 201-244.

Roundy, P. T., Bradshaw, M., and Brockman, B. K. (2018). The emergence of entrepreneurial ecosystems: A complex adaptive systems approach. *Journal of Business Research*, 86, 1-10. https://doi.org/10.1016/j.jbusres.2018.01.032

Roundy, P.T. (2017). "Small town" entrepreneurial ecosystems: Implications for developed and emerging economies. *Journal of Entrepreneurship in Emerging Economies*, 9(3), 238-262. https://doi.org/10.1108/JEEE-09-2016-0040

Scharfenort, N. (2012). Urban Development and Social Change in Qatar: The Qatar National Vision 2030 and the 2022 FIFA World Cup. *Journal of Arabian Studies*, 2(2), 209-230. https://doi.org/10.1080/21534764.2012.736204

Spigel, B. (2017). The Relational Organization of Entrepreneurial Ecosystems. *Entrepreneurship: Theory and Practice*, 41(1), 49–72. https://doi.org/10.1111/etap.12167

Stam, E. (2015). Entrepreneurial ecosystems and regional policy: A sympathetic critique. *European Planning Studies*, 23(9), 1759–1769. http://dx.doi.org/10.1080/09654313.2015.1061484

Stangler, D., and Bell-Masterson, J. (2015). *Measuring an entrepreneurial ecosystem*. Kansas City: Kauffman Foundation Research Series on City, Metro, and Regional Entrepreneurship.

Theodoraki, C., Dana, L., and Caputo, A. (2021). Building sustainable entrepreneurial ecosystems: A holistic approach. *Journal of Business Research*, 140, 346-360. https://doi.org/10.1016/j.jbusres.2021.11.005

Theodoraki, C., Messenghem, K., and Rice, M. P. (2017). A social capital approach to the development of sustainable entrepreneurial ecosystems: an explorative study. *Small Business Economics*, 51(1), 153-170. https://doi.org/10.1007/s11187-017-9924-0

Thomas, L. D. W., and E. Autio (2020, May 29). *Innovation ecosystems in management: An organizing typology*. Oxford Research Encyclopedia. https://doi.org/10.1093/acrefore/9780190224851.013.203

Villegas-Mateos, A. (2021). *Qatar's Entrepreneurial Ecosystem – 2021 Edition: Empowering the Transformation*. Doha, Qatar: HEC Paris. https://doi.org/10.5281/zenodo.4719075

Volkmann, C., Fichter, K., Klofsten, M., and Audretsch, D. B. (2021). Sustainable entrepreneurial ecosystems: an emerging field of research. *Small Business Economics*, 56(3), 1047-1055.

Wessner, C. W. (2004). Entrepreneurship and the innovation ecosystem policy lessons from the United States. In Audretsch, D., Grimm, H., Wessner, C. W. (Eds.), *Local Heroes in the Global Village* (pp. 67–89) Springer. https://doi.org/10.1007/0-387-23475-6_5

Yin, R.K. (2003). *Case Study Research: Design and Methods*, 3rd edition. Thousand Oaks, CA: Sage Publications.

Zhang, C., and Guan, J. (2017). How to identify metaknowledge trends and features in a certain research field? Evidences from innovation and entrepreneurial ecosystem. *Scientometrics*, 113(2), 1177-1197. https://doi.org/10.1007/s11192-017-2503-y

CHAPTER 2

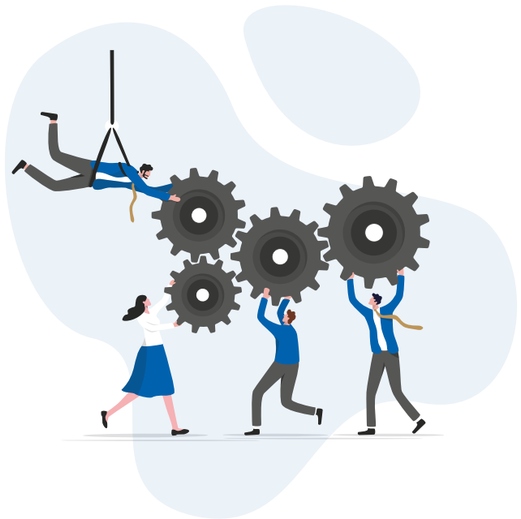
Building a Sustainable Entrepreneurial Ecosystem: A Community Effort

Allan Villegas-Mateos

Abstract

This chapter aims to provide an updated entrepreneurial ecosystem mapping of the stakeholders in Qatar as the first step to identifying newcomers and potential gaps that need to be addressed to build an entrepreneurial culture. It follows a configurational approach to keep probing Qatar's entrepreneurial ecosystem, finding connections among stakeholders and emerging trends in supporting institutions such as government entities, universities, incubators, accelerators, training centers, consultancies, etc. The mapping differentiates the entrepreneurship stages (idea, launch, and growth) to implement this configurational approach and provides a regional benchmark. The findings indicate a more significant share of stakeholders at the launch and growth stage. In contrast, the idea stage needs to increase its offer of inspiration, education, and validation programs to trigger the entrepreneurial process that will lead to more sustainable innovations reaching higher stages of development. This method provides in one image a general view of the resources available in Qatar's entrepreneurial ecosystem and is easy to navigate as a map. The final map has practical implications, given that it is common practice among countries to have such a map for new entrepreneurs or investors entering a market. This chapter also includes a deeper analysis of the idea stage by benchmarking the educational and related programs offered in Qatar, arguing that entrepreneurial education is a primary determinant of entrepreneurial culture, which is currently lacking in Qatar. The research introduces the network approach for studying the ecosystem and provides recommendations for policymakers and stakeholders' leadership.

Keywords *Startup communities, Entrepreneurship Culture, Ecosystem, Education, Network, Social Capital.*



Introduction

Building a sustainable entrepreneurial ecosystem requires, by definition, "an interconnected group of actors in a local geographical community committed to sustainable development through the support and facilitation of new sustainable ventures" (Cohen 2006, p. 3). Moore (2006) argued that the members of an ideal ecosystem are motivated to work together to benefit the community. On the other hand, shared narratives such as success stories and experiences help build a shared culture within an ecosystem and bring its members closer together (Nahapiet and Ghoshal, 1998; Spigel, 2017). According to Theodoraki et al. (2017), a shared culture refers to the common beliefs among the community members. In general, the ecosystem concept is frequently related to a network despite their differences in terms of geographical boundaries and composition (Cho et al., 2021). However, it is justified since the network perspective allows the study of interactions because it considers the ecosystem a social network with several stakeholders that hold complex values (Clarysse et al., 2014; Hayter et al., 2018; Theodoraki et al., 2017). Therefore, it is relevant to study an entrepreneurial ecosystem from the scope of social capital because this theory fundamentally argues that network ties provide access to resources and is an emerging field that helps to understand the configuration of an ecosystem (Nahapiet and Ghoshal, 1998; Tötterman and Sten, 2005; Neumeyer and Santos, 2018; Theodoraki et al., 2017).

Theoretically, there are three main frameworks to study sustainable entrepreneurial ecosystems (Theodoraki et al., 2017): (1) the system theory that enables an understanding of an ecosystem as a whole (Neck et al., 2004; Cohen, 2006; Isenberg, 2011; Stam, 2015), (2) the configurational theory that studies the composition and interactions of the ecosystem elements (Spigel, 2017), and (3) the network theory that allows identifying measurements to test its sustainability (Stangler and Bell-Masterson, 2015). However, regardless of the growing interest in entrepreneurship ecosystem research, there is still a lack of consensus on the proper level and approach for analysis, with very little knowledge about the interaction between and among sub-ecosystems and higher-level ecosystems (Scheidgen, 2021). According to Stam and van de Ven (2021), the emerging trend in studying entrepreneurial ecosystems is to incorporate the broader community perspective that includes the role of social, cultural, and economic forces in the entrepreneurship process. Consequently, this chapter follows the social capital theory to understand the composition and interactions of the entrepreneurial community and how it connects with the national, regional, and global ecosystems to achieve sustainable development.

> ***"This chapter provides an ecosystem mapping of the stakeholders in a community"***

The entrepreneurial community (or entrepreneurial ecosystem) concept is dynamic and ever-changing, composed of a mix of individuals, firms, communities, and all their related complexities (Clevenger, 2017, p. 37; Fortunato and Clevenger, 2022). Clevenger and Miao (2017) argued that the development of an entrepreneurial community might depend heavily on entrepreneurially-minded leaders. Each leader's capacity and preference for innovation and risk may also encourage new

ventures to surmount the riskiness. On the other hand, there is overwhelming research-based evidence (Julien 2007) and ample empirical and logical support for the proposition that community context influences the process of entrepreneurship as it does in all other human endeavors (Dana, 1997, 2008; Dana and Dana, 2007; Mason et al., 2009; Hindle, 2010). Therefore, this chapter provides an ecosystem mapping of the stakeholders in a community, using Qatar as a single case study to analyze the previously mentioned composition and interactions of an entrepreneurial community. Ecosystem mapping is an essential strategic planning exercise that helps entrepreneurs be more aware of their operating environment and its risks and opportunities (Cameron, 2012). It also allows practitioners to guide their decision-making to advance on building a sustainable entrepreneurial ecosystem.

An Overview of Entrepreneurial Communities

Lichtenstein et al. (2009) examined the building of entrepreneurial communities as a strategy for community economic development and found that a systemic and transformational approach to enterprise development can truly yield community-wide economic development. This chapter accepts that building an entrepreneurial community is the first step to attaining sustainable development in an entrepreneurial ecosystem. Similarly, Feld (2012) argues that building an entrepreneurial ecosystem in a city requires the creation of an entrepreneurial community to increase its breadth and depth by multiplying connections among entrepreneurs and mentors, improving access to entrepreneurial education, and much more.

For Ridley (2016), communities vary in their mindset and propensity for entrepreneurship; simultaneously, the variables impact all community members, including government, policymakers, bankers, other business participants, consumers, and students. That is why it is relevant to start by identifying the stakeholders within a community. The higher the number of stakeholders, the broader the ecosystem and the more challenges for actively engaging in their development (Matt and Scaeffer, 2018). Additionally, the community context profoundly influences what kinds of entrepreneurial initiatives can and should be undertaken and how they should be performed (Anderson et al., 2006; Peredo and Chrisman, 2006; Mazzarol, 2007; Hindle, 2010).

To understand the composition of a community, Clevenger (2017) provides a framework to explore individual entrepreneurs separate from their firms and then how they fit into macro considerations of industry, community, and more significant levels of regional, state, national, and global entities. This framework analyses the scope of community theory, the levels of entrepreneurship at the micro-, meso-, and macro-levels, and their interrelated significance (see **Figure 1**). Understanding the composition of the entrepreneurial community before taking actions involving the different levels is beneficial. This is because the evidence highlights that sometimes the conditions are present for a sustainable ecosystem that supports innovation but never transforms into developing a mutually reinforcing cultural system of entrepreneurial support (Breznitz and Taylor, 2014).

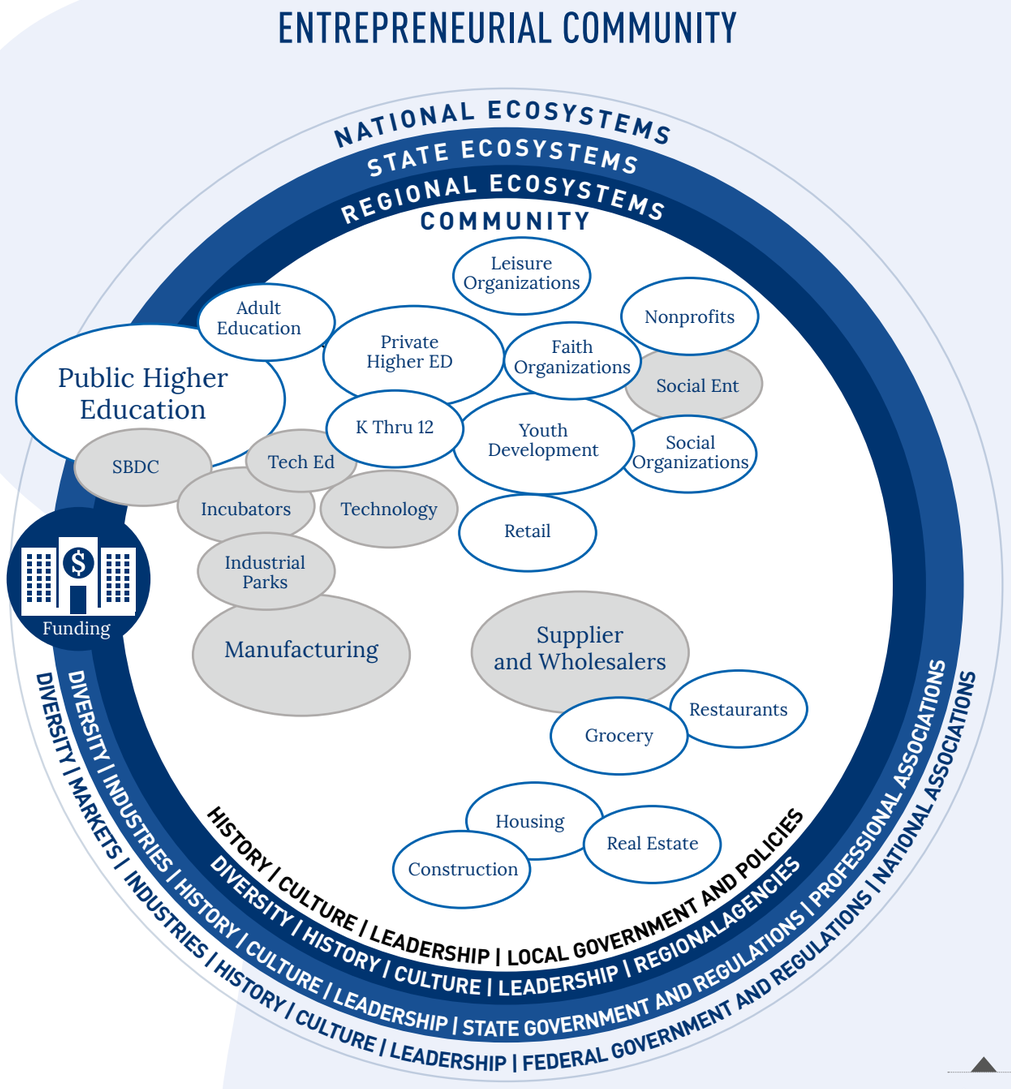
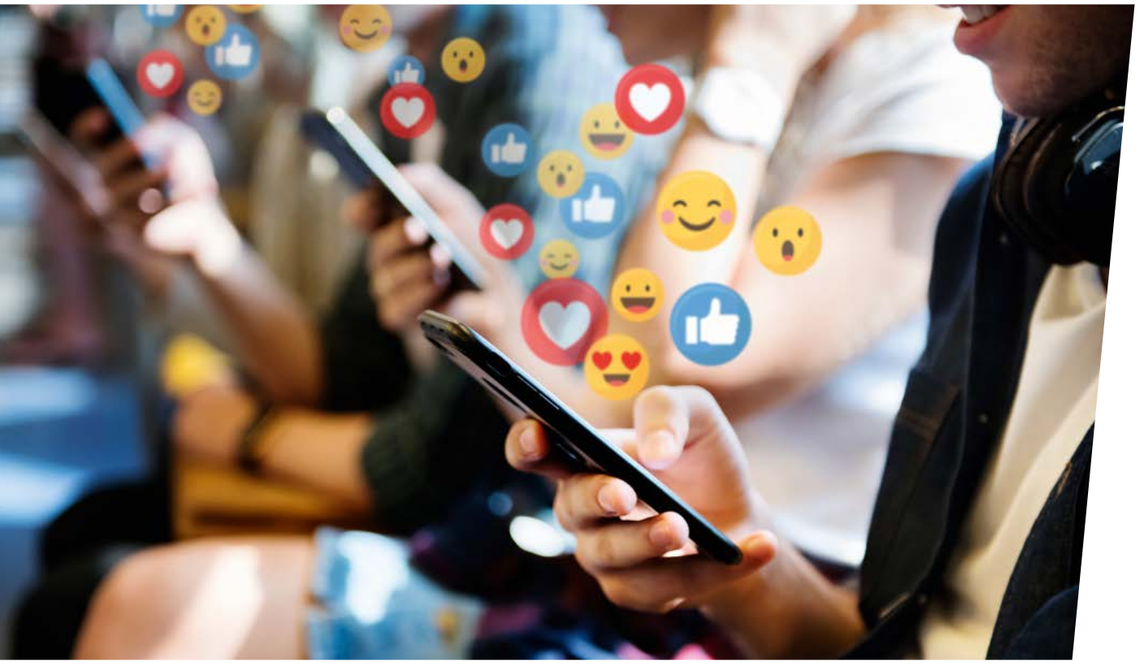


Figure 1
Visual framework of an entrepreneurial community composition
Source: Fortunato and Clevenger (2022) adapted from Clevenger (2017).

Building a sustainable entrepreneurial ecosystem necessitates developing the community. This requires knowledge and support from stakeholders in the form of social capital. Consequently, cultural norms matter because they impact leadership styles, culturally embedded ideas about progress and vision of the future, openness to collaboration, and dominant and protective behaviors, among others. On the other hand, Matt and Schaeffer (2018) explored the challenges of building entrepreneurial ecosystems conducive to entrepreneurship by studying a university-based ecosystem. In their study, they propose a model representing the university links (networks) that are conducive to supporting researchers and students to connect with the broader community to become entrepreneurs.

Higher education institutions, by their nature, engage in capacity-building activities and are connected to research centers, knowledge transfer offices, companies, government, and incubators (own or external), as well as operate within local, regional, and global ecosystems. However, while a university's goal is not primarily to support entrepreneurship or economic development, it indirectly serves that function when interacting with the community and ecosystems. Universities are, therefore, an example of how a type of stakeholder in a community plays a vital role in building a sustainable entrepreneurial ecosystem. It could be explained by the social capital embedded in a community.

> ***"Building a sustainable entrepreneurial ecosystem necessitates developing the community."***



Social Capital and Entrepreneurial Communities

Recent studies on social capital have extended the concept from an individual asset to a feature of communities and even nations (Portes, 2009). For Ferri et al. (2009), policymakers charged with developing an entrepreneurial culture and the establishment of new ventures might wish to look at encouraging both nascent and existing entrepreneurs to exploit their formal and informal network relationships, seeking the development of organizations and institutions that will assist in building social capital. Social capital is a system of community dealings and connections enabling persons to mutually act to follow joint objectives (Ali and Yousuf, 2019). Therefore, linking social capital to entrepreneurship is relevant and gaining attention in the literature (Anderson and Miller, 2003; Myint et al., 2005; Ullhoi, 2005; Yli-Renko et al., 2001; Ali and Yousuf, 2019). On this path, social capital perspectives of entrepreneurship affirm that specific locality features of a locality are considered a strong tie between economic and social elements, and social networks are the most influential actors in developing new business ventures (Porter, 1998).

It seems to be directly related to the given geographical space of an entrepreneurial ecosystem and how its community develops social capital. For Cruickshank and Rolland (2006), and Lin (2005), social capital is a relationship with social networks, as these networks seem crucial in developing social capital, and by consequence, social capital is the result of social relationships which are being created via interactions (McKeever et al., 2014; Anderson et al., 2007). It also involves information sharing among the networks' members and solidarity benefits (Kwon and Adler, 2014), shared values and norms, the actual and expected resources, and benefits that a member could avail because of social networking and social relationships (Nahapiet and Goshal, 1998; Ali and Yousuf, 2019).

Consequently, studying social capital's role in building entrepreneurial communities (or ecosystems) should be conducted from a micro-level analysis because studies in the field consider the importance of the social context where business ventures are established (Liao and Welsch, 2005) and the influence of cultural and social elements in forming entrepreneurs (McKeever et al., 2014). For example, Theodoraki et al. (2017) studied, from the micro-level, the development of sustainable university-based entrepreneurial ecosystem communities through three dimensions of social capital identified in the literature: structural, cognitive, and relational. They followed a multiple-case qualitative study approach by conducting interviews with relevant ecosystem members to analyze the social capital dimensions as drivers of sustainable entrepreneurial ecosystem development. Therefore, this chapter maps the entrepreneurial community members to understand how to develop social capital and the kinds of entrepreneurial initiatives that can and should be undertaken and how they are and should be performed (Anderson et al., 2006; Peredo and Chrisman, 2006; Mazzarol, 2007; Hindle, 2010).

Methodology

This study investigates the single case of Qatar and employs an in-depth study design and approach (Yin, 2003). Eisenhardt (1989) argued that case study research is the most adequate method to use when there is little knowledge of an emerging and complex phenomenon. Qatar includes all the necessary conditions of an entrepreneurial ecosystem according to Villegas-Mateos (2021; inspired by Reynolds et al., 2005; Isenberg, 2011; Feld, 2012; WEF, 2013; Mason and Brown, 2014; Stam, 2015; Cavallo et al., 2018), and is a suitable subject of study to contribute to the debate on whether small-town ecosystems are alike or different from their larger counterparts, impacting several of the strategies which small-town entrepreneurial ecosystems use to overcome their limitations (Roundy, 2017). Following Cohen's (2006) definition, it also helps to test that entrepreneurship is an interconnected group of actors in a local geographical community.

This chapter follows the ecosystem's configurational theory to understand the composition and interactions (Spigel, 2017). Consequently, the study maps Qatar's entrepreneurial ecosystem to understand the local community. The ecosystem mapping depicts the relationship between various actors (institutions) involved in finance, education, government, media, the private sector, donor institutions, and entrepreneurship support organizations. It is also considered a basis for managing and evaluating conditions and performance of entrepreneurship. Therefore, without an accurate description of all the elements involved in the ecosystem, how they interact, and how they affect entrepreneurship performance, the effort to support entrepreneurs and small businesses goes nowhere (Karaki, 2021).

Given the lack of evidence, in this case, Villegas-Mateos' (2021) entrepreneurial ecosystem framework of Qatar served as the starting point for the mapping, which highlights five entrepreneurial ecosystem framework conditions: (1) education, (2) finance, (3) government, (4) support organizations, and (5) entrepreneurship competitions and sponsors. However, the Villegas-Mateos (2021) framework was a descriptive mapping based only on secondary data, which makes it incomplete with several omissions. This new study understands the composition with an updated mapping based on semi-structured interviews, field observation, and even more secondary data sources. Then, it goes deeper into understanding the interactions by analyzing the social capital of the ecosystem, which cannot be done without proper initial identification of the stakeholders since the fundamental proposition of social capital theory is that network ties provide access to resources (Nahapiet and Ghoshal, 1998; Tötterman and Sten, 2005).

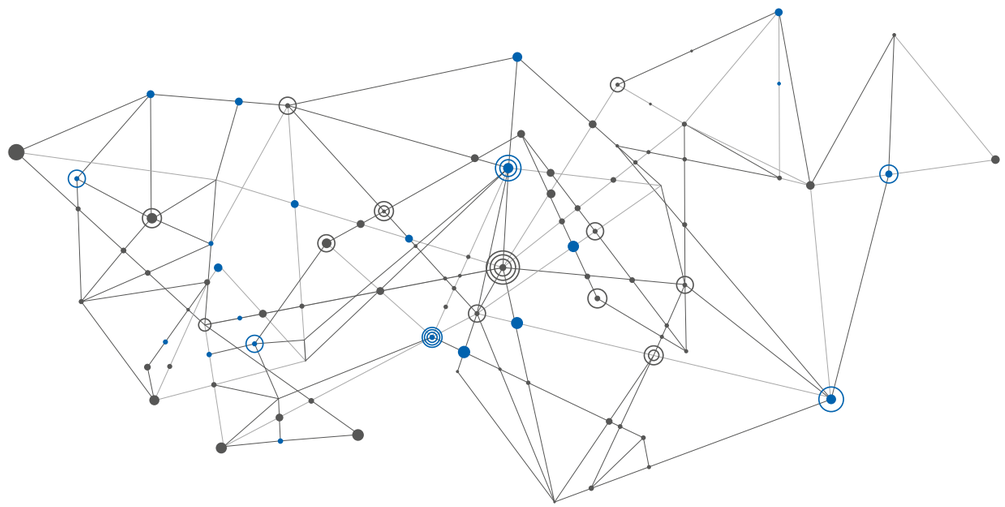
The entrepreneurial community mapping results follow the entrepreneurial ecosystem building sequential view inspired by Feld (2012), grouping the stakeholders by idea, launch, and growth stages. In this step, many stakeholders' representatives were involved in mapping and collecting qualitative data through semi-structured interviews to validate the interactions and their position within the community. Identifying the success stories and supporters from government institutions, prominent local businesses or universities, and employers that attract and retain local talent was essential. Finally, we analyzed the data collected to illustrate the ecosystem composition and links established within the local community to foster interactions with the national, regional, and global ecosystems.

• *Data collection and analysis*

The author collected qualitative data through semi-structured interviews, supplemented with a literature review of Qatar's entrepreneurial ecosystem. Additionally, three workshops were organized (at HEC Paris in Qatar) with key members and stakeholders of the entrepreneurial ecosystem to access key informants and receive feedback on the results of the present study. Secondary sources (reports, websites, newspapers, etc.) were consulted to supplement the primary data collection.

The primary data collection relied on 20 semi-structured interviews that were conducted using an interview questionnaire covering three themes: the structural, cognitive, and relational dimensions of social capital.
The protocol included a set of questions related to the attendance at entrepreneurship-related events, the entrepreneurs/investors/institutional leaders they interact with most frequently, the nature of these interactions, and their personal history of entrepreneurship to capture their ties with the entrepreneurial ecosystem (Neumeyer et al., 2018). The perceptions were traced by asking questions that concentrated on the social capital dimensions of the entrepreneurial ecosystem (e.g., Who are the stakeholders with whom you usually interact? What is the nature of this relationship? What attributes do you share?). All the interviews were conducted between July 2021 and June 2022. They were recorded, lasting, on average, 52 minutes each.

Concerning the data processing and ecosystem mapping, the interviews were transcribed and coded using a thematic approach to perform content analysis that would identify core consistencies of the composition and interactions of Qatar's entrepreneurial ecosystem stakeholders found in the literature review and secondary data analysis. Finally, the data were summarized in tables representing the key stakeholders by stage of entrepreneurship development, according to Feld (2012). The author used the triangulation method to combine the different data collection techniques to increase the validity and reliability of the results (Mathison, 1988). The final ecosystem mapping was then circulated to the interviewees to solicit feedback on the findings and interpretation of the results to reduce researcher bias.



• *Results*

To understand the configuration of Qatar's entrepreneurial ecosystem, it is vital to identify the composition and interactions of its ecosystem elements (Spigel, 2017). In this task, ecosystem mapping was essential to provide evidence of the current operating environment for emerging entrepreneurs (Cameron, 2012). For the case of Qatar, the results were analyzed based on the model adapted from Feld (2012) that aims at the sustainability of an entrepreneurial ecosystem (see **Figure 2**). In this model, the network ties of the entrepreneurial community are essential to members contributing as supporters of the entrepreneurial activities at the different entrepreneurship stages and reaching the desired sustainable development.

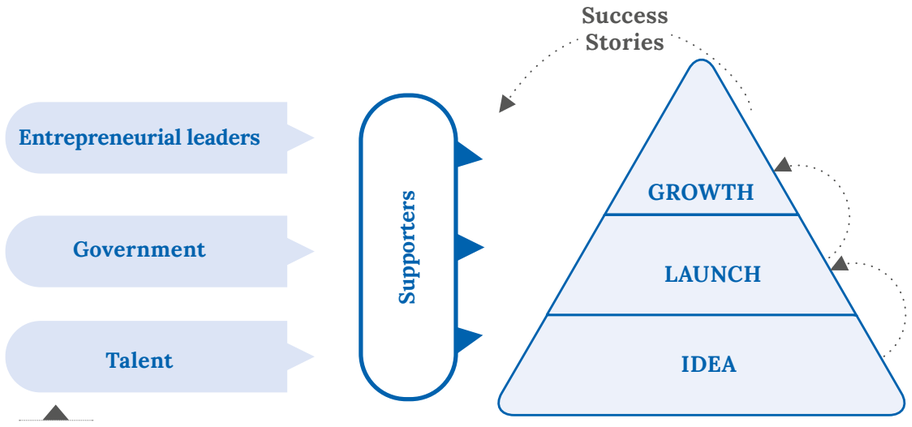


Figure 2
Sustainability of entrepreneurial ecosystems
Source: Own elaboration adapted from Feld (2012).

Villegas-Mateos (2021) highlighted that a healthy entrepreneurial ecosystem will be one that builds bridges connecting stakeholders, provides mentorships, education, and financing, and accelerates the progress of local and regional entrepreneurs. As expected, the number of success stories is always fewer than that of entrepreneurs with ideas because of high failure rates (including fear of failure, weak management skills, poor execution, lack of access to funding, etc.). However, as **Figure 2** shows, an entrepreneurial community must work together to support the entrepreneurs to progress from the idea to the launch and growth stages. Those success stories with entrepreneurial leaders, government, and talent give back to future generations through mentoring, investment, network access, and industry knowledge. Therefore, to provide an updated status of Qatar's entrepreneurial ecosystem configuration, this chapter follows the mapping framework in **Figure 3**. It shows that each main entrepreneurship development stage (idea, launch, and growth) has three sub-stages to group the stakeholders by their role in developing the ecosystem. Each sub-stages is composed of two dimensions to facilitate the mapping method.

Figure 3
Entrepreneurial ecosystem stakeholders' mapping framework
Source: Own elaboration adapted from Feld (2012).

IDEA STAGE

The initial idea stage is where new entrepreneurs get inspired, learn best practices, develop skills, validate ideas, and begin to build their team and product. This stage is composed of three sub-stages: (1) Inspire, (2) Educate, and (3) Validate.

(1) INSPIRE is meant to communicate what is happening, showcase stories, and start connecting people. Therefore, expect to find newspapers, social media groups, blogs, speakers' series, networking, inspirational events, and other types of publications as stakeholders.

(2) EDUCATE is associated with informal or co-curricular entrepreneurship education at start-up events and training sessions for skills and ideas development. Schools and universities could be involved at this stage if they offer events through the university-based business incubator or in partnership with the government or industry.

(3) VALIDATE sub-stage seeks to have team formation events and mechanisms as well as workshops in the form of hackathons or camps to start testing the ideas and build a winning team that will lead the company to the launch stage.

As shown in **Table 1**, very few stakeholders share best practices or focus on beginners' knowledge sharing (skills development). Almost none help in team formation with only "QBIC's Mix & Match" program focusing on this task, although in some hackathons and idea camps, this could be done, but not as a primary objective. In Qatar, there are free zones, such as the Qatar Financial Centre (QFC), Qatar Science & Technology Park (QSTP), or the Qatar Free Zones Authority (QFZA), where one can register a wholly foreign-owned company. Still, many strategic commercial activities need to be owned by Qatari citizens (51% or more shares of the business), and having specific sectors dominated by Qataris creates non-regulated barriers for expatriates even to enter the market. Given the number of stakeholders for each sub-stage of an idea, one can conclude that there is a gap in connecting Qatari citizens with residents and educating more on best practices to develop hard and soft skills. Lastly, it seems that many programs target the building of the first product, which is a subsequent stage after 'inspire' and 'educate'. The author argues that inspiration and education are linked to building an entrepreneurial culture that will drive more interest in becoming entrepreneurs. Therefore, this implies a contradiction that could lead to a lower number of founders reaching the stage where they validate a minimum viable product, which will go through the other stages described in the following sections, and become success stories supporting the next generations, as illustrated in **Figure 2**.

(1) INSPIRE	(1) EDUCATE	(1) VALIDATE
Start-up Media	**Best Practices**	**Team Formation**
Business Startup Qatar Connekters Doha Startups Education City Speaker Series Qatar Emerging Entrepreneurs Qatar Living Qatar Foundation Alumni Stars of Science Start-ups in Qatar Thought Lab	Qatar University SIEED Office Startup Grind Doha	Qatar Business Incubation Center's (QBIC)'s Mix & Match
Inspirational	**Training and Feedback**	**Build First Product**
Events Innovation Café Maker Majlis Smart City Expo Doha TEDinArabic	Bedaya Center Founder Institute Events Injaz Qatar Silatech Digital Center of Excellence Business Gateway	Digital Incubation Center Idea Camp Nama QBIC's Hackathon Qatar FinTech Hub Hackathon Qatar Insurance Company (QIC) Insurhack MENA QSTP's XLR8 QSTP's Arab Innovation Academy Scale7 Hackathon

Table 1 *Stakeholders of the Idea Stage by Sub-Stage in Qatar*

LAUNCH STAGE

During the launch stage, establish and formalize the company, develop the product, get customer feedback, and prepare for the next step. This stage is composed of three sub-stages: (1) Start, (2) Develop, and (3) Launch.

(1) START comprises the stakeholders that provide specialized services for forming new companies, including legal, financial, and regulatory structures. Co-working spaces can be included at this stage since they provide a physical office location to host the team and clients, while they can participate in community events at accessible rates.

(2) DEVELOP also includes services providers but this time, oriented to provide structure and manage operations to prepare the company to get funding. Consequently, the business incubators and advanced mentorship programs are part of this sub-stage.

(3) LAUNCH seeks to connect the best projects that could be ready to receive investment with investors and seed accelerators. It is common to find seed funding mentorship programs that include training, mentorship, cash investments, competitions, and demo days.

As shown in **Table 2**, there is a gap in the number of stakeholders supporting the establishment at the start sub-stage. In this research, we could only identify Qatar Central Bank as the government authority mainly working on providing a regulatory sandbox for financial technology (FinTech) companies. It operates closely with the FinTech Hub, offers incubation and acceleration programs, and is linked to the QFC (a free zone). It impacts more companies beyond the FinTech sector since it is also helping to facilitate access to financial services and payment gateways as a result of greater collaboration between the banks and these emerging companies. At the time of this research, the Ministry of Commerce and Industry announced the imminent launch of the "Single Window" platform. It will support investors (entrepreneurs) in establishing and maintaining their business throughout different phases, starting from planning to acquiring the needed governmental approval digitally and registration, using a single, smart platform.

In addition to this start stage, most of the programs that prepare for seed funding (universities and incubators) also do open pitches and demo days. The seed accelerators in Qatar are relatively new, while the stakeholders that help in formalization are a hybrid between private incubators and consultancy firms. The stakeholders' roles are vital since they facilitate access to resources and strategic planning. For example, Qatar Development Bank (QDB) has different financial services that can take the form of debt or equity, but to access the support, the company needs to formalize and present a feasibility study usually done by this type of stakeholder.

(1) START	(2) DEVELOP	(3) LAUNCH
Establish	**Formalize**	**Seed Accelerators**
Qatar Central Bank	Curia Business Group Excellence Factors International Incubate Qatar Soutien Group (Business Startup Qatar)	Founder Institute Pre-Seed Accelerator HBKU Innovation Center Funds QF Innovation Coupon QRDI Council Qatar Open Innovation
Workspace	**Prepare for Seed**	**Pitch and Demo**
Alliance Business Centers Network Arafat Business Center Digital Incubation Center Coworking Space Flare Business Center Mavericks365 Regus Servcorp Workinton	Digital Incubation Center Startup Track HBKU Education City Innovative Entrepreneurship Program Hult Prize Qatar Qatar Fintech Hub Incubator Qatar University Center for Entrepreneurship QBIC's Lean Manufacturing Program QBIC's Lean Startup Program Qatar SportsTech's EntelaQ QSTP's Incubation Center Scale7 Incubation Program	Al Fikra National Business Competition Rowad Awards (QDB)

Table 2 *Stakeholders of the Launch Stage by Sub-Stage in Qatar*

GROWTH STAGE

The last stage in the entrepreneurial process (Feld, 2012) is the growth stage, focused on helping to scale up the business operations. Here the company proves its utility, receives recognition and scales up. This usually requires funding, angels, venture capitalists (VCs), and ways to connect them to start-ups. This stage is composed of three sub-stages: (1) Recognition, (2) Funding, and (3) Growth.

(1) RECOGNITION has two primary objectives, to connect investors with founders and to highlight the milestones reached by the companies in major media publications that document their traction.

(2) FUNDING, as the name goes, can be inferred as the sources of investment which at this stage of the entrepreneurial process are early-stage funding sources that come mainly from angel investors and VC funds.

(3) GROWTH entails the stakeholders aiming to consolidate and professionalize the company operations and take it to the next level. In this sub-stage, the players provide services like office space, human resources management, insurance, tech consultancy, and, more importantly, growth accelerators.

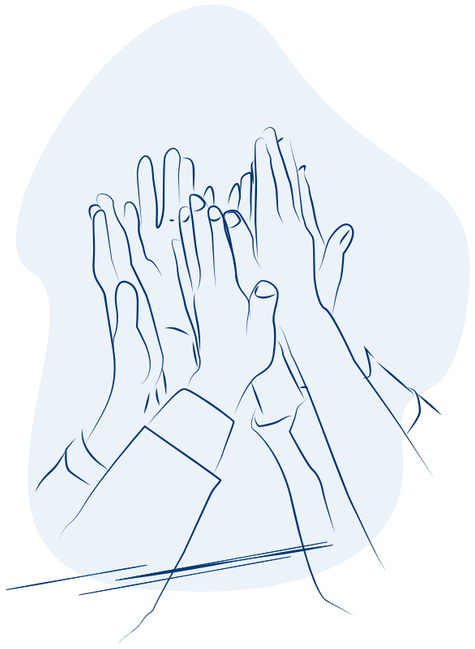
As shown in **Table 3**, the number of stakeholders is almost balanced except for infrastructure. Nevertheless, access to infrastructure is not an issue in Qatar. Many stakeholders in earlier stages provide free office space and other services, considered here as infrastructure, so the companies can keep growing. In the recognition sub-stage, there are moderated options. However, there is no evidence of how many deals or introductions have led to an investment. Exploring the major media outlets, Qatar's most prominent venture capital ticket is from the start-up "Snoonu" (a delivery app) that raised USD 5 million in Series A funding in April 2021. There are a few examples of more minor tickets in pre-seed and seed funding from investors like QDB, QSTP, MBK Holding, 360 Nautica, and angel investors. Most are in the FinTech sector. The HealthTech start-up Meddy became the first in Qatar to raise Series A funding in November 2019 (two years before their exit and Snoonu's Series A funding), raising nearly USD 2.5 million. In November 2021, Meddy exited after being acquired by Africa's leading HealthTech company for an undisclosed amount. Given the limited number of companies raising seed and Series A funding in Qatar, it can be inferred that not many of the ventures that start in the idea stage go through all the stages and reach growth to become success stories and supporters. In addition, it means that Qatar's angel investment and VC ecosystem is in a very early stage of development.

(1) RECOGNITION	(2) FUNDING	(3) GROWTH
Investor Networking	**Angels / Micro-VCs**	**Infrastruacture**
Entrepreneurs' Organization	360 Nautica	Ezdan Holding Group
Make the Deal	Angels Den	Qatar Insurance Company
Middle East Investment Network	Doha Tech Angels	
Qatari Businessmen Association	Draper Investment	
Qatari Businesswomen Association	Qatari Investors Group	
QIC Digital Venture Partners	QDB's ITHMAR	
QINVEST	QSTP's Product Development Fund	
Risin Ventures		
Major Media	**Venture Capitalists**	**Expansion**
Endeavor Insights	Doha Venture Capital	Qatar SportsTech
Entrepreneur Middle East	Hassad Food	QBIC's Lean Acceleration Program
Forbes Middle East	INFODEV	QFTH's Accelerator
Gulf Times	Qatar Exchange Venture Market	QSTP's ELV8 Program
Lusail News	Qatar Investment Authority	Scale7 Acceleration Program
Qatar Tribune	QDB's ISTITHMAR	TASMU Accelerator
QBS Radio	QSTP's Tech Venture Fund	Vesuvio Labs
The Peninsula	Wamda	World Innovation Summit for Education (WISE) Edtech Accelerator
		Microsoft GrowthX Accelerator

Table 3 *Stakeholders of the Growth Stage by Sub-Stage in Qatar*

SUPPORTERS AND SUCCESS STORIES

As argued before and illustrated in **Figure 2**, an essential part of creating a sustainable entrepreneurial ecosystem is its supporters, who are fed with the founders of success stories and three layers of supporters, the (1) Entrepreneurial leaders, (2) Government, and (3) Talent. These three are not exclusive from each other. Instead, they are inclusive and play different but complementary roles as supporters.



(1) ENTREPRENEURIAL LEADERS are not necessarily former entrepreneurs, although many are active leaders in the community engaged in promoting opportunities, mentoring projects, investing, coaching and/or disseminating knowledge useful for founders in the entrepreneurial process at any stage. The aspiring entrepreneurs trust their advice and recommendations mainly due to their professional achievements and network.

(2) GOVERNMENT, in this case, is the entity directly working on public economic development strategies by improving public policies, regulating, investing, or attracting foreign direct investments

(3) TALENT considers major local businesses and local universities that attract and retain talent. Some local companies are involved with ecosystem development, investing, working with business incubators, and running open innovation programs. On the other side, universities play a pivotal role in training talent that will later become either founders or employees in new businesses.

(1) ENTREPRENEURIAL LEADERS	(2) GOVERNMENT	(3) TALENT
Public Entrepreneurial Leaders	**Public Economic Development**	**Local Universities**
Abdullah Soomro	Hassad Food	AFG College with the University of Aberdeen
Afraa Al-Noaimi	Investment Promotion Agency of Qatar	Al Rayyan International University College
Agata Braja	Ministry of Commerce and Industry	Arkansas State University
Ahmed Isse	Ministry of Communications and Information Technology	Carnegie Mellon University in Qatar
Ahmed Mohamedali	Ministry of Education and Higher Education	City University College with the University of Ulster
Amin Matni	Ministry of Interior	Community College of Qatar
Awdesh Chetal	Ministry of Justice	Doha Institute for Graduate Studies
Francisco Miguel de Sousa	Ministry of Municipality	Global Studies Institute
Ghanim Al-Sulaiti	Ministry of Public Health	Hamad Bin Khalifa University
Hamad Al-Hajri	Qatar Central Bank	HEC Paris in Qatar
Hanan El Basha	Qatar Chamber of Commerce and Industry	Lusail University
Haris Aghadi	Qatar Development Bank	MIE-SPPU Higher Education Institute
Hesham Elfeshawy	Qatar Financial Center Authority	Orix Universal College with the University of Liverpool John Moores
Hessa Al-Jaber	Qatar Financial Markets Authority	Qatar Finance and Business Academy
Hijas Hassan	Qatar Foundation	Qatar Leadership Centre
Intiqab Rawoof	Qatar Free Zones Authority	Qatar University
Majed Lababidi	Qatar Investment Authority	Texas A&M University in Qatar
Michael Javier	Qatar Research, Development, and Innovation council	University of Doha for Science & Technology
Mohammad Ali Abbaspour	Qatar Stock Exchange	**Local Employers**
Mohammad Hammoud	Supreme Council for Economic Affairs and Investment	Baladna
Mohammed Al-Delaimi		Kahramaa
Nayef Al-Ibrahim		Ooredoo Qatar
Omar Ashour		Qatar Airways
Ramzan Al-Naimi		Qatar Energy
Ramzi Hasan		Qatar Gas
Safarudheen Farook		Qatar Insurance Company
Saif Qazi		Qatar National Bank
Sheik Mansoor Al-Thani		United Development Company
Wisam Costandi		Vodafone Qatar
Saud Al-Attiyah		

Table 4 *Stakeholders of the Idea Stage by Sub-Stage in Qatar*

SUCCESS STORIES

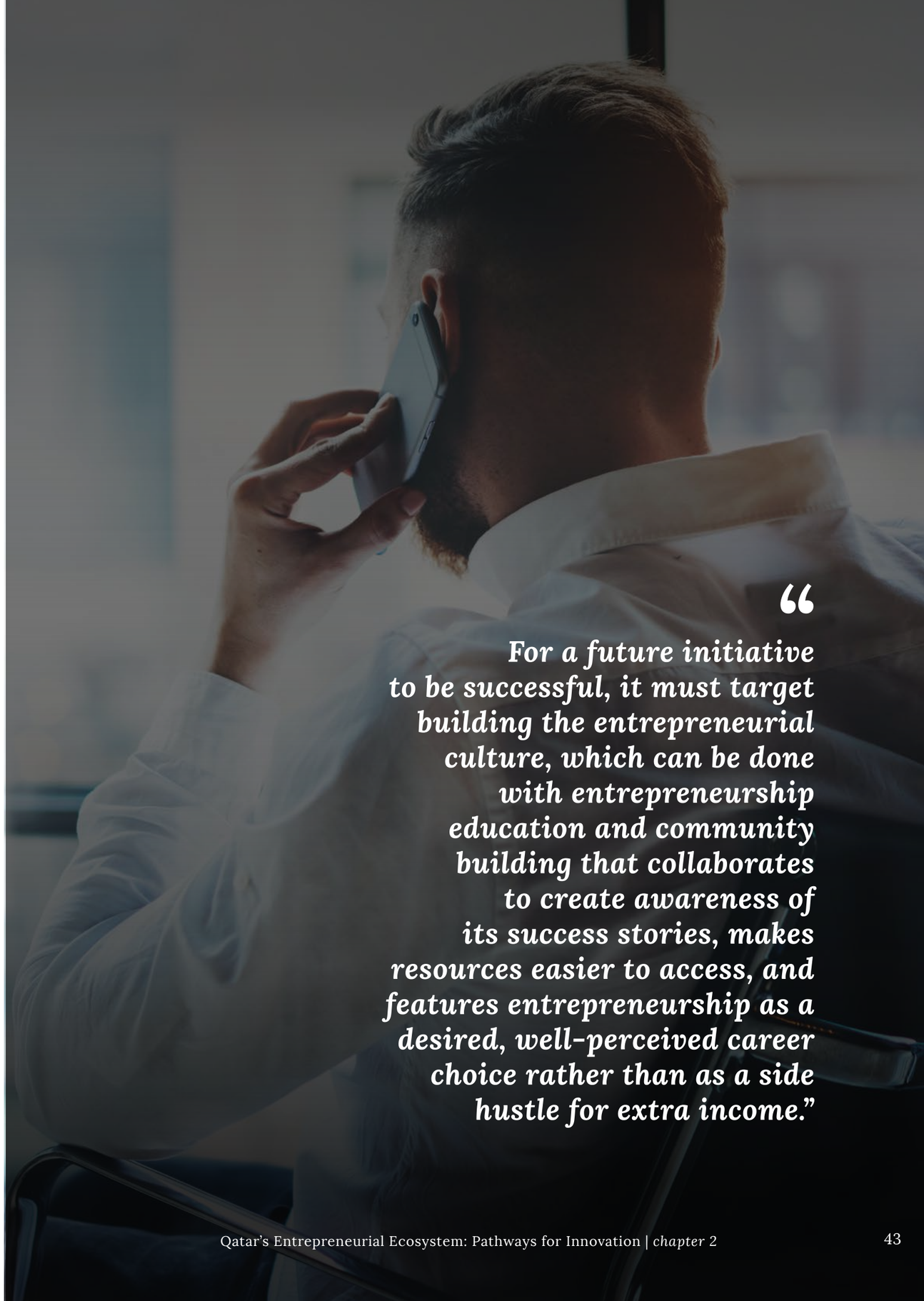
AIRLIFT
APPLAB
AT-HOME-DOC
CONTACTLESS
C-WALLET
DIBSY

DROOBI HEALTH
E-BUTLER
HASALTY
HELIUM DOC (MEDDY)
MY BOOK QATAR
RIMADS

SKIPCASH
SKORA
SNOONU
SPENDWISOR
SPONIXTECH
URBAN POINT

As shown in **Table 4**, many government entities are developing different roles. At the same time, an entrepreneur might need to approach several of them to get licensees, registrations, and permissions depending on the business sector. It also shows that the private sector is small when mapping the local employers but also reflects that the country has a wide variety of universities. The universities producing talent for the entrepreneurial ecosystem are not only business schools. However, a previous study of the entrepreneurial intentions of university students in Qatar points out the low rates in non-business schools and that the students have high intentions to become entrepreneurs immediately after graduation, but that reduces after five years mainly because they do not find a way to start developing their ideas (Villegas-Mateos, Abdellatif, and Hossain, 2021).

The research revealed 18 success stories in Qatar's entrepreneurial ecosystem, listed at the bottom of **Table 4**. These success stories are start-ups that have raised funding and/or have won important competitions. For example, the Deloitte ranking of the "Technology Fast 50" in the Middle East 2021 awarded four Qatari companies: Applab, At-Home-Doc, HyperThink Systems, and Urban Point. HyperThink Systems was not listed as a success story because it operates not as a start-up but as an IT consultancy and manages a venture studio and digital incubator. More importantly, there are no records found of raising funding. These results provide evidence of the low output of success stories in Qatar's entrepreneurial ecosystem. It creates a gap in the support system where founders become entrepreneurial leaders and supporters of the new ventures. Entrepreneurial finance is also complicated for newcomers and new investors seeking good returns to understand.



Discussion and Implications

Given the findings of this research, the author designed a graphical map that serves as a tool to navigate easily through Qatar's entrepreneurial ecosystem resources. This tool (illustrated on the back cover of this report) aims to help aspiring entrepreneurs, investors, program managers, academics, and policymakers to guide their decisions driving to work collaboratively toward the QNV 2030, since it creates awareness of the existing gaps, risks, and opportunities to support entrepreneurship and by consequence, sustainable development (Cameron, 2012). As a result, following the argumentation by Feld (2012), it is fundamental to develop an entrepreneurial community to have a more significant impact on the entrepreneurial ecosystem since it multiplies and strengthens the ties between stakeholders, improving accessibility to the resources needed to go through the entrepreneurial process.

Figure 4 shows a graphical representation of Qatar's entrepreneurial community composition, interactions among stakeholders, and their interplay with the national, regional, and global ecosystems. The continuous lines illustrate the formal links, and the dotted lines the informal links. The formal links mean systematic connections with strong ties and collaborations; however, informal links are also ties among the stakeholders, though these happen indirectly due to work often being done in silos. The blue light boxes represent the stakeholders with greater involvement with several other stakeholders and conducting different activities to support entrepreneurship. On the other hand, the gray boxes serve as bridges from the idea stage to the launch and growth stages at the time they aim to connect with other ecosystem stakeholders. These findings on the composition and interactions of the ecosystem elements rely on the configurational theory framework to study sustainable entrepreneurial ecosystems (Spigel, 2017; Theodoraki et al., 2017).

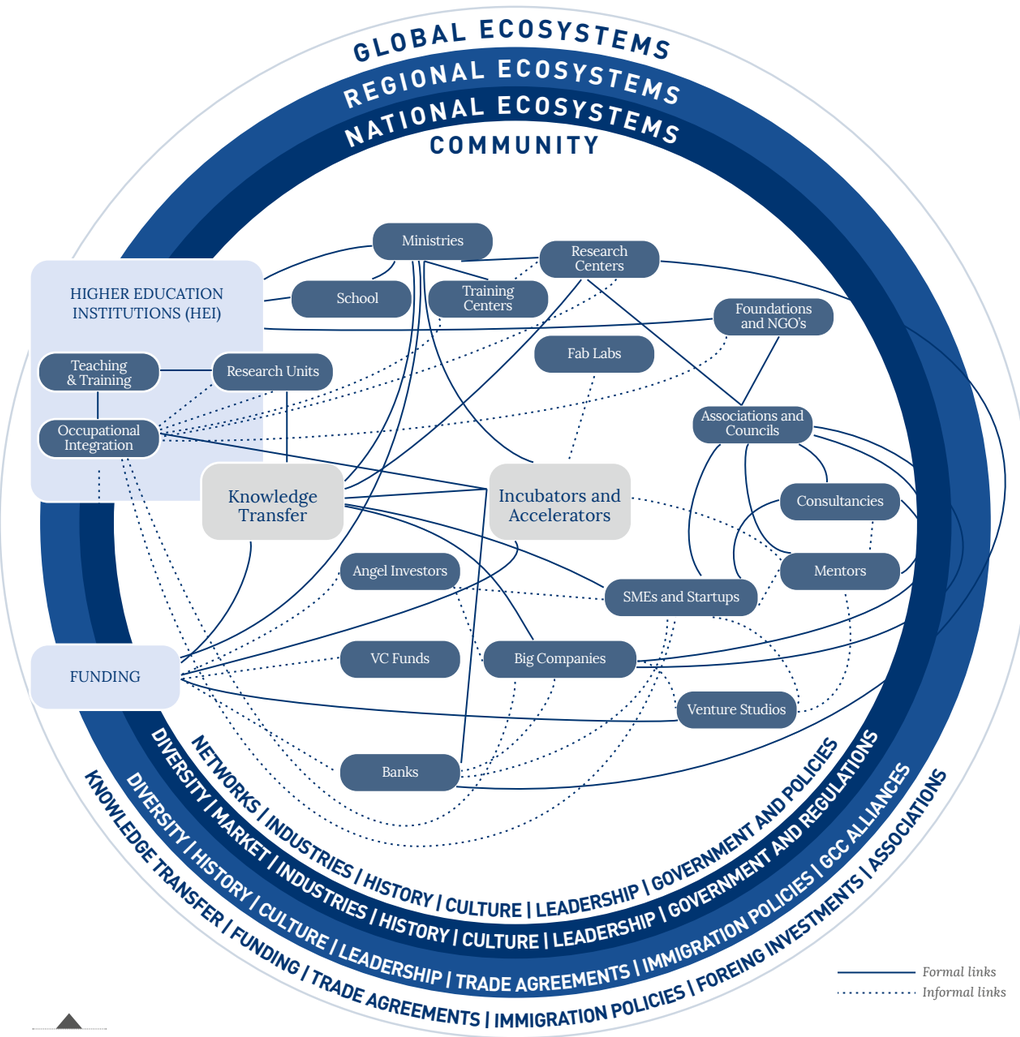


Figure 4
Example of the entrepreneurial community composition and interactions of Qatar.
Source: Own elaboration based on Matt and Schaeffer (2018), and Fortunato and Clevenger (2022).

This study contributes to the academic and practical literature on the configurational theory of sustainable entrepreneurial ecosystems, but, more importantly, helps us understand the role of social capital in Qatar's entrepreneurial ecosystem (Nahapiet and Ghoshal, 1998; Tötterman and Sten, 2005; Neumeyer and Santos, 2018; Theodoraki et al., 2017). According to the study by Theodoraki et al. (2017), social capital is composed of the structural, cognitive, and relational dimensions. In this study, the findings of in-depth interviews highlighted that in the structural dimension, strong and emerging ties reflect a configuration set with a certain degree of stability with the stakeholders moving in the same direction in their support of entrepreneurship initiatives. However, there are areas of improvement when studying their offers individually. In the cognitive dimension, it is perceived as a shared vision to achieve the QNV 2030, which incorporates entrepreneurship and innovation as tools to transform the country's economy into a knowledge-based economy that simultaneously

supports sustainable development. There are shared goals, language, and narratives in this dimension. However, in the relational dimension, there is a perceived lack of trust between the stakeholders, affecting communication and knowledge-sharing, resulting in duplication of efforts through certain initiatives. Previous studies proposed that increasing the strength of the relational dimension of social capital will improve the climate of trust between the stakeholders and, as a consequence, the performance and sustainability of the ecosystem (Theodoraki et al., 2017).

> **“For practitioners, these findings have implications for sociocultural aspects beyond creating more policies and programs.”**

For practitioners, these findings have implications for sociocultural aspects beyond creating more policies and programs. It means that Qatar already has the proper conditions in place to develop a sustainable entrepreneurial ecosystem, but there is a need to establish a coordinating entity that works directly on developing the relational dimension of social capital without a direct financial interest. Breznitz and Taylor (2014) argued that this type of understanding of the composition of the entrepreneurial community is essential to take further actions that will transform into developing a mutually reinforcing cultural system of entrepreneurial support. Therefore, developing the relational dimension effectiveness will depend on establishing roles for each member as well as co-support that creates synergies between them in a complementary way rather than competing in an exclusive manner.

As argued before, the community context profoundly influences both what kinds of entrepreneurial initiatives can and should be undertaken and how they are and should be performed (Anderson et al., 2006; Peredo and Chrisman, 2006; Mazzarol, 2007; Hindle, 2010). In the case of Qatar, there have been several efforts from the government side to develop the entrepreneurial ecosystem and much less from the private industrial sector and even academia. There is no such thing as good or bad performance, but what can be inferred from this study is that higher education institutions normally play a pivotal role in connecting the ecosystem members through education by building talent, research by sharing knowledge, and community by engaging the stakeholders and bringing them closer to the youth. At the same time, universities have natural links with the national, regional, and global ecosystems. Consequently, based on a triple helix economic model (a collaboration of government, industry, and academia), the recommendation is to trust the entrepreneurial ecosystem building coordination to a decentralized and, ideally, a non-for-profit organization that disseminates the opportunities for different audiences, builds a stronger entrepreneurial culture, measures the evolution and performance periodically through research, and engages three helixes in collaborative projects. For this goal, academia (higher education institutions) can assume the lead as a natural setting for knowledge sharing, cultural awareness, education and training, and research institutions.

In addition to Qatar’s entrepreneurial ecosystem mapping, the main entrepreneurship centers, knowledge transfer, and policy research offices are below. Some are within the Qatar Foundation (QF) ecosystem, and some are from the broader Qatar ecosystem:

- *Bedaya Center* (https://www.bedaya.qa/en/who-we-are/) provides access to a range of youth services, training programs, and activities each month, during the day, in the evenings, and on weekends to help participants achieve career goals, develop skills, and accelerate their entrepreneurial spirit.
- *Georgetown University Center for International and Regional Studies* (https://cirs.qatar.georgetown.edu/) is a premier research institute devoted to the academic study of regional and international issues through dialogue and exchange of ideas, research, and scholarship, and engagement with national and international scholars, opinion makers, practitioners, and activists.
- *Hamad Bin Khalifa University (HBKU)’s Innovation Center* (https://innovation.hbku.edu.qa/innovation) is a pioneering initiative designed to strengthen the innovation and entrepreneurship ecosystem within and outside HBKU. It serves as the only innovation and entrepreneurship platform at HBKU for connecting people and sharing ideas, resources, and expertise, providing opportunities for meaningfully unique collaborations.
- *INJAZ Qatar* (https://www.injaz-qatar.org/) mission is to accelerate young people’s ability to contribute to the economic development of nations by connecting them with dedicated business mentors and providing them with the skills and mindset they need to become entrepreneurs and business leaders, stimulating their communities.
- *Qatar Science & Technology Park* (https://qstp.org.qa/about/) provides a free zone and technology park that hosts leading global tech companies, mentor and support a network of start-ups and rising tech ventures and have a value chain of acceleration, incubation, and funding programs.

- *Qatar University (QU) Center for Entrepreneurship (CFE)* (http://www.qu.edu.qa/business/cfe) was established in September 2013 to support entrepreneurship at the university and the community at large. CFE is working to link academic life with business reality through training, incubation, research, and consultation.
- *QU Office of Strategic Innovation, Entrepreneurship & Economic Development* (http://www.qu.edu.qa/offices/president/sieed) has been established in the QU President’s Office to initiate, manage, and coordinate developments of the President’s Office enabling strategies and cross-sectors initiatives (such as entrepreneurship and innovation strategy, and digital transformation strategy) in the context of the QU Transformation Strategy 2018-2022 and QNV 2030.
- *QF Industry Development and Knowledge Transfer office* (https://www.qf.org.qa/idkt) helps researchers, companies, and entrepreneurs turn QF technologies and discoveries from its different entities into market-ready innovations that achieve commercial success while enhancing economic prosperity and societal well-being.
- *Silatech* (https://silatech.org/) is an international development nonprofit non-governmental organization, that continues the realization of the SDGs through the economic empowerment of youth.

- *Texas A&M Engineering Experiment Station* (https://www.qatar.tamu.edu/research/research-centers) aims to become a regional and global leader in scientific computing by developing innovative solutions and using state-of-the-art computational tools to address computational challenges in science, engineering, and industry.
- *The Arab Center for Research and Policy Studies* (https://www.dohainstitute.edu.qa/EN/Research/Pages/Arab-Center-for-Research-and-Policy-Studies.aspx) is an independent research institute for the study of the social sciences and humanities, with particular emphasis on the applied social sciences.
- *The Institute for Advanced Study in the Global South at Northwestern University in Qatar* (https://www.qatar.northwestern.edu/research/ias_nuq/index.html) produces and promotes evidence-based storytelling focused on the histories, cultures, societies, and media of the Global South.
- *University of Doha for Science and Technology Office of Applied Research and Innovation* (https://www.cna-qatar.com/research/research#) focuses on applied research activities in a range of disciplines of direct relevance to solving issues of concern to the industry, government, and society as Qatar works to attain its national development goals by 2030.

As incubators and accelerators play a pivotal role in the entrepreneurial community by providing support at different stages of the entrepreneurial process in the forms of pre-incubation programs (hackathons, idea camps, etc.), incubation programs, acceleration programs, access to funding, office space, training, mentorship, and coaching, among the most important, it is pertinent to differentiate them and also highlight that some stakeholders in Qatar offering certain of these support services are not recognized formally as incubators and/or accelerators (see **Appendix**) and there are also paid management consultancies competing. Of the 18 entrepreneurship-related institutions that offer at least one of the pre-incubation, incubation, or acceleration programs, there are seven "informal" incubators and accelerators. "Informal" means their primary activity is not conducting these three types of programs but offering education, training and/or research. They would have recently tried launching a program due to their potential to provide the variety of services involved with their network, including access to investors, mentorships, and training. QDB leads the list with more formal incubators and accelerators with four of them, followed by the Ministry of Communications and Information Technology with two, and then QF with one, plus six other individual initiatives like QU, Microsoft, Founder Institute, Qatar Insurance Company, Injaz, and Silatech.
In a recent effort, QRDI Council has been offering training programs to established companies to reach higher levels of growth and consolidation, as well as open innovation programs with local entities to attract entrepreneurs and companies to participate in Qatar's entrepreneurial ecosystem. From a general perspective, the issue is that most of the initiatives target idea exploitation in the launch and growth stage, but very few in the idea stage, which is the base of the entrepreneurial process (Feld, 2012). Thus, it implies that for a future initiative to be successful, it must target building the entrepreneurial culture, which can be done with entrepreneurship education and community building that collaborates to create awareness of its success stories, makes resources easier to access, and features entrepreneurship as a desired, well-perceived career choice rather than as a side hustle for extra income.

Conclusions and Limitations

This study serves as an updated mapping of Qatar's entrepreneurial ecosystem to find the resources needed by the stakeholders depending on the stage of development of the entrepreneurial venture. It also provides a critical analysis of the entrepreneurial community composition and interactions that aims to provide a basis for future entrepreneurship initiatives. The research conducted was designed following the configurational theory to understand sustainable entrepreneurial ecosystems (Spigel, 2017), but it also explains the ecosystem as a whole according to the system theory (Neck et al., 2004; Cohen, 2006; Isenberg, 2011; Stam, 2015), and indirectly introduces the network theory aiming to propose a mechanism to measure and test its sustainability (Stangler and Bell-Masterson, 2015; Theodoraki et al., 2017). Despite the effort, an entrepreneurial ecosystem is constantly evolving, and new community members emerge every day. Nevertheless, this research was conducted considering the most relevant players present and identified by other entrepreneurs, program managers, investors, and policymakers in Qatar interviewed in June 2022. The scope of the sample selected was based on understanding the entrepreneurial community supporting tech-based companies, not traditional businesses.

In conclusion, the mapping results showed a gap in Qatar's entrepreneurial ecosystem mainly related to fewer resources available to develop ideas than in the other stages producing a reduced pipeline of entrepreneurial projects that will potentially grow and become success stories. Therefore, future research must focus on measuring failure rates, the programs' performance, and the founding teams. It includes exploring research to answer the following questions: How many projects in the idea stage reach launch? What is the failure (or success) rate in the incubators and accelerators? Why are investors selecting or not selecting projects from Qatar? The general conclusion is that the ecosystem must be more collaborative, allowing its members to share experiences, facilitate connections, and scale their ventures.

References

Ali, A., and Yousuf, S. (2019). Social capital and entrepreneurial intention: empirical evidence from rural community of Pakistan. *Journal of Global Entrepreneurship Research*, 9(64). https://doi.org/10.1186/s40497-019-0193-z

Anderson, A., and Miller, C. (2003). Class matters: Social capital in the entrepreneurial process. *Journal of Socio-economics*, 32(1), 17–36.

Anderson, A., Park, J., and Jack, S. (2007). Entrepreneurial social capital: Conceptualizing social capital in new high-tech firms. *International Small Business Journal*, 25(3), 245–272.

Anderson, R., Honig, B., and Peredo, M. (2006). *Communities in the new economy: Where social entrepreneurship and indigenous entrepreneurship meet*. In Steyaert, C and Hjorth, D. (eds.) Entrepreneurship as social change. Cheltenham: Edward Elgar (pp. 56–78).

Cameron H. (2012). Social Entrepreneurs in the Social Innovation Ecosystem. in Nicholls A., and Murdock A. (Eds.) *Social Innovation* (pp. 199-220). Palgrave Macmillan.

Cavallo, A., Ghezzi, A., Colombelli, A., and Casali, G. L. (2018). Agglomeration dynamics of innovative start-ups in Italy beyond the industrial district era. *International Entrepreneurship and Management Journal*, 1–24.

Cho, D. S., Ryan, P., and Buciuni, G. (2021). Evolutionary entrepreneurial ecosystems: A research pathway. *Small Business Economics*. https://doi.org/10.1007/s11187-021-00487-4

Clarysse, B., Wright, M., Bruneel, J., and Mahajan, A. (2014). Creating value in ecosystems: Crossing the chasm between knowledge and business ecosystems. *Research Policy*, 43(7), 1164-1176. https://doi.org/10.1016/j.respol.2014.04.014

Clevenger, M. R. (2017). *Perceptions of entrepreneurs and community: From historical roots to a contemporary kaleidoscope*. In Fortunato, M., and Clevenger, M. R. (eds). Toward Entrepreneurial Community Development. Routledge (pp. 41).

Clevenger, M. R., and Miao, C. (2017). *Transformational Leadership to Build an Entrepreneurial Community*. In Fortunato, M., and Clevenger M. R. (eds). Toward Entrepreneurial Community Development. Routledge (pp. 26).

Cohen, B. (2006). Sustainable valley entrepreneurial ecosystems. *Business Strategy and the Environment*, 15(1), 1-14.

Cruickshank, P., and Rolland, D. (2006). Entrepreneurial success through networks and social capital: Exploratory considerations from GEM research in New Zealand. *Journal of Small Business and Entrepreneurship*, 19(1), 63–80.

Dana, L. P. (1997). The origins of self-employment in ethno-cultural communities: Distinguishing between orthodox entrepreneurship and reactionary enterprise. *Revue Canadienne des Sciences de l'Administration*, 14(1), 52–68.

Dana, L. P. (2008). Community-based entrepreneurship in Norway. *Entrepreneurship and Innovation*, 9(2): 77–92.

Feld, B. (2012). *Start-up Communities: Building an Entrepreneurial Ecosystem in Your City*. Wiley.

Ferri, P.J., Deakins, D., and Whittam, G. (2009). The measurement of social capital in the entrepreneurial context. *Journal of Enterprising Communities: People and Places in the Global Economy*, 3(2), 138-151. https://doi.org/10.1108/17506200910960842

Fortunato, M. W., and Clevenger, M. R. (2022). *An Introduction to Entrepreneurial Ecosystems and Entrepreneurial Communities to Empower Entrepreneurs*. In Clevenger, M. R., and Fortunato, M. (eds). Empowering Entrepreneurial Communities and Ecosystems: Case Study Insights. Routledge (p. 1).

Hayter, C. S., Nelson, A. J., Zayed, S., and O'Connor, A. C. (2018). Conceptualizing academic entrepreneurship ecosystems: A review, analysis and extension of the literature. *The Journal of Technology Transfer*, 43(4), 1039-1082. https://doi.org/10.1007/s10961-018-9657-5

Hindle, K. (2010). How community context affects entrepreneurial process: A diagnostic framework. *Entrepreneurship and Regional Development*, 22(7-8), 599-647. https://doi.org/10.1080/08985626.2010.522057

Isenberg, D. (2011). *The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy: Principles for Cultivating Entrepreneurship* (pp. 1-13). Dublin, Ireland: Institute of International and European Affairs.

Julien, P. A. (2007). *A theory of local entrepreneurship in the knowledge economy*. Cheltenham, UK; Northampton, MA, USA: Edward Elgar.

Karaki, F. J. (2021). Mapping Entrepreneurial Ecosystem (EE) of Palestine. *Journal of Entrepreneurship, Business and Economics*, 9(2), 174-217.

Kwon, S., and Adler, P. S. (2014). Social capital: Maturation of a field of research. *Academy of Management Review*, 39(4), 412–422.

Lin, N. (2005). *A network theory of social capital*. [Online] Available at: http://www.proclassis.com/ethnicgv/SN/SC/paper-final-041605.pdf

Linchenstein, G. A., Lyons, T. S., and Kutzhanova, N. (2009). Building Entrepreneurial Communities: The Appropriate Role of Enterprise Development Activities. *Journal of the Community Development Society*, 35(1), 5-24. https://doi.org/10.1080/15575330409490119

Mason, A., Dana, L-P., and Anderson, R. B. (2009). A study of enterprise in Rankin Inlet, Nunavut: Where subsistence self-employment meets formal entrepreneurship. *International Journal of Entrepreneurship and Small Business*, 7(1), 1–23.

Mason, C., and Brown, R. (2014). Entrepreneurial ecosystems and growth-oriented entrepreneurship. *Final Report to* OECD, Paris, 30(1), 77–102.

Mathison, S. (1988). Why triangulate? *Educational Researcher*, 17(2), 13-17.

Matt, M., and Schaeffer, V. (2018). Building Entrepreneurial Ecosystems Conducive to Student Entrepreneurship: New Challenges for Universities. *Journal of Innovation Economics and Management*, 25(1), 9. http://dx.doi.org/10.3917/jie.025.0009

Mazzarol, T. (2007). *Different strokes for different folks: Stimulating entrepreneurship in regional communities*. In Dana, L. P., and Anderson, R. B. (eds.) International handbook of research on indigenous entrepreneurship. Cheltenham, UK; Northampton, MA, USA: Edward Elgar (pp. 494–507).

McKeever, E., Anderson, A., and Jack, S. (2014). Entrepreneurship and mutuality: Social capital in processes and practices. *Entrepreneurship and Regional Development*, 26(5–6), 453–477.

Moore, J. F. (2006). Business ecosystems and the view from the firm. *The Antitrust Bulletin*, 51(1), 31-75. https://doi.org/10.1177/0003603X0605100103

Myint, Y. M., Vyakarnam, S., and New, M. J. (2005). The effect of social capital in new venture creation: The Cambridge High-Technology Cluster. *Strategic Change*, 14(3), 165-178.

Nahapiet, J., and Goshal, S. (1998). Social capital, intellectual capital and the organizational advantage. *Academy of Management Review*, 23(2), 242–267.

Neck, H. M., Meyer, G. D., Cohen, B., and Corbett, A. C. (2004). An entrepreneurial system view of new venture creation. *Journal of Small Business Management*, 42(2), 190–208.

Neumeyer, X., and Santos, S. C. (2018). Sustainable business models, ventures typologies, and entrepreneurial ecosystems: A social network perspective. *Journal of Cleaner Production*, 172, 4565-4579. https://doi.org/10.1016/j.jclepro.2017.08.216

Neumeyer, X., Santos, S. C., Caetano, A., and Kalbfleisch, P. (2018). Entrepreneurship ecosystems and women entrepreneurs: a social capital and network approach. *Small Business Economics*, 53, 475-489. https://doi.org/10.1007/s11187-018-9996-5

Peredo, A. M., and Chrisman, J. J. (2006). Toward a theory of community-based enterprise. *Academy of Management Review*, 31(2), 309–28.

Porter, M.E. (1998). Clusters and the new economics of competition. *Harvard Business Review*, 76(6), 77-90.

Portes, A. (2009). Social capital: Its origins and applications in modern sociology. *Knowledge and social capital: Foundations and applications*, 43-67.

Reynolds, P.D., Bosma, N., Autio, E., Hunt, S., Bono, N.D., Servais, I., et al. (2005). Global entrepreneurship monitor: data collection design and implementation 1998-2003. *Small Business Economics*, 24(3), 205-231. https://doi.org/10.1007/s11187-005-1980-1

Ridley, D. (2016). The Entrepreneurial Community. *Journal of Management and Engineering Integration*, 9(1), 41-51.

Roundy, P.T. (2017). "Small town" entrepreneurial ecosystems: Implications for developed and emerging economies. *Journal of Entrepreneurship in Emerging Economies*, 9(3), 238-262. https://doi.org/10.1108/JEEE-09-2016-0040

Scheidgen, K. (2021). Degrees of integration: How a fragmented entrepreneurial ecosystem promotes different types of entrepreneurs. Entrepreneurship and Regional Development, 33(1-2), 54-79. https://doi.org/10.1080/08985626.2020.1734263

Spigel, B. (2017). The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, 41(1), 49-72.

Stam, E. (2015). Entrepreneurial ecosystems and regional policy: a sympathetic critique. *European Planning Studies*, 23(9), 1759–1769. http://dx.doi.org/10.1080/09654313.2015.1061484

Stangler, D., and Bell-Masterson, J. (2015). *Measuring an entrepreneurial ecosystem*. Kansas City: Kauffman Foundation Research Series on City, Metro, and Regional Entrepreneurship.

Theodoraki, C., Messeghem, K., and Rice, M. P. (2017). A social capital approach to the development of sustainable entrepreneurial ecosystems: an exploratory study. *Small Business Economics*, 51, 153-170. https://doi.org/10.1007/s11187-017-9924-0

Tötterman, H., and Sten, J. (2005). Start-ups. *International Small Business Journal*, 23(5), 487–511.

Ullhoi, J. P. (2005). The social dimensions of entrepreneurship. Technovation, 25(8), 939-950.

Villegas-Mateos, A. (2021). *Qatar's Entrepreneurial Ecosystem - 2021 Edition: Empowering the Transformation*. HEC Paris: Doha, Qatar. https://doi.org/10.5281/zenodo.4719075

Villegas-Mateos, A., Abdellatif, M. M., and Hossain, M. (2021). GUESSS 2021 *National Report: The Entrepreneurial Career Intentions of University Students in Qatar*. Doha, Qatar: HEC Paris. Available at: https://www.guesssurvey.org/resources/nat_2021/GUESSS_Report_2021_Qatar.pdf

WEF (2013), *Entrepreneurial Ecosystems around the Globe and Company Growth Dynamics*. World Economic Forum, Davos.

Yli-Renko, H., Autio, E., and Sapienza, H. (2001). Social capital, knowledge acquisition and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22, 587-613.

Appendix

AFFILIATION	MCIT		Qatar Development Bank						Qatar Foundation				QF / Hybrid	Independent				
DESCRIPTION	DI	TASMU	Bedaya*	NAMA*	QBIC	QFTH	QST	Scale 7	HBKU IC*	QSTP	WISE*	WISH*	Silatech*	FI	QIC	Injaz*	Microsoft*	QU
Pre-Incubation (Hackathons, Idea Camps, etc.)	1	0	1	0	1	1	0	1	1	1	0	0	1	0	1	1	0	1
Incubation Program	1	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	1	1
Acceleration Program	0	1	0	0	1	1	1	1	0	1	1	1	0	1	0	0	1	0
Access to Funding	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1
Equity Sharing	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0
Intellectual Property Management	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1
International Partnerships	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
Mentorship and Advisory	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
Regulatory Compliance (Legal, Accounting, HR, etc.)	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	0	0	1
Speaker Series and/or Networking Events	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1
Team Formation	1	0	0	0	1	1	0	0	1	0	0	0	0	0	1	1	0	1
Training / Capacity Building	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Working space and offices	1	1	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	1
TOTAL	11	9	5	6	12	12	10	11	7	11	8	8	6	7	7	5	7	9

0 = “Doesn’t offer the service”. 1 = “Available service”.
*Informal incubators and accelerators

CHAPTER 3

Innovation Dynamics as Drivers for Entrepreneurial Ecosystem Success

Allan Villegas-Mateos and Mohsin Ali

Abstract

This chapter analyzes the available secondary data measuring innovation activities and compares it with the data collected by the authors through interviews with founders and experts from diverse technology sectors. Different sources are included to benchmark the country's position against international standards; simultaneously, it critically reviews the practical implications and lived reality of the key players in Qatar's entrepreneurial ecosystem. Indicators used to analyze the innovation activities include the labor force, intellectual property (IP) registration, graduate profiles, commercial registrations, foreign direct investment, foreign trade, and the leading technology sectors. Assuming that Doha is and will continue to develop as a smart city (inspired by Qatar's National Vision 2030), the Ministry of Communications and Information Technology can be considered a significant player in sustainable development. Having established a digital business incubator and an accelerator, the Ministry leads in implementing the Smart Qatar TASMU program to develop five priority sectors: transport, logistics, environment, healthcare, and sports. These sectors are being driven by digital transformation, but in addition to this study's findings, two more are driving the ecosystem's growth: financial technology (FinTech) and e-commerce. This study analyzed these seven sectors in Qatar through 37 in-depth interviews with founders and experts. This chapter is original because it follows a triangulation method between secondary data and primary data to identify opportunities and constraints in the innovation dynamics of Qatar's entrepreneurial ecosystem. It has practical implications since the findings align efforts from the different entities and integrate them into a vision of fostering more sustainable innovations.

Keywords *Intellectual Property, Innovation Ecosystem, Entrepreneurship Opportunities, Technology, Strategic Sectors*

Introduction

Binz and Truffer (2017) studied global innovation systems and raised the question of whether a territorial (local, regional, or national) system perspective is still a valid one as system boundaries become increasingly blurred and porous given the increased spatial complexity of innovation processes. In a globalizing knowledge economy, the mobility and circulation of people, knowledge, and capital increasingly interrelates innovation processes in distant places (Corpataux et al., 2009). Therefore, it becomes fundamental to understand which innovation dynamics are embedded in an entrepreneurial ecosystem. Recent studies are being conducted to fill this gap and identify the critical enablers for creating thriving entrepreneurial and innovation ecosystems. To do so is vital for recognizing the broader dimensions of entrepreneurial and innovation activities, where holistic and inclusive networked approaches pave the way for co-creation activities essential for achieving sustainability (De Bernardi and Azucar, 2020). However, few studies have been conducted in GCC countries, including Qatar.

GCC countries are characterized by similar cultures, languages, political structures, and economic models reliant on hydrocarbon revenues. Nevertheless, it is common knowledge that their levels of entrepreneurship and innovation differ. For example, this is shown in the Global Entrepreneurship Monitor (GEM, 2022) Global Report 2021/2022. GEM's Total Early-Stage Entrepreneurial Activity (TEA) indicator, which measures the percentage of the population between 18 and 64 years old who are either nascent entrepreneurs or owner-managers of a new business, shows Saudi Arabia with the highest rate in the GCC with 19.62%, followed by Kuwait with 19.2% (a 2020/2021 indicator as they did not report in the last year), the UAE with 16.51%, Qatar with 15.87%, and Oman with 12.7% (note that Oman is not part of the GEM consortium). On the other hand, according to the Global Innovation Index (GII) 2021 (WIPO, 2021), the UAE ranked 33rd among the 132 economies featured, followed by Saudi Arabia in 66th rank, then Qatar in 68th place, Kuwait in 72nd, Oman in 76th, and Bahrain in the 78th rank. The rankings exemplify the difference between being innovative and being entrepreneurial. Entrepreneurship activities encompass any business sector, while innovation activities embrace knowledge and technology outputs, human capital development and research, and market and business sophistication.

> ***"Support initiatives must focus on one or two technology subsectors rather than trying to have a broad spectrum."***

A previous study of Qatar's entrepreneurial ecosystem (Villegas-Mateos, 2021) presents data analytics and economic analysis of key indicators related to monitoring entrepreneurship support mechanisms. The study concludes that the ecosystem is in an activation phase of its lifecycle. It means there is a limited number of start-ups (technology-based companies with high-growth potential) and limited start-up experience in the main. The recommendation was to activate entrepreneurial-minded people and grow a more connected local community that helps each other. At the same time, support initiatives must focus on one or two technology subsectors (e.g., FinTech or AgriTech) rather than trying to have a broad spectrum. This will build on local economic strengths and develop focused programs to accelerate ecosystem growth and pockets of success, leading to sizable start-up exits. Therefore, this study aims to understand Qatar's drivers and status of innovation enablers.

The Qatari Context

From a global perspective, there is evidence that shows a positive relationship between innovation and economic development, which makes this research even more relevant to our aim of supporting the QNV 2030; at the same time, it contributes to the GCC literature. The QNV 2030 is a master vision and roadmap toward Qatar becoming an advanced society capable of sustainable development. It sets out objectives for growth in non-energy sectors to achieve Qatar's transformation into a knowledge-based economy. Economic diversification is vital to sustainable economic development, especially for countries relying on non-renewable natural resources, such as oil and gas, in the case of the GCC countries (Ben Hassen, 2022). It is essential to consider that all the GCC neighbors also have national vision plans to achieve sustainable development.

Consequently, to study the innovation dynamics of Qatar's entrepreneurial ecosystem, it is relevant to consider existing indicators such as the GII, which indicates that the country is performing below expectations considering it has one of the highest GDP per capita in the world. A previous descriptive study of the innovation status quo in Qatar assessed its domestic innovation dynamics through the GII data while also comparing it to Switzerland, ranked as the world's leading economy with a full Innovation Efficiency Ratio (100%) in the same index (Faghih and Sarfaraz, 2014). Composed of seven pillars, the GII highlights Qatar's strengths and weaknesses, with *business sophistication* showing the weakest performance and *infrastructure* the best (WIPO, 2021).

Business sophistication includes knowledge workers (people employed with advanced degrees, firms offering formal training, gross expenditure on research and development (GERD)), innovation linkages (university-industry research and development (R&D) collaboration, GERD financed from abroad, state and depth of the economic clusters' development, joint ventures and strategic alliances, and patent applications), and knowledge absorption (IP payments, high-tech imports, ICT services imports, foreign direct investment (FDI) inflows, and research talent in businesses). The second weakest performing indicator from the GII is *knowledge and technology outputs*. This indicator considers knowledge creation (patents by origin, utility models by origin, scientific and technical articles, and citable documents), knowledge impact (labor productivity growth, new businesses as percentage of the population, software spending, ISO 9001 quality certificates, and high-tech manufacturing), and knowledge diffusion (IP receipts, production and export complexity, high-tech exports, and ICT services exports). Entrepreneurship and innovation are, therefore, linked to economic transformation into a knowledge-based economy.

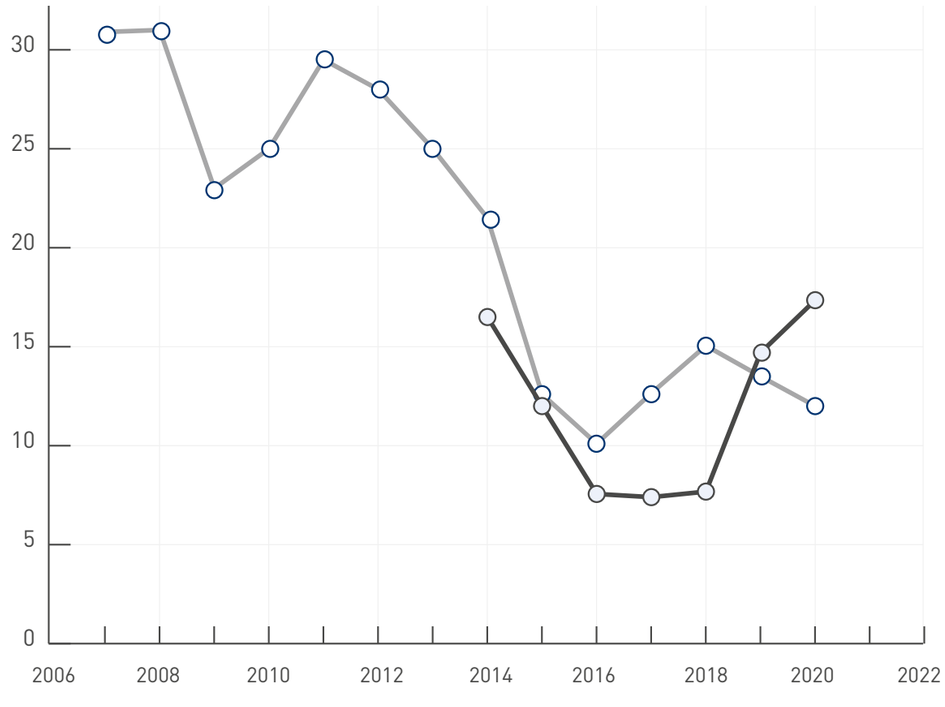


Figure 1
Relationship between oil revenues and growth of entrepreneurship activities.

These weaknesses in *business sophistication* and *knowledge and technology outputs* must be addressed to increase the levels of innovation and, consequently, attain higher economic diversification and sustainable development. The assumption is that it requires entrepreneurial leaders to overcome these challenges and bring innovations to the market. In the case of Qatar, the QNV 2030 was established in 2008 following the 2007 global economic crisis, when oil revenues as a percentage of the GDP were at their peak. Revenues have been following a downward trend, going from 31.2% to one of the lowest levels, with 11.7% in 2020 (see **Figure 1**). The GEM's TEA indicator started reporting in 2014 with a high rate of entrepreneurial activity that later decreased. The loss of oil revenues suggests an inverse relationship between the two, with an increasing TEA rate in recent years. Hence, to address the status of innovation dynamics in depth, this research explored secondary data available in Qatar's strategic technology sectors and crossed it with primary data collected through in-depth interviews with start-up founders. This data triangulation approach also provides a deeper understanding of the drivers of innovation in the entrepreneurial ecosystem where they operate their businesses.

Strategic Technology Sectors

In 2015, the UN General Assembly emphasized the cross-cutting contribution of ICT to the newly defined SDGs, as ICT can accelerate the progress of sustainability. Moreover, the global crisis caused by the COVID-19 pandemic showed us the significance of boosting resilience to adverse shocks and, in response, the need to promote non-hydrocarbon sectors by strengthening the fundamental pillars of the knowledge-based economy: ICT, innovation, R&D, education, entrepreneurship,

> “
>
> ***‘TASMU Smart Qatar,’ an initiative that aims to transform Qatar into a world-class smart city that leverages the latest digital solutions to increase the standard of living and raise Qatar’s competitiveness internationally.”***

and the economic and institutional regime (Ben Hassen, 2022). Specifically for Qatar, the first relevant finding is the firm determination and intervention by the Qatari government to diversify the economy by creating a vibrant ecosystem in the ICT sector (Ben Hassen, 2020). For this task, one of the major players is the Ministry of Communications and Information Technology (MCIT), previously the Ministry of Transport and Communications (MOTC). The MCIT is leading the project “TASMU Smart Qatar,” an initiative that aims to transform Qatar into a world-class smart city that leverages the latest digital solutions to increase the standard of living and raise Qatar’s competitiveness internationally. The efforts of the TASMU Smart Qatar Program focus on harnessing the power of technology and innovation to drive sustainable economic diversification while improving the quality of life and enhancing the delivery of public services in Qatar across priority sectors. Created as the digital response to QNV 2030, it catalyzes Qatar’s ICT ecosystem by uniting global innovators with local market needs to fuel Qatar’s digital transformation. TASMU seeks to enhance the delivery of public services in Qatar across five strategic sectors: *transportation, logistics, environment, healthcare, and sports*.

Consequently, the MCIT created the Digital Incubation Center (DIC) to boost ICT innovation in Qatar, particularly among young people at the critical early stages of starting or growing a technology-related business. It offers early-stage start-ups free office space, technical support, training and guidance, and mentors who can help new companies avoid typical start-up failures while giving them the exposure and public relations needed to succeed. For the more advanced start-ups that are scaling, the MCIT is launching the TASMU Accelerator to support the same five strategic sectors with grants, perks, and benefits to grow and succeed. However, the MCIT is not the only player supporting the development of tech-based ventures.

Other incubators and accelerators directly supporting tech-based ventures are part of Qatar Development Bank (QDB): Qatar Business Incubation Center, Qatar Fintech Hub, Qatar SportsTech Accelerator and Scale7; Qatar Foundation (QF): Qatar Science and Technology Park - QSTP; and other independent or individual emerging programs such as the Founder Institute Doha, QIC Digital Venture Partners, and Qatar University (QU) initiatives, among other players that may not be formal incubation or acceleration programs but are supporting innovative entrepreneurship in Qatar. Some venture builder studios are also appearing in the private sector entrepreneurial ecosystem. Interestingly, the incubation programs of QDB are sectorial; Qatar Business Incubation Center, the most important in Qatar and the region, supports projects in three sectors: tourism, digital technologies, and manufacturing. Its other incubators are specialized only in one sector, Qatar Fintech Hub (QFTH) for financial technologies, Qatar SportsTech Accelerator for sports technologies, and Scale7 for fashion and design projects.

QSTP is a free zone with a venture fund. Acceptance to its incubation center is possible at any time of the year at no cost, with perks and benefits plus assistance in securing commercial registration. The only limitation is that it only accepts projects fully oriented toward conducting R&D activities. Some start-ups in Qatar are registered with QSTP and are incubated simultaneously in DIC and/or QBIC. Others are registered with the Qatar Financial Centre (QFC), another free zone. All these offerings from different stakeholders reflect the support available for tech-based companies. Qatar is a particularly early adopter of new technologies in the region; one of the first countries to roll out a 5G network, with 99% of the population having a mobile internet connection. Therefore, in addition to the five strategic sectors supported by the MCIT programs, current programs also show fintech and *e-commerce* as strategic, growing sectors.

TRANSPORTATION

In the transportation sector, Qatar is ideally equipped to lead in developing advanced mobility. The country is extremely well connected, with brand new physical infrastructure designed with autonomous vehicles in the pipeline. 1.7 million registered motor vehicles, more than 20,000 taxis, and more than 10,000 buses are operating on Qatar's strong road network (QFZ, 2021). Uber and Careem both have robust operations, providing additional transport options. Qatar is designing the future of urban transport: CO2-neutral mobility combined with technology for maximum efficiency and safety.

The integration of Qatar's transportation systems is well underway, providing modern, efficient, and continually growing networks to help users get to where they need to go, from population hubs to important ports to entertainment infrastructure such as the FIFA World Cup 2022 stadiums.

Recent initiatives taken by the Qatari authorities to develop the advanced mobility sector (QFZ, 2021) are as follows:

- The electrification of Qatar's public transport system is underway, with a quarter of its bus fleet set to be electric by 2022 and the entire system expected to be e-powered by 2030. 1,500 of these electric buses are being manufactured at Qatar Free Zones as part of an agreement between the Qatar Free Zone Authority (QFZA), Yutong - one of the world's most giant bus and coach suppliers - and Mowasalat (Karwa), the government organization that oversees the bus and taxi networks.
- The Public Works Authority (Ashghal) is building the region's largest electric charging station. It will also be the first bus station in the region powered entirely by solar energy and will serve the growing fleet of electric buses during the World Cup and beyond. Ashghal is also in the process of setting up 2,700 new bus stops on all major roads, with air-conditioned cabins to provide greater comfort for passengers.
- An electric car charging network is under development that will cover almost 12,000 square kilometers. New stations – including some coupled with photovoltaic systems – are being set up in high-traffic areas, including shopping malls, residential areas, stadiums, parks, and government offices.
- The state is on track to open more than 400 electric charging stations in 2022, reducing consumer costs and paving the way for more autonomous vehicles.
- To enhance Qatar's efforts to organize a carbon-neutral mega sporting event, over 1,100 electric buses will be deployed to transport spectators during the 2022 FIFA World Cup. After the event, these additional electric buses will be integrated into the public transport system.

LOGISTICS

A year of extreme supply chain dysfunction globally in 2021 saw capacity constraints, bottlenecks, sky-high freight rates, and supply shortages caused mainly by the COVID-19 pandemic. The dysfunction's forces remain in place and are likely to unwind in 2022. Beyond the short-term supply chain challenges, many emerging markets will also have to grapple with high inflation, rising costs, lower consumer confidence, and the rollout of vaccination programs. These factors drive the emergence of technology companies in this space and the expansion of existing players.

Technology and sustainability are increasingly separating leaders from laggards among emerging markets economies. Leaders in the new Digital Readiness ranking combine a connected population, a digitally skilled workforce, globally compatible and future-orientated business ecosystems, and a culture of entrepreneurial risk. While all these factors indicate preparedness for the new global economy, there is no pattern for how they are cultivated, with government, populations, and the private sector playing a part. The Digital Readiness rankings, like those for business fundamentals, are an area where smaller economies lacking in scale can attain competitive advantage and integrate deeply into the global economy without making the heavy investments required for world-class logistics infrastructure.

Eight of the top ten ranking positions in the Agility Emerging Markets Logistics Index 2022 are occupied by emerging markets from the Asia Pacific and the Gulf states. Asia Pacific's emerging markets offer the most robust domestic and international logistics opportunities, although results in the 2022 Index see the region's domestic logistics markets leadership erode. The GCC countries have built dynamic and robust business environments that lead emerging markets and increasingly follow global best practices. Online retail, adopting technology and digital business practices, and investing in sustainable energy resources see both regions' emerging markets share Digital Readiness leadership. In this index, Qatar ranks seventh overall, having recovered quickly from the impacts of the COVID-19 pandemic due to stimulus spending and a broad-based recovery across its economy. The major player in this sector is Milaha, one of the largest maritime and logistics companies in the Middle East, focusing on providing integrated transport and supply chain solutions. Milaha recently launched an open innovation program with the Qatar Research, Development, and Innovation Council (QRDI) to attract innovative solutions, technologies, and processes to be implemented in Qatar, providing seed investment and guidance to establish and develop such companies.

HEALTHCARE

Despite the COVID-19 pandemic's devastating impacts, it presents the health care sector with a powerful opportunity to accelerate innovation and reinvent itself. No one predicted that the global pandemic would be the catalyst to kick start and accelerate those changes. COVID-19 has accelerated numerous existing and/or emerging health care trends, including shifts in consumer preferences and behavior, integrating life sciences and health care, rapidly evolving digital health technologies, new talent and care delivery models, and clinical innovation. Initially, stakeholders faced an unfamiliar world of remote working, virtual doctor visits, and a supply chain marked by shortages of medical supplies, personnel, and services, but the sector is now transforming to meet the new challenges. Some start-ups already had the technologies in place, and this situation was an excellent kick-off for them. This sector is also elevating the human experience of the workforce and reshaping what, how, and where work is performed, swiftly scaling virtual health services for COVID-19 and non-COVID-19 patients.

Paradoxically, the pandemic's economic recession and health systems' increasing costs provide the perfect storm to force health care systems to change their workforce, infrastructure models, and care delivery models to continue to meet quality and access targets but achieve this from a reduced cost base. One solution lies in digital transformation and health care delivery model (HCDM) convergence, a trend that has accelerated during the pandemic. Social distancing measures have forced many providers to employ virtual care technology for scheduled outpatient appointments. Hospitals and health systems are turning to cloud computing, 5G telecommunications, artificial intelligence (AI), and interoperable data and analytics to address current challenges and build digitally powered care delivery models for the future of health. The leading healthcare provider in Qatar is Hamad Medical Corporation (HMC), working actively to support emerging technology providers.

ENVIRONMENT

The sustainable consumption of natural resources, minimal food waste, and water and food security typify a smart environment. In this sector, the main strategic themes to address through technologies are the sustainable use of resources, digital urbanization, environmental stewardship, and connected farming. The government plays a significant role in supporting resources, including access to finance and connections, to overcome the challenges. Hassad Food is a wholly owned subsidiary of the Qatar Investment Authority (QIA). Considered the country's investment arm in the food and agribusiness sectors, Hassad Food has several strategic commercial investments, both internationally and locally, that support Qatar's food security efforts. Kahramaa, on the other hand, is the unique transmission and distribution system owner and operator for Qatar's electricity and water sector. Hassad Food and Kahramaa are driving efforts to support sustainable tech-based projects addressing the food, energy, and water (FEW) nexus. Similarly, Milaha drives logistics efforts. In 2022, Milaha launched open innovation programs with the QRDI to attract local and international innovators. It is an example of how an ecosystem can provide support to achieve sustainable development. Yuan and Lo (2020) studied how primary ecosystem functions affect FEW sustainability and found that ecosystem services are indispensable to achieve sustainable development goals successfully.

The FEW nexus significantly impacts human adaptation to various grand challenges, such as climate extremes and change, population growth, and water scarcity (Liu et al., 2020). GCC countries are additionally facing a rapid increase in energy and water consumption due to harsh climate conditions, high population growth, and increased industrial and agricultural activities. As Qatar is one of those countries with high temperatures across the year, new techniques and technologies are constantly being introduced in this sector. This has driven the exponential growth in specific related markets, such as greenhouses aiming to increase self-sufficiency and domestic agricultural production in the region. The demand for these greenhouses has been rising in Qatar, creating the potential for high-yield output compared to traditional farming techniques. However, as mentioned before, these activities contribute to an increase in energy and water consumption, giving impetus to the need for innovation in the environment sector.

SPORTS

Qatar aims to establish itself as a world-class destination for sports fans, connecting them with exciting and engaging experiences, curating and growing world-class competitive athletes through structured coaching and talent scouting while leveraging the latest sports innovation processes and technologies. As a result, the country is hosting world-class events, such as the FIFA World Cup 2022, the first time the tournament will be hosted in the Middle East, and the second World Cup held in Asia after the 2002 tournament in South Korea and Japan. Consequently, the main stakeholders supporting this sector are linked to health, tourism, media, insurance, culture, and sports. As mentioned, the MCIT's DIC and TASMU projects actively seek and support innovative technologies in this sector alongside QDB's incubator QBIC and its Qatar SportsTech Accelerator. In general, Qatar has been heavily investing in sports to brand and position the country as a modern state and tackle health problems related to physical inactivity, particularly among the youth (Amara and Ishac, 2022).

The Aspire Zone Foundation (AZF) is another relevant stakeholder, with the mission of enhancing sports performance and becoming a reference in sports excellence worldwide. AZF has long been committed to servicing the community to ensure a sustainable lifestyle for future generations and has built a sports city that hosts a stadium, pitches, parks, a mall, a water sports center, and the previously mentioned Qatar SportsTech Accelerator, among other assets. AZF provides different services, including sports training, facilities, sports medicine, research, investment, and education.

FINANCE

The FinTech sector has disrupted financial services unprecedentedly, using technology to offer a seamless experience to retail, small and medium enterprises (SMEs), and corporate customers. The possibilities seem boundless, with FinTech using everything from new mobile technology to AI to the Internet of Things to manage and move money seamlessly. This future may not be here yet, but Qatar is preparing to be at its forefront, establishing itself as a global financial technology center. Setting the QFTH is a big step in this direction, creating a vibrant ecosystem for incubating domestic FinTech start-ups and helping spur foreign FinTech companies to invest and grow in the region. Many start-ups, financial institutions (FIs), and other non-traditional players have entered the FinTech industry to meet the rising customer demand for digital services. High customer adoption, driven by improved internet access and smartphone penetration, and government initiatives to drive digital and financial literacy, are further helping FinTechs penetrate markets quickly. The emergence of infrastructure solution providers is accelerating the rapid growth of FinTech and neo-banking players globally.

Qatar's FinTech sector has a mature financial services sector with 17 banks, including five conventional banks, four Islamic banks, seven branches of foreign banks, a specialized development bank (QDB), and the Qatar Central Bank (QCB) as the sector's regulatory institution. Commercial banking in Qatar dates to the mid-20th century. Qatar National Bank (QNB), established in 1965, is the largest bank by assets in the Middle East. A mature financial services industry, coupled with national initiatives to support digitization across sectors, is expected to bring investments in FinTech, as a few examples show. The Qatar Mobile Payment System creates a robust enabling environment for payment-focused FinTechs. Qatar's Investment Promotion Agency (IPA) aims to attract foreign investment and encourage large companies to establish subsidiaries. The agency has also introduced free zone incentive programs for foreign investors. Finally, the drive to host a cashless FIFA World Cup 2022 and smart city programs like TASMU will likely push digital adoption across the country.

Qatar's FinTech ambition is to become a global hub by promoting and empowering Qatari entrepreneurs and innovators and becoming the launchpad for their international expansion. Enabled by conducive regulation and a stimulating environment, Qatar's FinTech sector is growing steadily. The QFC (a one-stop shop for licensing, commercial registration, immigration, and related services) grew by 33% in 2019, with nearly 200 companies registering on its platform. Over 800 FinTech, IT, tax, and investment consulting firms were a part of the organization in 2019. The QFC is now planning to register 1,000 companies by 2022. Collaborations between FIs and FinTech players have a crucial role in developing innovative models and increasing customer reach. It explains the recent market entry of Apple Pay, Samsung Pay, and Google Pay, as well as the first licenses issued to provide digital payment services for Ooredoo Money and iPay by Vodafone Qatar. QCB provides a regulatory sandbox framework for enabling financial institutions and FinTech players to experiment with innovative financial products or services in a live environment but within a well-defined space and duration.

Such collaborations have started taking place in Qatar, which is a good indication of maturing financial services in the country. They recently collaborated with Qatar Post to launch a fully integrated postal delivery, POS, that allows customers to make cashless payments when receiving parcels and other items by mail. As these collaborations increase, the reach of FinTech services is expected to expand further. The forces promoting the FinTech sector development in Qatar are four: access to opportunities, favorable regulation, access to talent, and access to capital. The sector is linked and driven by access to consumer adoption of e-commerce and online transactions, which are expected to further accelerate in Qatar, both in banking and e-commerce generally, thanks to a rise in online shopping, mobile internet market penetration, and the use of digital banking services. Qatar is preparing to tap this immense opportunity by utilizing emerging technologies to improve speed, efficiency, and the overall customer experience.

E-COMMERCE

The entrepreneurial ecosystem in Qatar is highly competitive, with increasing online internet transactions and a flood of all types of e-commerce by national and international companies (Haron, 2016). This sector overlaps with others since it relies on internal and external computer-connected networks such as the internet, the transfer of purchase orders to suppliers via electronic data interchange, the use of telephone and fax to perform transactions, the usage of ATMs, wireless, networks, and smart cards to enable payment and gain digital cash. ICT penetration in all facets of life over the last years has positioned Qatar to realize favorable social and economic returns from growth in e-commerce. Qatar already has many critical ingredients conducive to a good e-commerce environment; for example, a population with high disposable income levels, a robust and secure ICT infrastructure, and a highly connected society (MCIT, 2017).

The increasing interest of entrepreneurs, intersectoral operations, and the QNV 2030 objectives make e-commerce a strategic sector. The country's e-commerce program objectives and road map have been compiled through a thorough process involving local, regional, and international businesses with a significant interest in Qatari e-commerce, from product and service creation to online purchasing, order fulfillment, and delivery. The MCIT has designed an e-commerce framework to facilitate, execute, plan, and drive the e-commerce sector and, consequently, the economy towards a smart nation. Within this framework, one of the pillars to facilitate the growth of the e-commerce sector growth is funding and incubation, explaining why most of the available programs from different entities are supporting projects in this sector, including industry participation from companies like Ooredoo Qatar, Microsoft, Qatar Airways, Qatar Insurance Company, etc.

Methodology

This study was designed using a triangulation method to combine the different data collection techniques to increase the validity and reliability of the results (Mathison, 1988). The data collection incorporated multiple data sources, starting with secondary sources and then collecting primary data through interviews with key informants, mainly start-up founders and key stakeholders, a technique previously used in studies of critical players in entrepreneurial ecosystems (Patton, 1999; Germain et al., 2022). Based on the argument that "a sustainable entrepreneurial ecosystem focuses on sustainable development and how entrepreneurs can work to achieve innovative, risky, and profitable entrepreneurial activity" (Aliabadi et al., 2022), 20 Qatari founders were selected for interviews from different strategic technology sectors and 17 additional interviews were conducted with key informants with relevant experience in the entrepreneurial ecosystem. As shown in **Table 1**, our empirical study consisted of 37 in-depth interviews conducted between August 2020 and June 2022. The interviews were recorded, lasting, on average, 52 minutes each. Supplementing the primary data collection, secondary sources were consulted via document analysis (reports, press articles, websites, blogs, etc.) and non-participative observation (meetings, workshops, networking events, demo days from incubators, and site visits).

ENTREPRENEURS' LEVEL (*Total interviews* = 20)	KEY INFORMANTS' LEVEL (*Total interviews* = 17)
Main economic activity	**Main professional activity**
• Digital Marketing (n = 1) • e-Commerce (n = 2) • Financial Technologies (n = 5) • Food Delivery (n = 1) • Health Technologies (n = 2) • ICT services (n = 5) • Logistic Technologies (n = 1) • Manufacturing (n = 1) • Sports Technologies (n = 2)	• Incubation Manager (n = 7) • Researcher (n = 2) • Corporate Lawyer (n = 2) • Consultant (n = 3) • Investor (n = 1) • Knowledge Transfer (n = 1) • Academic (n = 1)

Table 1 *Distribution of Interviews*

All those interviewed were selected based on three main criteria: (1) they have resided in Qatar in the last four years or more (considering the COVID-19 pandemic), (2) they are directly involved with the implementation or management of technologies, and (3) they are recognized subject experts in their field locally and internationally. The heterogeneity of the sample allows for gaining insights and generating results through the triangulation of the responses from participants with different perspectives. The multiple-perspective triangulation minimizes the individual perspective and researcher biases and enhances the validity of the results (Theodoraki et al., 2017).

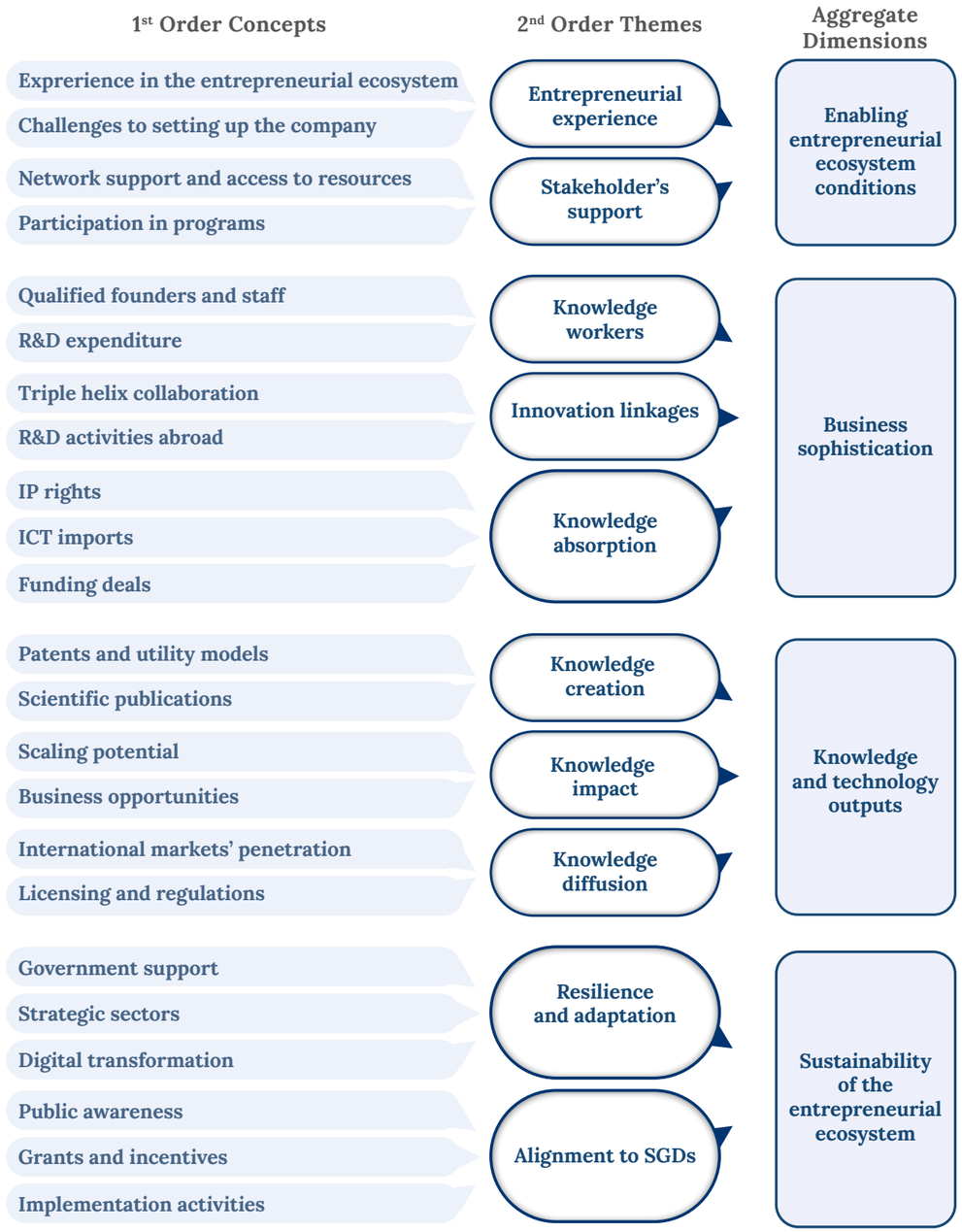


Figure 2
Data structure and research design. SDGs = Sustainable Development Goals.

• *Analysis of the case study data*

The interviews were transcribed and coded into nodes and themes. As argued before, based on the GII, the business sophistication and knowledge and technology outputs are the weakest performings in Qatar, so these were incorporated into the research design. In addition, participants were asked to elaborate on their perceptions of the extent of the entrepreneurial ecosystem's enabling conditions, familiarity, and integration of sustainability efforts. It was essential to begin with first-order concepts to introduce the interview's inductive approach. The challenge was to make judgment calls and choose the theme that most closely corresponded with the node. **Figure 2** illustrates the progression of the interviews from the first-order questions to second-order themes to aggregate dimensions. The methodology has been used in qualitative studies to understand key entrepreneurial ecosystem players (Gioia et al., 2013; Germain et al., 2022).

Enabling entrepreneurial ecosystem conditions

Overall, Qatar's entrepreneurial ecosystem configuration is rapidly evolving, adjusting to fast and notable changes with the historical succession of events happening in the country, including the commercial blockade, the COVID-19 pandemic, and the FIFA World Cup 2022. The government has significant involvement in shaping the entrepreneurial ecosystem in the capital, Doha.

> ***"There is a willingness to expand the outputs in the form of new businesses, develop existing ones, and become a regional hub for research and development activities"***

At the same time, there is a willingness to expand the outputs in the form of new businesses, develop existing ones, and become a regional hub for research and development activities. Several stakeholders are leading initiatives to integrate additional connections from different levels (government, industry, and academia) to different sizes (micro, small, and medium enterprises or beyond). However, government intervention has areas of opportunity.

On the one hand, the subsidies, tax incentives, available grants, and benefits offered by different entities, including government incubation programs, are attractive. But on the other hand, the regulations and legal framework are restrictive for certain groups, bureaucratic, and with criteria that are not easy to meet. One respondent added to this point:

"We are in a discovery phase because I think there was a change that happened to the ministry just five years ago. Yes, not a long time. So, they are trying to do a lot of changes on the regulations and the laws, but it's very slow, and it's not supporting the ecosystem. I hope either they go faster, or they need to have a massive change on a lot of things. Then as I said, there are many good things happening, but when it comes to the regulations, QDB is doing a lot of stuff. But the reality is not about QDB; it's about the law, it's about the regulations, it's about the Ministry of Commerce and Industry." (Qatari Expert and Entrepreneur, Interview, 2022).

Paradoxically, besides tax incentives, access to other perks and government support is not available for founding teams without a Qatari partner. Commercial registration has changed, and more options to register as a wholly foreign-owned company are available through the free zones. Nevertheless, many programs, funding, and business opportunities are favorably granted to Qatari companies. This systemic contradiction draws barriers to other segments of the population navigating the existing entrepreneurial ecosystem conditions. A Fintech entrepreneur mentioned the following:

"The criteria are not easy to meet in FinTech, there isn't clear regulation, and as a FinTech [entity], you need support from a bank, but at the same time, if you don't have a Qatari partner, you don't get it, since the banks are Qatari-owned mostly." (Expatriate Entrepreneur, Interview, 2022).

Protectionism is evident in the public sector, so new initiatives are emerging from the private sector, such as venture building studios, incubators disguised as consultancies, co-working spaces with community events, hackathons, etc. Still, the legal procedures must be done at government entities to operate with the needed commercial registration, licenses, permissions, etc. Therefore, even if it is possible to be a wholly foreign-owned company in Qatar, many expatriates opt to have Qatari partners to overcome the challenges of the entrepreneurial ecosystem configuration. This common practice has a cost of opportunity, as founders are giving away equity in the business with the expectation of gaining greater network access and future opportunities to secure funding, mentorship, and business deals.

For Qatari citizens, the typical model of being an entrepreneur is passive. While they occupy secured, full-time jobs, mainly in the public sector, the business is a side hustle to add an extra income (Ben Hassen, 2020). For an expatriate, the immigration policies require that they self-sponsor their visa or only work on the new business part-time once they obtain approval from the current sponsor. Being unemployed in Qatar as an expatriate means leaving the country. Meanwhile, for Qatari entrepreneurs, between QDB and the Ministry of Administrative Development, Labor and Social Affairs, the Entrepreneurship Leave Program gives talented Qatari nationals the opportunity and support to develop and work full-time on their business by taking a career break on the condition of devoting themselves full-time to growing their businesses.

Consequently, many Qatari citizens are doing business and working in good positions in different sectors. A partnership between an expatriate and a citizen could be very beneficial considering the access to resources and personal networks in the business community. However, the fear of failure, cultural perceptions, and beliefs are among the main constraints to pursuing an entrepreneurial career for all population groups. A full-time Qatari entrepreneur mentioned:

"So basically, if we zoom out, there is no one simple reason that will let me become an entrepreneur as a Qatari, educated with a master's degree, as you mentioned, a minority in the community. Basically, my options and opportunities to join any job are way better off than starting my own business. And specifically, if I'm not from a family who inherited a business, so it's a different case. So basically, you might find the local category of highly educated, highly performed competent, but they will focus on developing their career. Some of them, they do have this path, but at the same time, they do have a family business, you see, like, there is an inherited family business. And some cases, okay, there was no family business, it's a little bit harder, even as you see what I mean, you haven't seen exactly results you don't have, you don't have the proper network the resources to get to jumpstart anything." (Qatari Entrepreneur, Interview, 2021).

Business sophistication

Business sophistication has been highlighted before as Qatar's weakest performing pillar in the 2021 GII. Several entities are working to increase business sophistication, again with decisive government intervention, including QRDI, the Ministry of Commerce and Industry (MOCI), MCIT, and HMC, but also the private sector through collaboration with companies like Ooredoo Qatar, Kahramaa, Milaha, Vodafone Qatar, Qatar Insurance Company (QIC), Microsoft Qatar, Shell, Atos, and from academia, research centers and offices at QU, Doha Institute for Science and Technology, and QF members. By the end of 2021, QRDI had launched a portal that offers a unique opportunity for researchers and innovators to browse thousands of assets and leverage shared resources. Leading institutions in Qatar can reach a wider audience by showcasing their world-class infrastructure and collaborating with emerging talent, government, private businesses, and others. Information is available on facilities, equipment, and services available in Qatar from at least 20 entities registered so far.

QF, by itself, has been working for more than a decade on building an ecosystem supportive of RDI. Considered a non-governmental organization (even though it was founded by the Father Amir and Her Highness Sheikha Moza bint Nasser), QF is focused on placing Qatar at the forefront of scientific research and technological advancement, addressing national needs while generating global impact. A centerpiece of this ecosystem is QSTP, which operates across four overarching themes: energy, environment, health sciences, and information and communication technologies. QSTP has been driving the development of new high-tech products and services, supporting the commercialization of market-ready technologies, and contributing to economic diversification. QSTP was also the first in Qatar to register wholly foreign-owned companies, even before the establishment of the QFZA and QFC. Besides QSTP, QF members pursue activities on the three pillars: education, research, and community, preparing qualified talent with 13 schools and eight universities, producing knowledge through 13 research entities, and connecting the community with 21 initiatives. It has an Industry Development and Knowledge Transfer (IDKT) office to help researchers, companies, and entrepreneurs turn QF technologies and discoveries into market-ready innovations that achieve commercial success while enhancing economic prosperity and societal well-being.

Among the public higher education institutions contributing to this aspect, the most prominent are QU, the University of Doha for Science and Technology, Community College of Qatar, Qatar Finance and Business Academy, and Qatar Leadership Center. QU, as the biggest, offers degrees across 11 colleges of different disciplines and has around ten research centers. The support for education in Qatar is remarkable and characterized by the presence of international universities, private and public. Nevertheless, the entrepreneurs interviewed struggle to find talent either as employees or co-founders. One respondent pointed out several areas for improvement:

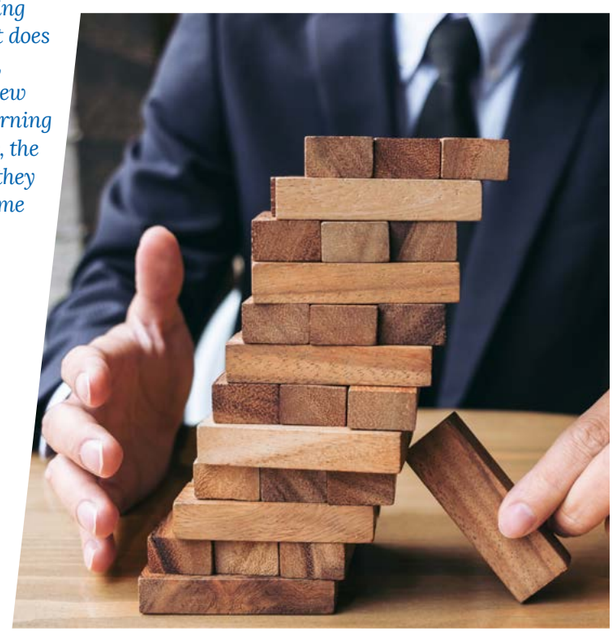
"The people are the most painful. Well, I think this is the most painful process, having the right talent. The skilled talent is not an easy job. Being able to afford good talent is not an easy task. Having the right talent to be aligned with an evolving company and a start-up mood is the right piece as well. You see what I mean? So, most of the talent, for example, if I would like highly competent, well established talents, they are much more familiar with dealing with big organizations. Yeah, consultancy big firms. And these companies, as you know, they come in with their policies set with their procedures set. So, they empower the individual to perform to their peak. But with local start-ups in this domain, there is a lot to be built before reaching your peak performance in terms of having all the tools we see." (Entrepreneur, Interview, 2021).

Ben Hassen (2020) also found that in Qatar's ICT sector, human capital is the first barrier affecting start-ups because of the deficiency in human resources and the mismatch between the skills required by the industry and those provided by the education system. These findings point to the urgency to incorporate entrepreneurial education in schools and universities, despite the field of study, since entrepreneurship is multidisciplinary by nature. In addition, the results show a systematic gap in developing innovations and technology in Qatar due to the market size and challenges they will face in scaling the business outside Qatar. Recruiting talent is difficult and expensive, and the market is small, so start-ups will need to internationalize eventually to keep growing. At the same time, there is still a culture of protectionism among GCC countries, so many start-ups based in other countries also add barriers to accessing venture capital. Qatar is the second smallest GCC country in terms of land area and population, just after Bahrain. Still, Doha is the second most expensive city in the Middle East region for living, after Dubai in the UAE. An expatriate entrepreneur born in Qatar mentioned:

"Qatar is not so accepting of new innovations when they come to market when it comes to fostering them. When it comes to adopting those technologies in the local market, it does take time. Whereas if you see in Europe, they're much more likely to adapt to a new technology. But the ecosystem is still learning to adapt to new technologies. So, I think, the market is hard for a start-up. Maybe if they do target outside [markets] and then come back to Qatar, they might have a better chance and actually, you know, getting the benefit out of the country's market." (Expatriate Entrepreneur, Interview, 2021).

Furthermore, some business models tested in Western cultures have not been introduced in Qatar. It seems to be a boom for start-ups to replicate instead of developing innovations and technologies. It is not entirely wrong; there is room to import technologies and adjust the business models to the local market. However, understanding that market research and execution are fundamental to success, and with low barriers to competition, they can face scaling issues and constraints to access funding. On this topic, several respondents declared having development teams operating in different countries due to Qatar's high cost of living and sponsorship restrictions. Others said to have purchased or entered licensing agreements for existing technologies abroad. One expatriate entrepreneur added to this point:

"I said, you know, I'd like to develop this technology but it's expensive. I don't want to invest to bring people here. It's expensive! That's when QSTP took us up. They have a new program called the Product Development Fund. Yes. Which is one of the best programs they have in the country. It's a grant. It's a matching grant. I put money; they match. It's amazing! It's a grant, that means there's no equity is that alone. The grant did a lot to me, has a lot to do with the product. So now we had our first product development team in [abroad]. Okay. I mean, I had my product manager but your founders [expatriates], okay, no problem. We hire people bring them here. Guess what? Can't get them visas. Yeah. So, there's a problem. What do I do? I opened the company in [abroad]."



Knowledge and technology outputs

The knowledge and technology outputs are closely related to the volume of scientific production in the forms of patents, utility models, and publications. Nevertheless, this scientific production comes not only from the business but from applied research from different fields of study that can be exploited for commercialization. This has been the focus of knowledge transfer offices such as QF's IDKT and QU's Innovation and Intellectual Property office. Additionally, the QRDI council plays a significant role in regulating and supporting these innovation activities. At the same time, Qatar National Research Fund (QNRF) provides access to finance for research-based projects in priority areas and different themes seeking to promote interinstitutional collaborations. Still, the number of tech-based start-ups exploiting Qatar patents and innovations remains low. An expert on this subject declared the following:

"I believe, I have been working and knowledge transfer or ticket transfer type of activities since 2011. So, almost 10 years ago, of course, at that stage, things like even in our fieldwork was not mature, what we had, at that stage, we didn't have like intellectual property, even policy and the condition where it says, You have to protect you know, research results, in order, you know, we see its protection is the first step towards commercialization and getting it you know, to the private sector." (Expert, Interview, 2021).

In the last decade, there has been a remarkable transformation due to more significant investment and alignment by institutions with the QNV 2030 to advance a knowledge-based economy. However, the impact on knowledge creation remains questionable as one of the pillars measured in the GII. This pillar considers patents, utility models, scientific and technical articles, and citable documents. Consequently, it requires investment to attract talent, grow this knowledge base, and exploit it. In the early stages, there are programs such as QSTP's "Research to Startup", which was created to provide a complementary pathway to commercialize IP and launch new tech start-ups. One Qatari respondent pointed out this:

"We'll assume that the investment in the country is particular for research and development, and there is a lot of investment there. So, the proper investment in technology transfer, it's hard to get the materials. And this is one of the issues we are facing when it comes to the innovation index for the country. You know, because of the lack of patience, in registering the Qatari patent, you know, it's somehow the investment is not captured in the international index of the country." (Expert, Interview, 2021).

Among the many factors that influence entrepreneurial success is the ability to raise funding to scale the operations faster and increase revenues and market penetration. In fact, scaling a start-up is directly linked to internationalization to increase the company's global presence and validate the replicability of the business model, conditions very much appreciated by venture capital investors. As previously noted, Qatar is the second smallest country in the GCC after Bahrain but has one of the highest GDPs per capita. It is also almost a one-city country; Doha, the central metropolitan area, and its surroundings can be crossed in less than 30 minutes. This proximity between businesses, government agencies, housing, and services facilitates the

development of business opportunities. Still, in truth, by numbers, the population of 2.5 million is a small market that can be rapidly covered compared with other countries. International expansion becomes an output to keep growing. For internationalization, there are two ways: direct and indirect. Many start-ups opt for the direct route by opening branches in other GCC countries and operating themselves, but an alternative could be through IP licensing. An entrepreneur born in the region added the following:

"Look, anybody who's not come on [plan to go international]. I mean, there is such a small market, right? So, anybody who does not have a model, or does not have ambitions to like, you know, grow into other markets, I think, I don't know. Why would any investor want to come and invest in there, right? So funnily enough, actually, the idea was never to go to [abroad countries]. The target was always Saudi Arabia. And then we had meetings in Saudi. So then, you know, I got my visa to Saudi and design, and then the blockade happened. So, there was a lot of work that was actually done in the Saudi Arabia direction, and then the vendor blockade happened that was like, okay. Now, what do you do? So that was the big of a setback. And then it just made sense that you know, what the issue of trying to go up to different countries and different organizations and stuff. Let's go towards the friendly country. So, then that's why [countries abroad], were really the only other option if you wanted to expand regionally." (Entrepreneur, Interview, 2022).

Business competition is low in Qatar, but with the commercial blockade imposed by GCC neighbors in 2017, the barriers to entry to foreign competitors were raised significantly. Qatar invested in developing many industries locally, and some sectors are characterized by predominantly Qatari ownership. For years, there were many business opportunities in traditional goods manufacturing, real estate, food and beverages, poultry, and agriculture. Very few ventures were developing new technologies. Instead, they were bringing them from abroad for fast implementation and overcoming the challenges to cover domestic demand. These businesses became SMEs and even big corporations, showing high growth rates in short periods. With the blockade ending in 2021, the barriers for external players are now lowering, and the international competitiveness of Qatari companies might have significant areas of opportunity to improve and scale to other markets. An entrepreneur born and raised in Qatar added:

"See, when it comes to start-ups, I think another definition of start-ups is growth. If you don't have that exponential growth, then you're not a start-up, you're just another small business. And to be exponential, to have exponential growth, you always have to aim for being or entering an international market at a certain stage. Not to start off with, but at one point, he would say that I want to build a product that would solve problems around the world, not just in Qatar." (Entrepreneur, Interview, 2021).

Sustainability of the entrepreneurial ecosystem

Most of the adjustments made to the economy in response to the commercial blockade serve as determinants of a resilient country that has faced and adapted to rapid changes with a positive attitude. Government support has been key to economic development by incentivizing domestic and foreign investments to grow strategic sectors. Additionally, the QNV 2030 incorporates human, social, economic, and environmental development pillars to transform Qatar into an advanced economy capable of sustaining its development and providing high standards of living. After the national vision was introduced in 2008, on December 2, 2010, FIFA announced that Qatar would host the FIFA World Cup 2022, bringing the world's most prestigious tournament to the Middle East for the first time in the tournament's 92-year history. The following 12 years would be marked in the country's history as a time of accelerated growth and infrastructure development. Consequently, the commercial blockade imposed in the middle of this journey, surprisingly, was considered a positive factor for the development of local industries. An entrepreneur born and raised in Qatar mentioned in one of the interviews:

"It definitely did affect in a good way [the commercial blockade]. I gave an interview as well regarding this specific thing. There is something called 'Made in Qatar', and it did kind of boost everyone's morale, that we want to be self-sustaining. We don't want to make a mark. So, there was a really positive energy to get in now in a negative sense. Because we were used to a certain lifestyle until 2017. Yeah. But 2017 was definitely a change. Definitely, like a huge change. When it comes to the products that we are eating daily. Yeah, but everyone is in such a such a positive way. And I mean, it's so visible. Now you see that. Qatar has most of its products of its own." (Entrepreneur, Interview, 2021).

Paradoxically, the QNV 2030 is part of the national culture, everyone speaks about it, and entities develop their institutional missions to contribute to its goals. Some entrepreneurs declared they were unclear about what it means to incorporate the QNV 2030 into the company objectives. Most expatriate entrepreneurs also showed a lower priority to changing operations or shaping the business model to contribute to this vision. In contrast, Qatari entrepreneurs showed higher patriotism and conciliation with the country's vision. Furthermore, the implications of the QNV 2030 for operations and the consensus to work on having sustainable development in the ecosystem are more notable in public than in the private sector. As mentioned in one of the Qatari expert interviews:

"I think we strongly support the 2030 vision, which is very important and a priority. And the way we support that is one of them from the development and educational aspect, where I know we're developing the skills for people to be able to utilize the technology and use their knowledge to build something with value. Yes. So, it all falls under the knowledge-based economy. So, part of it is really supporting the youth and the young generation and developing their skills to contribute to the knowledge-based economy. The second aspect is our know-how on what we develop, an illustration how we are contributing and developing something new for the different sectors. And how is this related to the knowledge base economy to the sustainability to assure the stability of the nation. And from these, these drivers, and these contributions, we can see that there is a huge alignment between them and between the sustainable goals and objectives in terms of how you can tweak every position on things that meets sustainable goal, because on the higher level, I think these are to a certain extent, aligned. So, if we are supporting the national vision, by high chance we are supporting some of the Sustainable Development Goals and all of that." (Expert, Interview, 2021).

Discussion and Implications

This study shows that there are four dimensions to consider in the development of a sustainable entrepreneurial ecosystem:

(1) To have enabling entrepreneurial ecosystem conditions.
(2) To increase the business sophistication.
(3) To increase the knowledge and technology outputs.
(4) To align the efforts and adapt toward the sustainability of the entrepreneurial ecosystem.

In the first dimension, the findings suggest significant gaps in the regulatory and legal environment to establish and operate businesses, with less friendly support for expatriates. At the same time, we found a considerable government intervention in industrial development and ICTs, but with fewer outputs from ICTs, and more resources available for Qatari citizens than residents. Finally, the socioeconomic gaps and demographics present barriers to pursuing entrepreneurial careers for the more educated and stable population groups.

In the second dimension, the findings show an opportunity to increase the triple helix collaboration (government, industry, and academia) to attract more talent and train more people. In this dimension, conducting more R&D with national and international partners is essential. The entrepreneurs have agreed that for some activities, it is better to conduct them abroad due to the higher living costs in Qatar or to import existing technologies with IP agreements and contracts. The local experience has shown that start-ups with more solid IP rights can raise funding for their operations.

In the third dimension, the entrepreneurial ecosystem must work closer and incorporate highly skilled workers and researchers to produce more knowledge that can later be commercialized. The knowledge transfer offices, research funds, and open innovation programs are already increasing their role in the ecosystem, but academia and industry must enhance this aspect. Many government initiatives are pushing to increase this dimension.

Finally, in the fourth dimension, the country has been experiencing major socioeconomic changes in the last 15 years. After the global economic crisis, it established the QNV 2030, then was awarded the hosting of the FIFA World Cup 2022. Amid preparations for the event, the country passed through a commercial blockade and a pandemic and expects to host the Asian Games in 2030. As a country with a growing population, extensive infrastructure development, and limited natural resources, it is incumbent on Qatar to be strategic to achieve sustainable development. Consequently, many initiatives and campaigns aim at greater awareness and alignment with sustainability goals. The findings of this study also allow for a discussion of the practical implications.

Government support has undoubtedly been key to growing the economy and developing the ecosystem. Still, in terms of innovation, these findings point to the root of overcoming the challenges that will drive growth to higher levels. Some restrictions, such as the market size, cultural traits, and experience in developing knowledge, could be challenging to solve. Others could be addressed in short to medium terms, such as softening regulations and legal frameworks, requirements to participate in public programs, government expenditure on R&D, knowledge transfer, access to funding, and support for internationalization. According to Mohtar (2018), investment in R&D is a prerequisite for creating such a culture of innovation in Qatar, but it is insufficient.

Conclusions and Limitations

This study was designed to incorporate different perspectives from different sectors and areas of expertise related to technology development. However, the sample selection followed a snowball effect, contemplating the sample criteria and relying on interviewees' recommendations. The triangulation method helped to reduce bias in the interpretation and increase the reliability of the findings. Nevertheless, some qualitative interpretations can be derived from the authors' experiences. This study also contributes to the GCC and entrepreneurial ecosystems literature by studying its sustainability.

Future research studies should contemplate the performance of the dimensions and confirmatory analysis with mixed or quantitative methods. From the time the data collection commenced until completion, some conditions might have changed, new stakeholders could have emerged, and regulations could have changed. A recommendation for future research in this field is to analyze the policy mix's impact on innovation and entrepreneurship activities.

References

Aliabadi, V., Ataei, P., and Gholamrezai, S. (2022). Identification of the relationships among the indicators of sustainable entrepreneurial ecosystems in agricultural start-ups. *Journal of Innovation & Knowledge*, 7. https://doi.org/10.1016/j.jik,2022.100245

Amara, M., and Ishac, W. (2022). Sport and development in Qatar: international and regional dynamics of sport mega-events. Sport and Development in Emerging Nations. Available at https://ebrary.net/178915/education/sport_development_qatar_international_regional_dynamics_sport_mega_events#443207

Ben Hassen, T. (2020). The entrepreneurship ecosystem in the ICT sector in Qatar: local advantages and constraints. *Journal of Small Business and Enterprise Development*, 27(2), 177-195. https://doi.org/10.1108/JSBED-04-2019-0119

Ben Hassen, T. (2022). A Transformative State in the Wake of COVID-19: What Is Needed to Enable Innovation, Entrepreneurship, and Education in Qatar? *Sustainability*, 14, 7953. https://doi.org/10.3390/su14137953

Binz, C., and Truffer, B. (2017). Global Innovation Systems - A conceptual framework for innovation dynamics in transnational contexts. *Research Policy*, 46(7), 1284-1298. https://doi.org/10.1016/j.respol.2017.05.012

Corpataux, J., Crevoisier, O., and Theurillat, T. (2009). The expansion of the finance industry and its impact on the economy: a territorial approach based on Swiss pension funds. *Economic Geography*, 85(3), 313-334. https://doi.org/10.1111/j.1944-8287.2009.01035.x

De Bernardi, P., and Azucar, D. (2020). *Innovation and Entrepreneurial Ecosystems: Structure, Boundaries, and Dynamics*. In: Innovation in Food Ecosystems. Contributions to Management Science. Springer, Cham. https://doi.org/10.1007/978-3-030-33502-1_3

Faghih, N., and Sarfaraz, L. (2014). Dynamics of innovation in Qatar and its transition to knowledge-based economy: Relative strengths and weaknesses, *QScience Connect*, 23. http://dx.doi.org/10.5339/connect.2014.23

GEM (Global Entrepreneurship Monitor) (2022). *Global Entrepreneurship Monitor 2021/2022 Global Report: Opportunity Amid Disruption*. London: GEM.

Germain, E., Klofsten, M., Löfsten, H., and Mian, S. (2022). Science parks as key players in entrepreneurial ecosystems. *R&D Management*, In Press.

Gioiam D.A., Corley, K. G., and Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15-31.

Haron, A. (2016). E-Commerce Innovations Customer Perceptions in Qatar. International Journal of Economics & Management Sciences, 5(1). https://doi.org/10.4172/2162-6359.1000310

Liu, J., Scanlon, B. R., Zhuang, J., and Varis, O. (2020). Food-Energy-Water Nexus for Multi-scale Sustainable Development. *Resources, Conservation & Recycling*, 154, 104565. https://doi.org/10.1016/j.resconrec.2019.104565

Mathison, S. (1988). Why triangulate? *Educational Researcher*, 17(2), 13-17.

MCIT (Ministry of Communications and Information Technology) (2017). Qatar National e-Commerce Roadmap. Qatar's eCommerce Portal. Available at https://ecommerce.gov.qa/wp-content/uploads/2019/06/ecommerce-2017-en-compressed.pdf

Mohtar, R. H. (2018). Opportunities and Challenges for Innovations in Qatar. *The Muslim World*, https://doi.org/10.1111/muwo.12079

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research*, 34(5), 1189-1208.

QFZ (Qatar Free Zones Authority) (2021). Advanced Mobility. Qatar. Available at https://qfz.gov.qa/wp-content/uploads/2021/08/QFZA-Advanced-Mobility-Booklet_v6-1.pdf

Theodoraki, C., Messeghem, K., and Rice, M. P. (2017). A social capital approach to the development of sustainable entrepreneurial ecosystems: an exploratory study. *Small Business Economics*, 51, 153-170. https://doi.org/10.1007/s11187-017-9924-0

Villegas-Mateos, A. (2021). *Qatar's Entrepreneurial Ecosystem - 2021 Edition: Empowering the Transformation*. HEC Paris: Doha, Qatar. https://doi.org/10.5281/zenodo.4719075

WIPO (2021). *Global Innovation Index 2021: Tracking. Innovation through the COVID-19 Crisis*. Geneva: World Intellectual Property Organization.

Yuan, M., and Lo, S. (2020). Ecosystem services and sustainable development: Perspectives from the food-energy-water nexus. *Ecosystem Services*, 46, 101207. https://doi.org/10.1016/j.ecoser.2020.101217

CHAPTER 4

Assessing Entrepreneurship Education Effectiveness: A Study of Business Incubation Programs

Maryam Al-Khalaf

Abstract

Previous chapters examined the entrepreneurial journey and the three stages (idea, launch, and growth). At the idea stage, entrepreneurial education - formal and informal - appears to play a vital role in generating an entrepreneurial culture. Informal programs, often known as entrepreneurial training, are non-degree or extracurricular programs in which teachers are skilled coaches, executives, managers, or faculty. Formal entrepreneurship education, in contrast, consists of undergraduate or graduate degree programs in the form of minors or majors. This chapter suggests that informal entrepreneurship education and training improve the investment readiness of business founders or budding entrepreneurs in Qatar. The study follows a mixed method, collecting data from 55 start-up founders incubated by several business incubators in Qatar, with the aim of better understanding the effectiveness of informal entrepreneurship training and education. The findings suggest that such entrepreneurship education and training benefits Qatar-based entrepreneurs. For those with non-business degrees or backgrounds, it may help them shape and validate their business models. In addition, certain aspects of entrepreneurship education training programs, such as content, teaching style, and the learning environment, proved effective in promoting training effectiveness. The findings guide incubation program managers and up-and-coming entrepreneurs in Qatar to understand their options. The study was limited in access to incubated start-ups from some organizations.

Keywords *Entrepreneurship Training, Education, Culture, Incubation, Effectiveness.*

Introduction

Entrepreneurship has many definitions, one of which is a "dynamic process of vision, change and creation requiring an application of energy and passion towards the creation and implementation of new ideas and creative solutions" (Raposo and Paco, 2011: 454). For others, entrepreneurship means the creation of new businesses and a method to drive the development and sustainability of a country's economy (Greene et al., 2015). Education is one of the fundamental factors that help to nourish entrepreneurship, as it offers theories and guidelines that entrepreneurs can use when they need them. From there, the term "Entrepreneurship Education" (EE) emerged. While there is no widely accepted definition of this term, the author has chosen to follow Greene and co-authors (2015: 6) in defining EE as "a method whereby students (of all types) practice creating, finding, and acting on opportunities of creating value."

Moreover, EE provides students with a sense of autonomy and self-confidence. It equips them with the knowledge needed to develop new entrepreneurial opportunities with the right entrepreneurial mindset (Raposo and Paco, 2011). The reason for choosing these two definitions in combination is that together they cover all the important terms presented in the literature to describe EE, such as creating value, autonomy, self-confidence, and an entrepreneurial mindset. However, one of the downsides of the existing literature on this topic is that it fails to set a single worldwide definition of what EE is (Tok and Al-Fadala, 2021). EE has grown dramatically over the past decades, from 600 universities worldwide offering entrepreneurship courses in 1986 to more than 2,600 universities offering more than 5,000 courses today (Greene et al., 2015). These figures demonstrate that this type of education is becoming increasingly important globally.

EE has grown in the region, especially in the Gulf States, to stimulate entrepreneurship and increase the number of entrepreneurs. These countries aim to diversify economies currently heavily reliant on exporting oil for their income and wealth. Qatar is no exception, as it has focused on entrepreneurship and education to support the achievement of Qatar National Vision 2030 (QNV 2030), which was launched to serve as a clear roadmap for Qatar's future and provide helpful guidelines for citizens and residents of the country in many areas. To advance the national vision's economic pillar, the government supports "A knowledge-based economy characterized by innovation; entrepreneurship; excellence in education; a world-class infrastructural backbone; the efficient delivery of public services; and transparent and accountable government" (General Secretariat for Development Planning, 2008: 29).

The educational aspect of the human development pillar explicitly recommends having a "national network of formal and non-formal educational programs that equip Qatari children and youth with the skills and motivation to contribute to society" (General Secretariat for Development Planning, 2008: 16). From this it can be concluded that EE is an important topic for Qatar in its drive to build a solid economy for the future as well as empowering young people to contribute to the economy. This stems from a widely accepted notion that entrepreneurship helps a country's growth; by innovating and seizing opportunities, entrepreneurs can bring local economic growth and competitiveness to a country (OECD, 2021).

According to Tok and Al-Fadala (2021: 13), “Entrepreneurship plays a vital role in the economic growth of a nation. It creates employment opportunities and encourages technological innovation that stimulates development. Therefore, it means that entrepreneurs often serve as the agents of change.” Moreover, “Entrepreneurship Education comes from the acknowledgment that entrepreneurship development requires specific knowledge, capacities, competencies, and skills for which peculiar education is needed” (Tok and Al-Fadala, 2021: 55).

Despite the growth of formal and informal types of EE in Qatar and the presence of several incubation centers in the country, a long-standing issue is how to evaluate the impact or effectiveness of their programs on entrepreneurs and newly emerged start-ups. Incubation centers need to “define and assess an array of learning outcomes to understand better the impact of entrepreneurship education”, which requires creating various metrics and assessing the impact across multiple institutions (Greene et al., 2015: 8). The main challenge is the absence of a mandatory or regulated evaluation of the short- or long-term impact of EE in Qatar, with the potential for such education to be a waste of the country’s financial and human capital resources. If there is no clear strategy to assess the effectiveness of these programs at the country level, their organizers will not have guidelines on how to develop them in the future. Moreover, there is little guidance on how to support these programs and the policies to be adopted. Yet there is likely to be no “one-size-fits-all” strategy to evaluate the effectiveness of EE programs, as they vary in their objectives and content (Hytti and Kuopusjärvi, 2004).

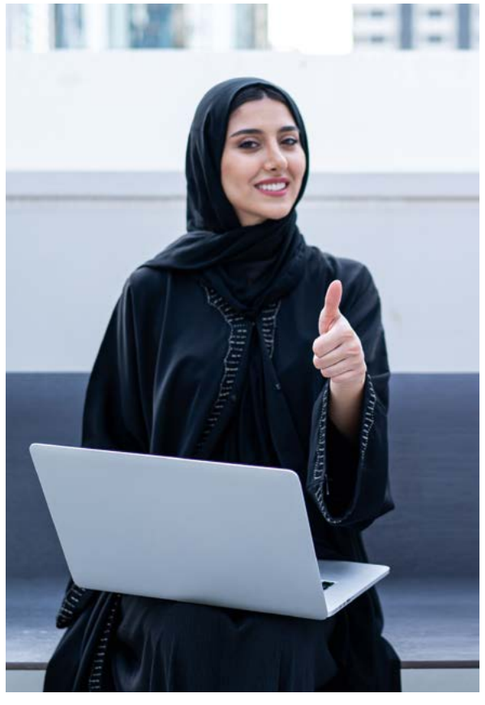
Limitations of the Literature

The difficulty of evaluating training programs is one of the most pressing issues that the literature has not yet solved (Henry et al., 2005). For instance, there is a continuous debate over which methodological approach to evaluation is the most appropriate, and there are no standard evaluation criteria for determining the effectiveness of programs (Henry et al., 2005). This issue is presented by scholars and researchers, further complicating the long-standing debate about whether entrepreneurship can be taught. Fayolle (2013) argues that EE needs to combine knowledge from the field of general education, which is not the case in the existing literature. He suggests that such a connection could help address several issues, such as understanding the best method by which individuals can learn through applying education theories, concepts, and practices that will eventually lead to a better evaluation of the training programs. Dickson et al. (2008) highlight a similar issue with the existing literature and research limitations and the absence of linkages between general education, and entrepreneurial activity, education, and outcomes. This might be a promising area to explore in future research. Dickson and his colleagues believe that, in the field of EE, there is a lack of consensus on the definition of terms and a lack of clarity about outcome measures, making it difficult to conclude.

Liu et al. (2020) raise the issue of the unavailability of multi-indicator or comprehensive studies on the effectiveness of training programs and the fact that tools and scales used in specific studies may not apply to different conditions, groups, or geographical areas. Research on EE also suffers from the lack of a unified framework for comparing the effectiveness of this type of education across regions, cultures, universities, and training centers.

Finally, the OECD (2009) makes the point that as EE programs all have different characteristics and are delivered in other contexts, any attempt to generalize the findings of a single study should be treated with caution. Ahmed et al. (2020) note that the lack of a longitudinal study in the field offers a possible area for future research. Sanchez (2011) takes this point further and argues for a longitudinal study to examine the impact of entrepreneurial competencies’ education on the intent to set up a business in the medium to long term.

This chapter will focus on applying a suitable framework to evaluate the effectiveness of EE training programs. It will also explore the most impactful factors in EE training programs and test their relationship with training effectiveness.



Types of Entrepreneurship Education

EE is a general term that includes many types, which is explained in this section before selecting one type analyzed throughout the study. First, it is important to understand that EE can be taught from primary to undergraduate and post-university levels. Therefore, there is a distinction between school education and university education. According to the Global Entrepreneurship Monitor (GEM), a group of international teams that research entrepreneurship around the world, there are two distinct sub-criteria for EE: 1) primary and secondary (school level) and 2) superior (vocational/professional, college or university) (Villegas-Mateos, 2021). The second main distinction is between 1) formal and 2) informal EE. The formal type of EE tends to be concentrated in academic institutions such as schools or universities and can be taught from primary to undergraduate and postgraduate levels (Ahmed et al., 2020). At the university level, EE comes in different formats, ranging from a single course to a full degree in entrepreneurship. The teaching format for this type also varies depending on the institution and the aim of the specific program, which can be delivered through lectures, seminars, case studies, or online resources (Ahmed et al., 2020). The informal type, also known as vocational or adult training, is delivered by a practitioner-oriented institution and not specifically an academic one (Villegas-Mateos, 2021).

According to Raposo and Paco (2011), there are three categories of EE:

1) education about entrepreneurship;

2) education for entrepreneurship; and

3) education through entrepreneurship.

The first category aims to raise awareness about the topic through a theoretical and content-centric approach where students can develop a broad understanding of entrepreneurship. The second category is aimed at aspiring entrepreneurs to build the skills and essential knowledge to set up their businesses. The third category is students engaging in actual experiential learning through a practice-based approach. This category is mainly (but not always) intended for established entrepreneurs who want to grow or expand their businesses. These courses usually include business management and growth training, product development, and so on (Raposo and Paco, 2011). **Table 1** summarizes the different ways of classifying EE.

Of the different types of EE explained in this section, this chapter will focus on the informal style, as the target groups are adult entrepreneurs who have already graduated from university. Of the categories mentioned above, all three are relevant to the most impactful factors of the training programs discussed in this chapter, and they might be present in any or all three.

FIRST TYPE (VILLEGAS-MATEOS, 2021)	School level (primary and secondary)	VS.	Vocational (university level and vocational)		
SECOND TYPE (AHMED ET AL., 2020)	Formal	VS.	Informal		
THIRD TYPE (RAPOSO AND PACO, 2011)	Education ABOUT Entrepreneurship	VS.	Education FOR Entrepreneurship	VS.	Education THROUGH Entrepreneurship

Table 1

Ways of Classifying the Different Types of Entrepreneurship Education

• Factors Relevant to Education and Training Effectiveness

In the literature on EE and training, three factors occur most frequently and have proven effective. These factors are content, teaching style, and learning environment.

• *Content*

Content or curriculum is an important factor and, as explained in the literature, refers to the training materials (El Hajjar and Alkhanaizi, 2018). According to McNamara (2016), selecting materials and training activities that improve participants' skills and knowledge is crucial. It is also vital to include personalized methods and interactive simulations. The main objective of using training materials is to involve participants during the activity, promote active interaction, and encourage faster learning to help maximize their understanding. These training materials usually consist of video and audio clips and hands-on tools. McNamara's point can be related to the experiential learning theory mentioned above. Content is crucial in enhancing the quality of experience among participants and should aim to optimize the experience for participants to promote training effectiveness.

Idris et al. (2020) argue that the EE curriculum must include essential elements such as developing entrepreneurial capabilities and business competition. There can also be a distinction between content for work-based and project-based learning. Work-based learning provides students with real-life experience. In contrast, project-based learning entails students acquiring knowledge and skills by working on a complex challenge, problem, or question (Idris et al., 2020).

The content of EE is also understood to be different from the scope of traditional education. According to Lackeus (2015), the content is distinguished by being individualized, active, project-centric, and experiential, in contrast to traditional education's standardized, passive, and single-subject curriculum. To summarize, researchers most frequently suggest that the content of EE should aim for student-centric, project-based, and experience-based learning. Based on the above literature, the following hypothesis was formulated:

H1: The quality of the content positively impacts training effectiveness in achieving entrepreneurial goals.

- *Teaching Style*

The second factor examined is teaching style, which depends on the coach or instructor. Many believe that the instructor's primary responsibility is to motivate the trainees and increase their desire to learn new ideas and skills to help them maximize their learning. As EE training programs vary, teaching styles vary, from lectures and seminars to case study solutions. According to Vincett and Farlow (2008), the best learning production is through hands-on experiences and learning by doing. It is also suggested that training programs should emphasize individual activities that require students to work under conditions of ambiguity and risk (Kuratko, 2003). Coaches can set or create such conditions for a specific training program. The literature also focuses on the use of new technologies by coaches and instructors and their effectiveness. Kuratko (2005) argues that to embrace 21st-century needs, educators and instructors should become more skilled in using educational technologies and expand their pedagogies to include new and innovative approaches to the teaching of EE. For instance, they could use videos to stream case studies. Likewise, to bring international life perspectives to the course and motivate participants, they could share international examples of successful entrepreneurs or ventures (Kuratko, 2005). Coaches and trainers should therefore be familiar with new trends in technology to make the experience more interesting and understandable for participants. This factor, teaching style, can be related to several theories which discuss training effectiveness.

The first one is the theory of experiential learning which has been discussed by multiple educational psychologists who have focused their studies on learning theories with an emphasis on learning by experience or learning by doing. Carl Rogers (1969) sees experiential learning as a natural way of learning in which experience is the most crucial dimension (Massari et al., 2018). Rogers explains that engaging in cognitive learning eventually leads to permanent changes in an individual's personality. He says experiential learning is a cycle that begins with experience, continues with reflection, and later leads to action, which ends up as real experience for further examination. Rogers is also said to have "laid the foundation for a non-directional pedagogy that is based on the notion that any significant knowledge derives from a learning that can only be transmitted from personal experience" (Massari et al., 2018: 15). It follows that teaching style should focus more on hands-on experience to optimize the learning outcomes for participants.

The second theory of social learning is also relevant here. It was developed by Albert Bandura (1977) based on the notion that people learn from their interactions with others in a social context. Also, by observing the behavior of others, people eventually develop the same behavior (Nabavi, 2012). The theory emphasizes that people learn by observing others they consider credible and knowledgeable. Bandura believes that the social element is also important, arguing that people learn new information and behavior by watching others. The theory has three general principles, which are:

- Observation: observing the behavior of others;
- Imitation: starting to imitate the behavior of others; and
- Modeling: the people being observed are referred to as models, and the learning process is called modeling.

This theory is related to the teaching style factor; coaches or instructors must set a good example for participants, who will observe their good behavior and adopt them as role models. The main points that should be considered concerning teaching style are the use of technology, hands-on experience, working with risk, and promoting individual activities. Therefore, based on the above literature, the following hypothesis was formulated:

H2: The quality of the teaching style positively impacts training effectiveness in achieving entrepreneurial goals.

• *Learning Environment*

The third and final factor examined in this chapter is the learning environment. According to Ilonen (2021: 518), the entrepreneurial training environment refers to a "self-regulatory, co-created learning setting in which entrepreneurship students from different backgrounds learn in teams, as the findings suggest that educators emphasize adjustable co-creation within a given format involving individuals with complementary skills working in teams." The training environment can refer to a cluster of factors, which may include "space of the building, seating arrangements, environmental considerations, trainees' attitudes and many other factors that may affect a positive learning environment" (El Hajjar and Alkhanaizi, 2018: 4). According to Gibb (2002), creating an entrepreneurial learning environment can be achieved by different means, for example by promoting effective entrepreneurial behavior, which can be defined as a practice that enhances the performance of individuals. An appropriate learning environment for entrepreneurship should present a high level of interaction between individuals through activities and play (which leads to lifelong learning) and learning guided by learners themselves, which means that they will control the learning process as active producers of knowledge (Tajpour et al., 2018).

Some scholars have argued that the environment for EE should receive more attention and focus, as research on the entrepreneurship learning environment is somewhat limited (Tajpour et al., 2018). The reason is that EE is still a relatively new topic of research that requires continuous learning, as it keeps changing over time. It is also argued that the key to an ideal training environment is the trainer as a role model; "trainers set the tone by their attitude, the clothes they wear, their passion and interest in participants. Trainers set the stage for learning during training sessions to achieve the goals and objectives of training" (El Hajjar and Alkhanaizi, 2018: 4).

This means that program directors and educators are expected to create a unique learning environment that meets participants' expectations while focusing on creating an entrepreneurial climate for participants. Several resource-related factors highlighted by recent studies show they can hinder the creation of an entrepreneurial learning environment, such as infrastructure, institutional philosophies, funding, and costs (Ilonen, 2021). In the case of Qatar, resource-related factors have never been a problem, and most of the country's training and incubation centers are fully equipped and resourced to enhance their training experience.

It can be understood that the training environment and teaching styles might mean the same thing to certain scholars but also mean different things to others, as presented in the literature. For example, some consider the learning environment to be a matter of tangible factors such as the quality of buildings, rooms, and use of technology in the course. In contrast, others see it as consisting of intangibles such as the quality of the trainer, colleagues, and the overall quality of the experience.

In this study, the environment is considered a general term that can include various aspects, as described in this section. The learning environment can be summarized in a few points; a self-regulatory setting, space and environmental considerations, and individual interactions. Based on the above literature, the following hypothesis was formulated:

H3: The quality of the learning environment positively impacts training effectiveness in achieving entrepreneurial goals.

• Evaluation of Entrepreneurial Education Effectiveness

"A *growing body of academic research has examined the effectiveness of EE with the aim of raising students' awareness of self-employment as a career option and creating an enterprising culture amongst them*" (Lekoko, 2012). However, there is no clear consensus on the right approach to effective EE, and research remains scarce (Fälkang and Alberti, 2000). In **Table 2**, the author has identified the leading teaching frameworks that evaluate the effectiveness of formal or informal training. This chapter focuses on the four levels of evaluation developed by Kirkpatrick (2007), one of the most studied frameworks in the field of EE.

	(1) RECOGNITION	(2) FUNDING
Teaching Model Framework (Nabi et al., 2017).	This framework divides impact measures and indicators into five levels, from ongoing measures during the program, to pre-and post-program measures, measures between 0- and 5 years post-program, 3 to 10 years post-program, and 10 years-plus post-program.	
Jack and Anderson Model (Jack and Anderson, 1999)	A five-step framework for assessing the effectiveness of EE and training programs. 1) pre-program measures; 2) half-way measures; 3) upon completion of the entire program; 4) one year after the program, measures aiming to determine the number of participants that have started businesses, the nature and employment levels of the new ventures created; 5) two years after program completion, measures aim to uncover any changes in the number of new businesses created by participants.	
Four Levels of Evaluation (Kirkpatrick, 1994; 1998; 2007)	1) Reaction: Focuses on the learner's reaction to the training. 2) Learning: Focuses on acquiring knowledge and skills during the training. 3) Impact: Addresses the impact of learning on individual performance. 4) Results: Focuses on results for the business.	
Return on Investment (ROI) (Hall et al., 2020)	It has four levels, similar to those of the Kirkpatrick framework, but with the addition of one more level (Level 5), which focuses on return on investment (ROI).	
Impact Measurement Framework (Bersin, 2011)	A model that aims to determine whether learning processes are aligned to the needs of a business through nine measures: 1) Satisfaction 2) Learning 3) Adoption 4) Utility 5) Efficiency 6) Alignment 7) Attainment 8) Individual performance 9) Organizational performance	
Success Case Method (SCM) (Hall et al., 2020).	A simple and quick method that revolves around two groups – those who are successful and those who are not, mainly through qualitative data.	

Table 2
Effective Teaching Evaluation Frameworks

• Empirical Study and Research Methodology

• *Entrepreneurship Education in Qatar*

In the case of Qatar, EE has grown noticeably over the years, with many universities adding it to their programs either as a full degree or for credits. Incubation centers and institutions have also launched short or long-term courses. Qatar has introduced measures to support entrepreneurship and stimulate entrepreneurial activities through education, including the establishment in 2011 of "Enterprise Qatar" as a government agency aiming to develop and encourage SMEs and entrepreneurship (Greene et al., 2015). In addition, Qatar Development Bank (QDB), a government financial institution that plays a vital role in enhancing the status of EE in Qatar, aims to improve entrepreneurial skills by providing training programs targeting university graduates, potential entrepreneurs, and business owners who want to scale up their companies (Gangi, 2017). QDB offers training, consultancy, business support, and skills development (Tok and Al-Fadala, 2021). It is also the lead sponsoring institution of the Global Entrepreneurship Monitor (GEM) in Qatar. However, it has been argued that QDB's impact on developing EE in the country has been limited, despite its efforts to provide funding and training to entrepreneurs (Tok and Al-Fadala, 2021). This is mainly because of the broad spectrum of services offered.

QDB has tailored programs for different target groups depending on their needs, delivered by academics and professionals either internally or from external institutions (QDB, 2021). QDB has four sectorial business incubators under its umbrella:

- Qatar Business Incubation Center (QBIC), provides a mixture of programs for different target and age groups, such as its Lean Accelerator and Lean Start-up programs (QBIC, 2021).
- Scale7, is Qatar's first fashion and design business incubator.
- Qatar Fintech Hub (QFTH), offers incubation and acceleration programs developed by QDB in collaboration with EY to support the growth of local and international FinTechs.
- Qatar SportsTech (QST) supports sports tech start-ups through programs initiated by QDB and powered by Startupbootcamp.
- Bedaya Center delivers EE through activities designed for young participants aged 18-30 aspiring to develop their skills and capabilities as entrepreneurs (Gangi, 2017). The Center provides advice and networking opportunities for young entrepreneurs and anyone interested in entrepreneurship with only a simple idea (Tok and Al-Fadala, 2021).

Another Qatar-based incubation program is the Arab Innovation Academy, a collaboration between QF and QSTP that is thought to be one of the most extensive entrepreneurship programs in the world. It seeks to cultivate the tech-entrepreneurship mindset in Qatar by providing participants with the needed skills and knowledge and the opportunity to turn their ideas into start-ups within ten days (Villegas-Mateos, 2021). Qatar University (QU)'s Center for Entrepreneurship offers multiple courses in entrepreneurship and emphasizes the development of the entrepreneurial mindset and competencies of students (Qatar University Center for Excellence in Teaching and Learning, 2021). According to Villegas-Mateos (2021: 15), "There are some specific support institutions such as Qatar Foundation, Qatar Development Bank and Qatar Financial Centre providing remarkable support for other organizations involved in education, science, and technology; these are directly linked to a broader view of how the country is building the entrepreneurial framework conditions in terms of creating or bringing the right talent, providing financial resources, and establishing ideal regulatory conditions for business and entrepreneurs."

Qatar-based entrepreneurship programs and workshops vary in size and duration, running between one week and six months (Gangi, 2017). Many other institutions are present in Qatar's entrepreneurship ecosystem, with the majority delivering informal EE. A list of all the relevant institutions in Qatar, along with the services they provide, can be found in **Table 3**.

INSTITUTION	SPONSOR	TRAINING PROVIDED
Qatar Development Bank (QDB)	QDB	Irshad (advisory programs) The Babson Entrepreneur's Boot Camp: A Deep Dive for New Ventures
Qatar Business Incubation Center (QBIC)	QDB	Lean Start-up Program Lean Manufacturing Program Lean Acceleration Program Lean Coach Program
Scale7	QDB	Hackathon Incubation program Acceleration program
Qatar FinTech Hub (QFTH)	QDB	Incubation program Acceleration program
Qatar SportsTech (QST)	QDB	Acceleration programs
Bedaya Center	QDB	Financial mentorship
Nama	QDB	Entrepreneurship training
Qatar Finance and Business Academy (QFBA)	Qatar Financial Centre Authority (QFCA)	Kawader training program
Digital Incubation Center (DIC)	Ministry of Communications and Information Technology (MCIT)	Idea Camp Start-up Track Growth Track
TASMU Accelerator	MCIT	Acceleration program
Qatar Science & Technology Park (QSTP)	Qatar Foundation (QF)	Arab Innovation Academy Research to Start-up Incubation program Acceleration programs
Hamad Bin Khalifa University (HBKU) Innovation Center	QF	Education City Innovative Entrepreneurship Program
World Innovation Summit for Education (WISE)	QF	Acceleration program
World Innovation Summit for Health (WISH)	QF	Acceleration program
Microsoft for Start-ups	Microsoft	Start-ups program
QU Business Incubator/ Strategic Innovation, Entrepreneurship & Economic Development (SIEED) Office	Qatar University (QU)	Pre-incubator training program Start-up – Entrepreneurial Matchmaking event
Founder Institute Doha	Founder Institute	Seed Acceleration program
Digital Venture Partners	Qatar Insurance Company (QIC)	Hackathon Venture Studio
Injaz Qatar	Junior Achievement Worldwide	Work Readiness Financial Literacy Entrepreneurship

Table 3
Informal Entrepreneurship Education in Qatar and the Providing Institutions

• *Method*

Both qualitative and quantitative methods were used in the research design, as mixed methods provide a better understanding of the phenomena than one approach alone. Qualitative research aims to understand, explain and explore, and such methods are flexible (Kumar, 2011). The qualitative method usually involves gathering information from people through an open frame of inquiry (e.g., interviews), which can be richer in meaning. However, this method is often criticized as being purely descriptive (Babbie, 2014). It was therefore decided to add the quantitative approach, to have comprehensive results. Quantitative research provides an accurate measure for gathering information, and the study design is more structured and fixed (Kumar, 2011). The quantitative method thus ensures the accuracy of measurement and classification.

> “***The study targeted entrepreneurs who have participated in at least one training program from an institution in Qatar.”***

The study targeted entrepreneurs who have participated in at least one training program from an institution in Qatar. A survey was distributed to identify the most influential factors and to measure the impact of EE training programs using Kirkpatrick’s model (Kirkpatrick, 2007). This questionnaire was distributed to three incubation centers/ institutions in Qatar and was completed by 55 entrepreneurs.

The survey was divided into three main parts. The first part was a set of five-point Likert-scale questions about the effectiveness of the training program (dependent variable), which was adopted from Kirkpatrick’s four-level model. For the analysis, this study focused exclusively on Level 4 (Results) of the Kirkpatrick model. These results are believed to be important for assessing the training effectiveness since they provide evidence that entrepreneurs were able to apply what they learned and whether the training helped them achieve their goal of starting a new venture or developing their business. It also shows the degree to which targeted outcomes occur because of the training. The second part focused on measuring the quality of the three factors in the training programs (independent variables) using the five-point Likert scale. The answers were used to test the hypotheses against training effectiveness (Level 4 of the Kirkpatrick model). The third part focused on measuring the importance of the three factors, again using the Likert scale. The questions were included to provide insights into the factors that entrepreneurs consider more important than others. These helped develop guidelines on how to ask and formulate the questions in the qualitative methodology. These insights might also be valuable for putting together some action points for the recommendations section. **Figure 1** presents the statistical model that the author tested with its independent variables (IVs) and the dependent variable (DV). The data were analyzed using SPSS to test the hypothesis. The specific test considered for this study was the analysis of variance (ANOVA), a test of the hypothesis appropriate to compare the means of a continuous variable in two or more independent comparison groups.

For the qualitative study, two entrepreneurs and one program manager were interviewed, and one interviewee from each of the three institutions. The two entrepreneurs were selected based on the SCM methodology (Hall et al., 2020) explained in the literature review; one was highly positive with their answers, while the second was extremely negative. A thematic analysis was then used to analyze the responses, which allowed for making sense of collective patterns and themes in the data (Braun and Clarke, 2012).

It is crucial at this study stage to determine whether the research is valid and reliable. The extent to which an empirical measure reflects the meaning of the subject under investigation is referred to as validity. Reliability refers to whether or not the approach utilized produces the same results when applied again to the same object (Babbie, 2014). The research can be considered valid because it used the Kirkpatrick model to measure training effectiveness. The validity of this model is well established, as it has been used many times in other research and explicitly measures training effectiveness. No specific measurement tool is presented in the literature for the three factors that the study measures for effectiveness. For this reason, the factors were measured based on a five-point Likert scale to assess which has the most impact. This might create an issue for the validity of the measurement, but the scientific scales used by the author are often used in social research and similar studies.

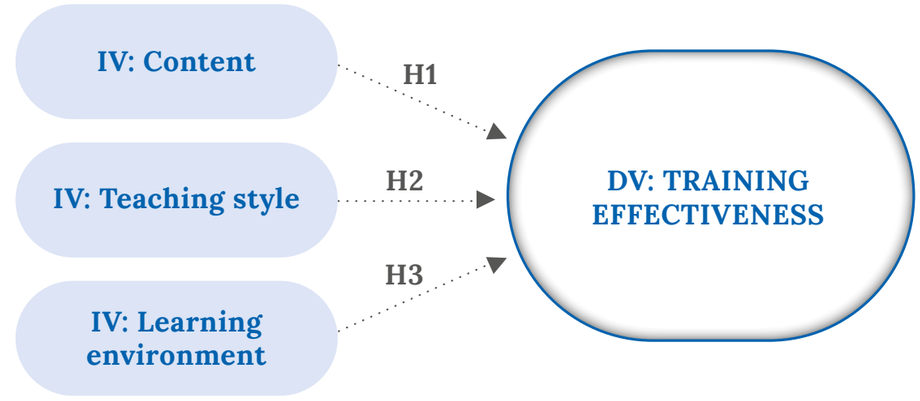


Figure 1
Statistical model of the study showing the independent and dependent variables.

• Results

To assess the likelihood that the hypothesis is true, the author used the ANOVA technique, which was tested once for each hypothesis. The first test was used to see how effectively the first factor, content quality (IV), can predict the achievement of entrepreneurial goals (DV), which reflects Level 4 of Kirkpatrick's model. The result of this regression showed a significant impact of content quality on the dependent variable, which is the achievement of entrepreneurial goals. Data showed that the variables are statistically significant at a level of $p < 0.001$, indicating a positive relationship between them. **Figure 2** shows the results of the ANOVA from SPSS. It also shows an overall significance in ANOVA, which was less than 0.001, and from the standardized coefficient, which was .625.

ANOVA[a]

MODEL		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
1	Regression	26.756	1	26.756	31.341	<.001[b]
	Residual	41.832	49	.854		
	Total	68.588	50			

a. Dependent Variable: Achieving entrepreunarial goals (Level 4)
b. Predictors: (Constant), content quality

Coefficients[a]

		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
MODEL		B	STD ERROR	BETA	T	SIG.
1	(Constant)	.121	.653		.185	.854
	Content Quality	.901	.161	.625	5.598	<.001

a. Dependent Variable: Achieving entrepreunarial goals (Level 4)

Figure 2
SPSS test results for hypothesis 1.

The second ANOVA test examined how far teaching style quality can predict the achievement of entrepreneurial goals. This result showed a significant impact of the teaching style on the dependent variable. The result also showed that variables are statistically significant at a level of $p < 0.001$, which indicates a positive relationship between them. **Figure 3** presents the ANOVA results from SPSS.

Finally, the third hypothesis test was run for the last factor, the overall quality of the learning environment, versus achieving entrepreneurial goals. The result also indicated a positive relationship between the two factors, as the data provided shows that they are statistically significant at a level of $p < 0.001$. Figure 4 shows the ANOVA results.

ANOVA[a]

MODEL		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
1	Regression	34.389	1	34.381	49.249	<.001[b]
	Residual	34.207	49	.698		
	Total	68.588	50			

a. Dependent Variable: Achieving entrepreunarial goals (Level 4)
b. Predictors: (Constant), content quality

Coefficients[a]

		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
MODEL		B	STD ERROR	BETA	T	SIG.
1	(Constant)	.087	.529		.164	.870
	Teaching style quality	.905	.129	.708	7.018	<.001

a. Dependent Variable: Achieving entrepreunarial goals (Level 4)

Figure 3
SPSS test results for hypothesis 2.

ANOVA[a]

MODEL		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
1	Regression	15.489	1	15.489	14.293	<.001[b]
	Residual	53.100	49	1.084		
	Total	68,588	50			

a. Dependent Variable: Achieving entrepreunarial goals (Level 4)
b. Predictors: (Constant), content quality

Coefficients[a]

		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
MODEL		B	STD ERROR	BETA	T	SIG.
1	(Constant)	.543	.849		.639	.526
	Environment Quality	.761	.201	.475	3.781	<.001

a. Dependent Variable: Achieving entrepreunarial goals (Level 4)

Figure 4
SPSS test results for hypothesis 3.

Overall, the ANOVA hypotheses tests showed that all three variables (content quality, teaching style quality, and learning environment quality) had significant relationships with achieving entrepreneurial goals. Therefore, H1, H2, and H3 were not rejected to explain the effectiveness of entrepreneurial education.

The survey also included a suggestion box question, where entrepreneurs shared their feedback and insights. **Table 4** shows the entrepreneurs' leading suggestions and insights about training programs in Qatar.

From the **Table 4** analysis and overall sample, the following themes and potential steps to develop training programs in Qatar emerge:

1) Entrepreneurs generally prefer practical examples and hands-on experience rather than theory in training programs.

2) Entrepreneurship programs in Qatar need to have more focused programs tailored to the Qatari market and local culture and targeting specific groups or industries rather than having a general or standard EE program for everyone. For example, one of the participants commented: "Training centers in Qatar need training programs more customized to specific industries such as F&B and design." Another commented: "Most of the programs are based on a Western mentality which is not always applicable in the region (or specifically Qatar). It would be really great if we could see examples of successful entrepreneurs in the region."

3) Participants prefer face-to-face over online formats. They also prefer physical visits to some of the large companies and factories in Qatar to get an idea about how they operate and benefit from the experience.

4) One suggestion was to have specific entrepreneurship training programs that examine how entrepreneurs can overcome challenges once they start their ventures.

5) Another idea was to hold post-program one-to-one sessions with participants to share what they have learned and what they will need support in the future in terms of mentoring and advice.

	SATISFIED (PERSON 1)	NEUTRAL (PERSON 1)	NOT SATISFIED (PERSON 1)
Score	5	3	1
Comment/ Theme	X center was the best incubation center there was in Qatar's ecosystem	Programs are too general	Programs are becoming popularity contests
	SATISFIED (PERSON 1)	**NEUTRAL (PERSON 1)**	**NOT SATISFIED (PERSON 1)**
Score	5	3	1
Comment/ Theme	Face-to-face was the ideal scenario	The training was standard	The need to teach entrepreneurs how to overcome challenges in the first years
	SATISFIED (PERSON 1)	**NEUTRAL (PERSON 1)**	**NOT SATISFIED (PERSON 1)**
Score	4	3	1
Comment	The need for a more hands-on experience than theory	The focus of the program was to prepare us for the 'Final Day', but an entrepreneurship development program would have a more detailed approach, and different aspects of entrepreneurship would/should be coached. A person who just has an idea should, at the end of the program, have the skills to know how to convert these ideas into reality.	I have been through most of the incubation centers in Qatar, and they aren't focused on entrepreneurs but rather just on the number of start-ups they are able to incubate, and these numbers are then used to show to higher management that we are building the ecosystem.

Table 4
Participants' Main Suggestions and Comments

Interviews/Thematic Analysis

For the qualitative method, two interviews were conducted with two entrepreneurs who participated in the survey questionnaire, and a third interview was with a program manager from one of the three institutions. The first entrepreneur joined the training program to learn about best management practices and managing diversity in addition to essential management tools such as balance sheets and scorecards. The training program met their expectations to some extent. However, they gave a negative answer when asked if they could apply what they had learned in their professional life. They said they could not apply it because most of the cases used in training were imaginary and did not relate to the situation they faced in their daily life. When asked about the quality of the content, the interviewee suggested that it should focus more on applying tools and situational leadership.

For the second factor, the teaching style, the interviewee commented that it was one-way in nature and should have been more interactive and included breakout discussions. The interviewee said everything was fine when asked about the overall learning environment. To the next question, about the importance of the factors, the interviewee answered that content is the most important, followed by teaching style and the learning environment. Finally, the interviewee suggested that incubation centers should not be driven by internal Key Performance Indicators (KPIs) and event dates but should have a more flexible system where applicants can apply at any time when they see an opportunity in front of them and not have to wait for the next cycle to apply.

The second interviewee attended an entrepreneurship training program expecting new ideas and opportunities for entrepreneurs. While the training program did not meet their expectations directly, the interviewee indirectly learned about lean start-ups and how to start a business with minimal capital investment to test the market, which they applied later when starting their small business. The interviewee thought the content was good and the teaching style excellent, as classes were discussion-led with other classmates instead of only by the coach. This was a helpful learning experience.

The overall environment, according to the interviewee, "could not be better, with state-of-the-art facilities and the learning from colleagues who work in the same market." Asked to rate the factors, this interviewee made the environment their top choice and specifically experiences shared by colleagues. Finally, asked for suggestions, the interviewee suggested that people from incubation centers should receive the maximum share of investment opportunities available in the country.

The main themes or topics that emerge from these interviews are: first, the entrepreneurs benefited from these training programs but still could not apply what they had learned directly in their professional lives. Second, the entrepreneurs enjoyed and preferred interactive content and learning by experience over traditional teaching methods. Finally, incubation centers should be more flexible in dealing with applicants and maximize their learning experience by providing them with a supportive environment and a helpful curriculum.

The third interview was with a program manager at an incubation center. The center provides two types of training programs: a general one about entrepreneurship and management and a specialized one specifically for digital entrepreneurship and IT. The interviewee stated that they provided a survey for participants after the training to rate the quality of their programs. Asked about content and the type that has the most impact, the interviewee answered that it depended on the program. For example, in the specialized program, they prefer hands-on exercises and case studies, whereas, for the general program, there is more process and methodology-based content. Asked about the environment of the training program, the interviewee commented that the training should be tailored to meet the aims and needs of each group. Another point was that there should not be too many general programs, as entrepreneurs tend to join these programs with a specific goal in mind, which most of these available programs do not meet. The interviewee also rated the environment as the top factor and said: "Environment is a key factor in allowing learning from other people's expertise. Also, the conversation taking place is valuable for learning." The last question asked what one thing the interviewee would change to improve the quality of the training program. They answered that there should be specific programs for advanced or potential entrepreneurs and specific programs for average participants. This would ensure that everyone joining these training programs gets better opportunities and benefits.

The themes that can be drawn from this interview are: first, the environment is the critical factor for training programs, and incubation centers must ensure that the quality of the environment is high and meets the expectations of participants. Second, training programs should be divided into at least two types for different kinds of entrepreneurs. Lastly, if the focus of the training program is specialized, then the content must be based on hands-on tools and case studies.

Discussion and Implications

Based on the literature review and findings of the survey and interviews with entrepreneurs in Qatar, some recommendations have emerged to strengthen the entrepreneurship ecosystem in Qatar and the GCC countries:

1) **A national strategy for EE in Qatar** should be drawn up and continually monitored and updated according to the population's needs. Most importantly, this national strategy should be developed in line with the national development strategy (QNV 2030) and other regional and national visions. The new EE national strategy can be added to one of the pillars of the QNV 2030, such as the economic or human pillar, where EE could potentially play a significant role. The Ministry of Education and Higher Education (MOEHE) in Qatar must lead or be part of this national strategy, as it is one of their responsibilities to improve EE in Qatar and to include it in primary or secondary schools, which could eventually improve the entrepreneurship ecosystem in the country. This recommendation stems from the realization that Qatar is trying to improve the entrepreneurship ecosystem but is not putting sufficient emphasis on the educational aspect or efforts to strengthen entrepreneurship. In terms of implementation, the government can establish a national strategy and include the MOEHE, along with relevant institutions in the country, such as QDB, to set specific KPIs and, most importantly, a timeline to achieve this strategy.

2) **A centralized government institution** must be formed to unite stakeholders such as the MOEHE and private sector, and governmental and semi-governmental institutions that align and create coordination to improve EE in Qatar. The rationale is the current lack of a centralized institution that can serve as a government umbrella for other institutions in Qatar. This makes it difficult to follow up on what each institution is doing or achieving. A centralized government institution is needed to serve as a proactive platform to gather and disseminate knowledge, research, and findings from different institutions offering EE. This platform could also support institutional collaboration on research and training. In addition, this institution could create specific, mandatory metrics for measuring the effect of training programs. These standardized metrics can be applied to all institutions to accurately examine the impact of their training programs and modify them accordingly. The government body could include multiple stakeholders such as policymakers, the MOEHE, universities, research centers, government agencies, investors, incubators, and accelerators. It could create an advisory board with representatives from each institution who would be responsible for planning, setting objectives, analyzing the situation and results, and suggesting improvement areas for EE in Qatar.

3) **Further academic and policy research on EE in Qatar** must be conducted. Such research could identify current gaps and obstacles to developing EE in the country and the new strategies and policies required. This recommendation could be implemented by the same centralized institution suggested in the second recommendation, and one of its core features should be a research focus.

Specific recommendations which are more related to this particular study include:

4) **Instructors and coaches should undergo extensive training** in experiential learning methods, including new and updated teaching materials, before they start teaching EE. This recommendation stemmed from the realization that instructors or coaches have to be more interactive with students rather than using a one-way style. Such training would have to be funded by the specific institutions providing EE.

5) **The content of EE training programs must be localized** to fit the needs and goals of participants. For example, the content should include case studies from Qatar and support hands-on experience for participants. Training programs should have a specific focus, with a localized approach and content, where participants will get a sense of actual EE, as opposed to a general training program with generalized content that does not fit the needs and mindsets of participants.

Conclusion and Limitation

This section considered the main factors that promote training effectiveness: content, teaching quality, and the learning environment. Training effectiveness was measured using the Kirkpatrick model's Level 4, which measures business outcomes from the training. The reason for selecting these specific factors was that they are the ones most frequently mentioned in the literature, and it has been proved that they influence the outcomes of training programs. Level 4 was specifically chosen because it provides an accurate understanding of the actual and measurable results of training programs this paper discusses.

> ***"The importance of this result is that it can be used as a guideline for incubation centers by enabling them to know which factors encourage training effectiveness."***

After reviewing the research through the literature and conducting both qualitative and quantitative research, the conclusion was that these three factors are indeed crucial in promoting training effectiveness. The importance of this result is that it can be used as a guideline for incubation centers by enabling them to know which factors encourage training effectiveness. This result can also be translated into recommendations that address the strengths and weaknesses of each factor and can be used by policymakers or the government.

This study is a first step toward addressing the topic of EE in Qatar, as only a few papers exist in the literature, and establish a need for more research on this topic given the rise in EE among Qatar-based universities and incubation centers recently. Additionally, the socioeconomic similarities of Qatar with other GCC countries positions this case study as relevant to understanding effective actions that can be implemented regionally. This study purposely set out to measure EE training programs' effectiveness, specifically the three factors, using the Kirkpatrick model. This is the first public study to measure the effectiveness of EE training programs in Qatar. Therefore, the recommendations presented should be considered to enhance the quality of entrepreneurship education and the quality of entrepreneurship in Qatar. For instance, one of the recommendations is to invest in instructors and coaches and make sure they learn the experiential learning method to maximize the benefits of training. Another recommendation is to make the content and environment more localized to match the needs of participants, which will eventually benefit the whole entrepreneurship ecosystem.

In the case of Qatar, there are several studies about EE in general, and the author could not find any research papers that claim to measure the impact of EE training programs. This study will therefore make a valuable contribution. It will also benefit the institutions the author focuses on by helping them recognize their weaknesses and concentrate on factors they may neglect to develop their programs. The study will assist entrepreneurs in understanding how to measure the impact of training programs they receive.

Finally, it is important to mention some of the strengths and weaknesses of the methodology. One of the strengths is that it used both quantitative and qualitative methods to clearly understand a topic that has not been discussed extensively in Qatar. In addition, it tests factors mentioned by other scholars in the literature. On the other hand, one of the weaknesses is the small sample size, which might not be representative of all EE training participants in Qatar, and may cause bias in the results. Moreover, the study relies on the entrepreneurs' perceptions to measure the effectiveness of training programs rather than conducting pre- and post-training measurements. However, performing such measurements is beyond the scope of this study and would require more time and effort, which can be the focus of future studies.

References

Ahmed, T., Chandran, V. G. R., Klobas, J. E., Liñán, F., and Kokkalis, P. (2020). Entrepreneurship education programmes: How learning, inspiration and resources affect intentions for new venture creation in a developing economy. *The International Journal of Management Education*, 18(1), 100327.

Babbie, E. R. (2014). *The practice of social research* (14th ed.). Nelson Education. Boston, MA Cengage Learning, USA.

Bedaya (n.d.). https://www.bedaya.qa/en/

Block, Z., and Stumpf, S. A. (1990). *Entrepreneurship education research: Experience and challenge*. Center for Entrepreneurial Studies, New York University, Leonard N. Stern School of Business.

Braun, V., and Clarke, V. (2012). *Thematic analysis: A practical guide*. Sage Publications.

Dickson, P. H., Solomon, G. T., and Weaver, K. M. (2008). Entrepreneurial selection and success: Does education matter? *Journal of Small Business and Enterprise Development*, 15(2), 239-258. doi:10.1108/14626000810871655

El Hajjar, S. T., and Alkhanaizi, M. S. (2018). Exploring the factors that affect employee training effectiveness: A case study in Bahrain. *Sage Open*, 8(2), 2158244018783033.

Falkäng, J., and Alberti, F. (2000). The assessment of entrepreneurship education. *Industry and Higher education*, 14(2), 101-108.

Fayolle, A. (2013). Personal views on the future of entrepreneurship education. *Entrepreneurship & Regional Development*, 25(7-8), 692-701.

Fayolle, A., and Gailly, B. (2008). From craft to science: Teaching models and learning processes in entrepreneurship education. *Journal of European Industrial Training*, 32(7), 569-593.

Gangi, Y. A. (2017). The role of entrepreneurship education and training on creation of the knowledge economy: Qatar leap to the future. *World Journal of Entrepreneurship, Management and Sustainable Development*, 13(4), 375-388.

General Secretariat for Development Planning. (2008). Qatar National Vision 2030. https://www.psa.gov.qa/en/qnv1/Documents/QNV2030_English_v2.pdf

Gibb, A. (2002). In pursuit of a new 'enterprise' and 'entrepreneurship' paradigm for learning: Creative destruction, new values, new ways of doing things and new combinations of knowledge. *International Journal of Management Reviews*, 4(3), 233-269.

Greene, P. G., Brush, C. G., Eisenman, E. J., Neck, H., and Perkins, S. (2015). *Entrepreneurship education: A global consideration from practice to policy around the world*. World Innovation Summit for Education, Qatar and Babson College, USA.

Hall, C., Mattox, J., and Parskey, P. (2020). *Learning analytics: Using talent data to improve business outcomes*. Kogan Page.

Henry, C., Hill, F., and Leitch, C. (2005). Entrepreneurship education and training: Can entrepreneurship be taught? Part II. *Education+ Training*, 47(3), 158-169.

Hytti, U., and Kuopusjärvi, P. (2004). Evaluating and measuring entrepreneurship and enterprise education: Methods, tools and practices. Small Business Inst.

Idris, F., Komariah, A., and Riadini, B. (2020). The influence of entrepreneurship education on business success and graduate recruitment. *Talent Development & Excellence*, 12(1).

Ilonen, S. (2021). Creating an entrepreneurial learning environment for entrepreneurship education in HE: The educator's perspective. *Industry and Higher Educatio*n, 35(4), 518-530.

Jack, S. L., and Anderson, A. R. (1999). Entrepreneurship education within the enterprise culture: Producing reflective practitioners. *International Journal of Entrepreneurial Behavior & Research*, 5(3), 110-125.

Kirkpatrick, D. L. (1994). *Evaluating training programs: The four levels*. San Francisco: Berrett-Koehler Publishers.

Kirkpatrick, D. L. (2007). The four levels of evaluation: Measurement & evaluation. *American Society for Training & Development*.

Kirkpatrick, D.L. (1998). The four levels of evaluation. In: Brown, S.M., and Seidner, C.J. (eds), Evaluating corporate training: Models and issues. *Evaluation in Education and Human Services*, vol. 46. Springer, Dordrecht. https://doi.org/10.1007/978-94-011-4850-4_5

Kumar, R. (2011). *Research methodology: A step-by-step guide for beginners* (3rd ed.). Sage.

Kuratko, D. F. (2003). Entrepreneurship education: Emerging trends and challenges for the 21st century. 2003 Coleman Foundation White Paper Series for the US Association of Small Business and Entrepreneurship. Madison, WI: USASBE.

Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship theory and practice*, 29(5), 577-597.

Lackéus, M. (2015). Entrepreneurship in education: What, why, when, how. *Background paper*, OECD.

Lekoko, M., Rankhumise, E. M., and Ras, P. (2012). The effectiveness of entrepreneurship *education: What matters most? African Journal of Business Management*, 65(1), 12023.

Liu, H., Kulturel-Konak, S., and Konak, A. (2020). Measuring the effectiveness of entrepreneurship education. In *Proceedings of the 53rd Hawaii International Conference on System Sciences*.

Massari, G. A., Miron, F. M., Kamantauskiene, V., Alat, Z., Mesquita, C., Tzakosta, M., Verheij, JK, and Zirina, T. (2018). A *handbook on experiential education: Pedagogical guidelines for teachers and parents*. Editura Universității Alexandru Ioan Cuza din Iași.

McNamara, C. (2016). *Employee training and development: Reasons and benefits*. Retrieved from http://managementhelp.org/training/basics/reasons-for-training.htm#anchor1284937

Nabavi, R. T. (2012). Bandura's social learning theory & social cognitive learning theory. *Theory of Developmental Psychology*, 1-24.

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., and Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, 16(2), 277-299.

OECD (2009), *Evaluation of Programmes Concerning Education for Entrepreneurship*, report by the OECD Working Party on SMEs and Entrepreneurship, OECD. OECD (2021). https://www.oecd.org/. Accessed 20 Jan. 2022.

Qatar University Center for Excellence in Teaching and Learning. (2021). *Entrepreneurial Education* (booklet, v.1.1). Qatar University.
QBIC. (2021). https://www.qbic.qa/. Accessed 12 Sep. 2021.
QDB. (2021). https://www.qdb.qa/en. Accessed 12 Sep. 2021.
QFBA. (2021). https://www.qfba.edu.qa/. Accessed 12 Sep. 2021.
QFTH. (2021). https://fintech.qa/. Accessed 12 Sep. 2021.
QSTP. (2021) https://qstp.org.qa/. Accessed 12 Sep. 2021.

Raposo, M., and Do Paço, A. (2011). Entrepreneurship education: Relationship between education and entrepreneurial activity. *Psicothema*, 23(3), 453-457.

Sánchez, J. C. (2011). University training for entrepreneurial competencies: Its impact on intention of venture creation. *International Entrepreneurship and Management Journal*, 7(2), 239-254.

Tajpour, M., Moaddab, S., and Hosseini, E. (2018). Entrepreneurship education and learning environment in institutions. *In Proceedings of ICE2018*. International Conference on Entrepreneurship, Tehran.

Tok, E., and Al-Fadala, A. (2021). *Localizing entrepreneurship education: Global perspectives, Qatar experiences* (2021 ed.). HBKU Press, Doha.

Toutain, O., Fayolle, A., Pittaway, L., and Politis, D. (2017). Role and impact of the environment on entrepreneurial learning. *Entrepreneurship & Regional Development*, 29(9-10), 869-888.

Villegas-Mateos, A. (2021). *Qatar's entrepreneurial ecosystem – 2021 edition: Empowering the transformation*. HEC Paris in Qatar.

Vincett, P. S., and Farlow, S. (2008). "Start□a□Business": An experiment in education through entrepreneurship. *Journal of Small Business and Enterprise Development*, 15(2), 274-288.

CHAPTER 5

Toward a More Inclusive Entrepreneurial Ecosystem for Women in Qatar: A Sociocultural Perspective

Hamda Al-Boinin and Savanid (Nui) Vatanasakdakul

Abstract

This research adopts a gender perspective to build on entrepreneurial ecosystem frameworks and emphasizes the role of informal social and cultural institutional factors on women's entrepreneurial development. The study aims to explore the influence of regional sociocultural factors on women's entrepreneurial experiences in Qatar. A focused qualitative systematic analysis of 17 published articles reveals informal institutional forces influencing women's entrepreneurship in Qatar and other GCC countries. The thematic analysis helped to identify the key factors. In contrast, the analysis of existing studies pointed to the significant role of informal institutional factors on women's entrepreneurial progress in Qatar and other GCC countries. Family influence, gender roles, social interaction, and mobility are the most critical factors. Identifying and examining the most significant sociocultural factors influencing women's entrepreneurship will help create effective women-centric policies, which is essential for an inclusive entrepreneurial ecosystem in the region. The research contributes to the entrepreneurial ecosystem literature by offering a gender-informed conceptual model. In particular, the study examines informal institutions, an underrepresented element within the entrepreneurial ecosystem research. It sheds light on the importance of regional culture and other informal institutional factors on women's entrepreneurial development in the region.

Keywords *Women Entrepreneurship, Islamic Culture, Middle East, Entrepreneurial Ecosystem, Inclusivity, Qatar*

Introduction

Women entrepreneurship is pivotal to economic growth and social development (Hechavarria et al., 2019; Ambepitiya, 2016; Sharma et al., 2012; Verheul, 2005). The Organization for Economic Co-Operation and Development (OECD) supports women's inclusion and gender diversity to "promote innovation and competitiveness in business" (Adema et al., 2014, p. 9). In the GCC and, by extension, Qatar, women's entrepreneurship is a critical factor that needs to be explored and enhanced. Despite government efforts to diversify economically and invest in empowering women, it has not yet reached its full potential.

72,7%

of women in Qatar consider entrepreneurship as a desirable career choice

According to the Global Entrepreneurship Monitor (GEM) (2018), 72.7% of women in Qatar consider entrepreneurship as a desirable career choice and have a higher intention to start a business venture (37.1%) than men (29.6%). However, they demonstrate lower perceived capabilities (41.5%), perceived ease (48.9%), and perceived opportunities (46.7%) than men (at 55%, 51.6%, and 55.9%, respectively). In the same report, 26.7% of the sample pointed to cultural and social norms as potential constraints. In Qatar, Al-Ghanim (2017), in her study, also describes culture as a significant factor in stifling women's economic participation. The legislative policies can indeed increase women's entrepreneurship in Qatar; however, a lack of understanding of the local social and cultural context and how it influences businesswomen will only lead to impractical and ineffective strategies.

Creating a more inclusive entrepreneurial ecosystem for women entrepreneurs has recently emerged as a hot topic among academics and policymakers (Khayal, 2021; Memon, 2020). The World Economic Forum (WEF) (2013) identified the following elements of an entrepreneurial ecosystem: accessible markets, access to finance, human capital, support systems, education and training, universities, regulatory framework and infrastructure, and cultural support. Women entrepreneurs are surrounded by complex contextual environments that determine their entrepreneurial engagement, growth, and success. Adopting a gender lens in developing the entrepreneurial ecosystem is crucial.

It seems apposite to note that women entrepreneurs are not homogenous. Having come from disparate regions and backgrounds, they face different challenges. Thus, taking a nuanced, region-specific approach to understanding women entrepreneurs' barriers and creating localized, context-specific support mechanisms to tackle those challenges cannot be overemphasized. To this end, this chapter explores women's entrepreneurship in Qatar and other GCC countries from a sociocultural standpoint.

Women's entrepreneurship has attracted a growing body of academic research. However, most existing studies focus on the USA and Europe (Cardella et al., 2020); research on developing countries remains limited (Javadian and Singh, 2012; Faisal et al., 2017; Cardella et al., 2020). In particular, women's entrepreneurship in Qatar and other GCC countries remains significantly unexplored and requires more investigation (McAdam et al., 2020). In addition, much of the existing research on entrepreneurship focuses on formal institutional factors dealing with government policies, banks, business incubators, educational systems, and other related organizations. Little attention has been given to informal social and cultural institutional factors (Elert and Henrekson, 2017; McAdam et al., 2019).

As an invisible yet powerful force, culture potentially governs the entrepreneurial ecosystem (Colombo et al., 2019), evident from the interest researchers have taken in studying the importance of culture in an entrepreneurial ecosystem (Bosma and Holvoet, 2015; Mack and Mayer, 2016; Neck et al., 2004; Spigel, 2017; Stam, 2015). However, they tend to focus on the general business culture and the existence of a conducive environment to initiate and run a venture without paying attention to the all-encompassing normative culture influencing all walks of life, including business practices (Donaldson, 2021). In Qatar and the neighboring countries, a great deal of research has shown the extent to which normative culture affects the entrepreneurial activities of businesswomen (see, e.g., Basaffar et al., 2018; Erogul et al., 2019; Hattab, 2012; Itani et al., 2011; Tlaiss, 2014).

> *"The region's complex sociocultural dynamics and economic circumstances call for a context-driven examination of women's entrepreneurship."*

The region's complex sociocultural dynamics and economic circumstances call for a context-driven examination of women's entrepreneurship. From this perspective, there is a prosperous economic, social, and academic potential to investigate the sociocultural aspects influencing women's entrepreneurship in Qatar. This study aims to shed light on the informal social, cultural, and institutional factors and how these impact women's entrepreneurship in Qatar and the GCC recognizing the complex milieu of local values and attitudes to create a gender-aware and inclusive entrepreneurial ecosystem framework in Qatar with the prospect of producing sound recommendations to policymakers and invaluable support to women.

This study is structured as follows. First, a contextual background of the topic will be presented. The second section will discuss previous scholarly works and the existing gaps in the literature, followed by an outline of the research methodology. The fourth section will present the results, the conceptual model, and a discussion on the influence of informal social and cultural institutions on women's entrepreneurship. The final section will provide a conclusion, recommendations, and the various research limitations encountered during this research undertaking.

Entrepreneurial Ecosystems

In the 1980s and 1990s, entrepreneurship studies showed a marked shift from exploring entrepreneurship from an individualistic perspective to taking a more holistic context-based view that situated entrepreneurial activity within the broader sociocultural and institutional dynamics (Steyaert and Katz, 2004; Sarwar et al., 2014), giving rise to the systemic entrepreneurial ecosystems' approach. Mason and Brown (2014) defined entrepreneurial ecosystems as a "set of interconnected entrepreneurial actors, entrepreneurial organizations, institutions, and entrepreneurial processes which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment" (p. 5). Similarly, the World Economic Forum (WEF) (2013) has identified accessible markets, human capital, a support system of mentors and advisors, education and training, universities, funding and finance, regulatory framework and infrastructure, and cultural support as critical elements of a conducive entrepreneurial ecosystem.

Several studies investigate the factors that play a role in the ecosystem. While there are some varieties in the components of the ecosystem, most studies identify similar factors and infrastructures. For the current study, we propose to use the model of regional entrepreneurial ecosystems, explicated by Stam and Van de Ven (2019), to understand the impact of sociocultural attributes on the quality and quantity of women-led entrepreneurial activity in the GCC, specifically Qatar. The model uses three broad concepts of institutions, resources, and productive entrepreneurship while operationalizing these concepts, using ten elements to present an integrative framework focused on building an effective ecosystem. Stam's approach is particularly beneficial because, within a given context, the direct link between entrepreneurship and productivity makes it easier to view entrepreneurial activity levels within a country or a region. **Figure 1** provides a graphical representation of Stam's Model.

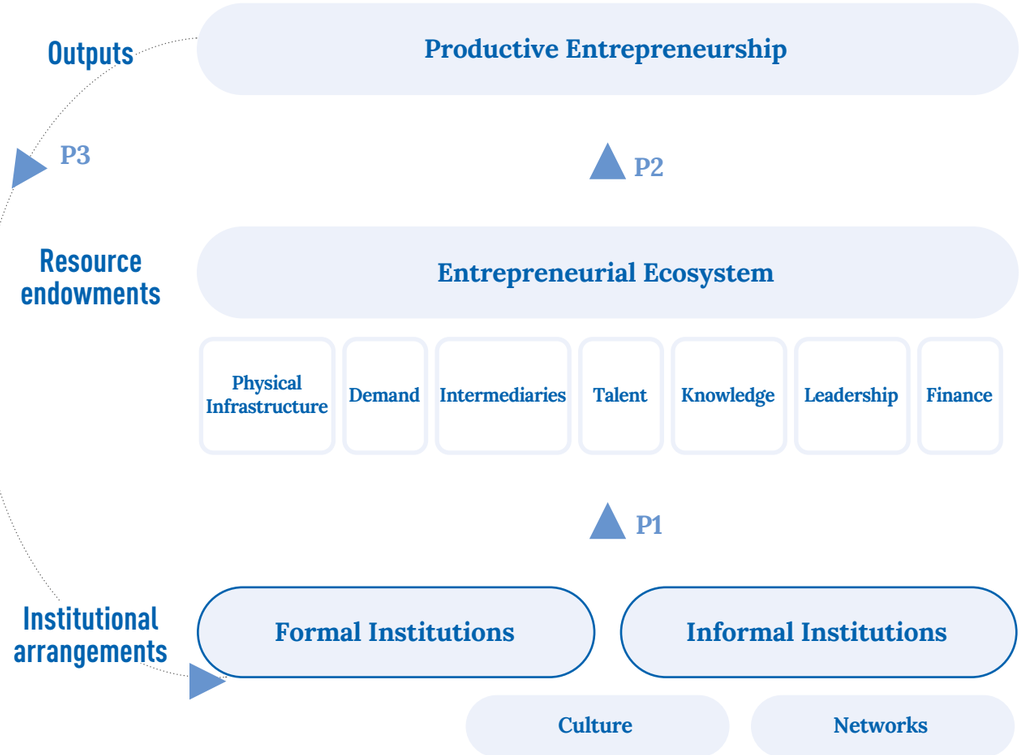


Figure 1
Entrepreneurial ecosystem model by Stam and Van de Ven (2019).

It is, however, pertinent to point out that the original model is holistic, and therefore, considering and studying all the elements would go beyond the scope of this current study. It is for this reason that we have employed Stam's model in so far as it explains the impact of institutional arrangements (family, social norms, cultural values, how conducive the business environment is for women to succeed) and the importance of social networks and mobility that directly affect the flow of information and knowledge, labor, and capital, and as a consequence impact the success of a women-led business venture. Employing a comprehensive systemic approach to creating and building an effective entrepreneurial ecosystem and linking it to value-creation in the economic sense can potentially inform policy interventions at the governmental level.

Women Entrepreneurship in Qatar

As one of the world's major producers of both oil and gas, Qatar has shown tremendous economic growth in the last few decades (Baalousha & Ouda, 2017). With overdependence on oil for revenues and wayward shifts in market prices threatening stable revenue generation, like other countries in the GCC, Qatar has sped up efforts to achieve economic diversification by moving beyond the growth of hydrocarbons and becoming a producer of industrial and service activities (General Secretariat For Development Planning, 2008). Going in that direction, the Qatari government has also initiated programs to promote small and medium-sized enterprises (SMEs) and start-ups (Fernandez and Ali, 2015).

Moreover, Qatar aspires to empower women and provide them with better economic opportunities (General Secretariat for Development Planning, 2008), evident in the recent growth in the number of women taking on leadership roles and engaging in entrepreneurial activity. Despite that, women are still underrepresented in these areas. Even though the level of education among Qatari women is high (99.3%), their participation in the workforce stands at a disproportionate 59%, compared to the 96% of Qatari men who are economically active (Planning and Statistics Authority, 2019). Statistics show that although Qatar has made significant progress towards gender equality in education, there remains a considerable gender gap (60.9%) in economic participation. This inability to translate investments in education into employment rate referred to as the "education and employment paradox" in a 2017 World Bank article on the GCC, has the potential to stunt economic growth and drain resources.

Recently, Qatar and other neighboring GCC countries have pushed reforms to increase the rate of women entrepreneurship to meet economic and socio-political necessities (Faisal et al., 2017; Ennis, 2019). In that regard, Qatar provides exclusive incubators and business centers to facilitate and promote women's entrepreneurship (Jabeen et al., 2015). However, entrepreneurship in Qatar has not yet achieved its full potential owing to the sociocultural challenges facing women in the country (Sahli, 2021). Researchers have been unable to identify these sociocultural factors exactly and have largely ignored the complex nature of the cultural impact on entrepreneurship, especially for women in Qatar.

Qatar has a rich national culture, and the social milieu is conservative. It values traditions, customs, and the Islamic religion (Ottsen and Berntsen, 2014; Elshenawy, 2017). Cultural values fundamentally influence individual behaviors in Qatar (Elshenawy, 2017). The regional culture is further influenced by the tribal system (Erogul et al., 2019; Lalonde, 2013), with strong family orientation and loyalty (Ali and Weir, 2020; Hutchings and Weir, 2006; Lalonde, 2013) and an

aversion to social shame (Badahdah and Foote, 2010; Lalonde, 2013) as critical influencers of behavioral attitudes. The standards of what is and what is not acceptable in GCC society have extensive implications on the construction of gendered behavior (Rugh, 2007). Thus, women in Qatar face gender-based barriers that can potentially hinder their entrepreneurial development. For instance, Al-Ghanim (2017) has argued that despite recent changes in government policies and education, the deeply-rooted kinship model and cultural factors are a barrier to Qatari women's participation in the economic sphere. Therefore, this research aims to identify the sociocultural factors impacting women's entrepreneurial engagement in Qatar.

Women in the Entrepreneurial Ecosystem

The conceptualization of the entrepreneurial ecosystem is essential to assist the development of policies and programs facilitating entrepreneurial activities (Isenberg 2011; World Economic Forum 2013). However, most entrepreneurial ecosystem research and frameworks presume that both men and women entrepreneurs "have equal access to resources, participation, and support" within the entrepreneurship ecosystem (Brush et al., 2019, p. 394). Less attention has been given to investigating women's entrepreneurial experiences (Hechavarria et al., 2019) and how the various elements in the ecosystem influence women and men differently (Foss et al., 2019).

Research supports the assertion that women are comparably disadvantaged (Neumeyer et al., 2019; Brush et al., 2019; Ahl and Marlow; 2012). A 2020/2021 report by the Global Entrepreneurship Monitor (GEM) shows that high-income GCC countries have one of the highest rates of early-stage entrepreneurial activity at 16.3%, second only to Latin America's 24%, with women and men at parity in terms of start-up rates. However, women are likelier to start their venture out of necessity rather than by opportunity (GEM Report, 2020/2021). Additionally, an ecosystem's perceived support directly impacts start-up strategies and entrepreneurial goals. For example, Sperber and Linder (2018) have shown that in the absence of perceived support, men are generally more confident of their capabilities while women tend to focus their resources on overcoming support constraints with a marked lack of confidence in their skills and personality (low self-confidence, aversion to risk).

Moreover, women also find it challenging to access initial capital, with generally lower amounts available to start a business than men. Brush et al. (2019) showed that during 2011-2013, out of 6,500 companies that successfully raised funding from venture capitalists, fewer than 3% had female CEOs, pointing to evident male domination in financing organizations. Similarly, in conservative societies such as the GCC, the family's role in providing financial and moral support to help women tread gendered public spaces and navigate challenges in their homes and outside significantly impacts women entrepreneurs' chances of success. An entrepreneurial ecosystem that challenges existing cultural norms to make it palatable for society to view working women as equal to their male counterparts and encourages progressive policy making (e.g., gender sensitization, affirmative public policy, reducing pay gaps) can level the playing field for women entrepreneurs. Thébaud (2015) has shown that appropriate institutional arrangements reduce work-life imbalance and encourage women entrepreneurs not to see business as a fallback option.

Lastly, men capitalize on social networks much better than women. Studies have shown significant differences between the genders in forming and utilizing social networks (McAdam et al., 2018; Neumeyer et al., 2019). Failing to understand gender dynamics may result in misguided policies and strategies (Foss et al., 2019). Thus, considering women entrepreneurs' experiences will enhance existing theories and practices and facilitate a more inclusive entrepreneurial ecosystem (Brush et al., 2019).

Culture and the Entrepreneurial Ecosystem

Regional cultures impact entrepreneurial activities "by shaping acceptable entrepreneurial practices and norms" (Aoyama, 2009, p. 500). Although culture has an influential role in affecting entrepreneurial activities and decisions (Aoyama, 2009; Eroglu et al., 2011; Gupta et al., 2022; Linan and Fernandez-Serrano, 2014), much of the previous research on entrepreneurship has focused on formal institutions in the economic, legal, and political spheres and their impact on entrepreneurship; overlooking the influence of informal social and cultural aspects (McAdam et al., 2019; Elert and Henrekson, 2017; Welter, 2011). According to Colombo et al. (2019), culture functions as "the invisible hand in governing" the entrepreneurial ecosystem (p. 7). Spigel (2017) referred to the cultural dimension of the entrepreneurial ecosystems as "the underlying beliefs and outlooks about entrepreneurship within a region."

Similarly, while many entrepreneurial ecosystem frameworks acknowledge the crucial role of culture (e.g., Isenberg, 2011; Spigel, 2017), they tend to adopt a universal assessment of culture among different contexts and oversimplify the attributes of culture. For example, scholars have indicated that vital cultural elements such as the level of risk acceptance, an openness to innovation, and the presence of success stories within a society, can significantly influence the development of entrepreneurship in the region (Isenberg, 2011; Spigel, 2017; World Economic Forum, 2013). However, this monolithic view tends to overlook regional cultural and societal norms instrumental in determining entrepreneurial intentions and success, meaning that a deep investigation of how different social and cultural contexts in other regions of the world influence the beliefs and attitudes regarding entrepreneurship is direly needed.

Even though previous scholars have emphasized the role of societal norms, traditions, and culture on women's entrepreneurship (Cardella et al., 2020; Erogul et al., 2019; Gupta et al., 2022; Tlaiss, 2014), the extent of their influence on women's entrepreneurship remains understudied (Bullough et al., 2022). Scholars call to explore how different social and cultural contexts influence women entrepreneurs in other regions (Cardella et al., 2020) and contend that such scholarship can reap considerable theoretical and practical benefits (Cacciotti and Hayton, 2002). Khayal (2021), for instance, investigating the Egyptian entrepreneurial ecosystem from a gender perspective, found that culture is one of the most significant elements in the entrepreneurial ecosystem influencing women's entrepreneurial motivations and attitudes.

This chapter expands on previous research on entrepreneurial ecosystems by focusing on the informal institutional aspects in a local cultural context, using Qatar as a case study. The research methodology adopted for the current study will be explained in detail in the next section.

Methodology

This exploratory study relies on secondary data and a literature review. The data in this research was collected from academic journals on women's entrepreneurship in Qatar and other GCC countries: Saudi Arabia, the UAE, Oman, Kuwait, and Bahrain. Given the very limited research on women's entrepreneurship in Qatar, considering other GCC countries with similar socio-economic circumstances (Benbouziane and Benmar, 2010) will provide insights into the situation of women entrepreneurs in Qatar and shed light on the essential sociocultural aspects influencing women's entrepreneurship in the region.

A systematic literature review was conducted to identify the sociocultural dynamics affecting women entrepreneurs in the region. Following the methodology of Kraus et al. (2020) for conducting a systematic literature review of entrepreneurship research, a review was conducted by searching through electronic databases. Only published journal articles were considered to ensure transparency and research of higher quality. The study was conducted via the Qatar National Library (QNL) online portal, which offers access to hundreds of databases such as Taylor & Francis, Springer, Scopus, ProQuest, and JSTOR, which are widely recognized in the scientific community and recommended for entrepreneurship research (Kraus et al., 2020). The search was first established using the following keywords: "entrepren*" AND "women" OR "female" OR "gender," using the names of the GCC countries. Replicating the methodology of Cardella et al. (2020), the Boolean asterisk wildcard character (*) was used to capture many related terms (for example, "entrepreneurship," "entrepreneur," and "entrepreneurial"). The search was not restricted to a time margin; however, only articles relevant to the context of the study and published in English were considered.

# OF PUBLICATIONS	GCC COUNTRY	TITLE	AUTHOR/YEAR PUBLISHED
4	Oman	Understanding Entrepreneurship through the Experiences of Omani Entrepreneurs: Implications for Entrepreneurship Education	Al-Harthi (2017)
		Toward an Understanding of Arab Women Entrepreneurs in Bahrain and Oman	Dechant and Lamky (2005)
		Women Entrepreneurship in the Al-Batinah Region of Oman: An Identification of the Barriers	Imahorihiromi and Sakaguchi (2008)
		Entrepreneurial Success of Cottage-based Women Entrepreneurs in Oman	Mcelwee and Durrah (2018)
4	United Arab Emirates	Female Entrepreneurship in the UAE : A Multi-level Integrative Lens	Naguib (2015)
		Imperatives for Improving Entrepreneurial Behavior Among Females in the UAE: An Empirical Study and Structural Model	Jabeen and Faisal (2017)
		Determinants of Innovation Decisions among Emirati Female-owned Small and Medium Enterprises	Jabeen et al. (2019)
		United Arab Emirates Female Entrepreneurs: Motivations and Frustrations	Itani et al. (2011)
3	Kuwait	Factors Motivating Female Entrepreneurs in Kuwait	Al Mutairi and Fayez (2015)
		Gender and Business Performance of Kuwait Small Firms: A Comparative Approach	Alowaihan (2004)
		Personal and External Factors Effect on Women Entrepreneurs: Evidence from Kuwait	Naser et al. (2012)
2	Kingdom of Saudi Arabia	Businesswomen in the Kingdom of Saudi Arabia: Characteristic, Growth Patterns and Progression in a Regional Context	Ahmad (2011)
		Intrinsic Subtleties of Saudi Arabian Female Startups	Muhammad and Norean (2016)
2	Bahrain	The Evolution of Female Entrepreneurship in the Gulf Cooperation Council, The Case of Bahrain	Alexandre and Kharabsheh (2019)
		Toward an Understanding of Arab Women Entrepreneurs in Bahrain and Oman	Dechant and Lamky (2005)
3	General papers on the situation in the GCC	'Strategic (dis)obedience': Female Entrepreneurs Reflecting on and Acting upon Patriarchal Practices	Barragan et al. (2018)
		Networks around Entrepreneurs: Gendering in China and Countries around the Persian Gulf	Bertelsen et al. (2017)
		The Gendered Complexities of Promoting Female Entrepreneurship in the Gulf	Ennis, C. A. (2019)

Table 1
Country-wise Distribution of Reviewed Articles

For the current study, 17 articles exploring sociocultural attributes influencing women entrepreneurs in the region, published between 2004 and 2019, were sampled. Since women's entrepreneurship in the GCC is an emerging area of research, the systematic literature review includes fewer publications than could be expected for more established academic problems (Kraus et al., 2020). Region-specific systematic reviews are also inherently more focused and contain relatively few articles. A manual thematic analysis was also conducted to identify the main sociocultural attributes discussed in the literature.

Of the 17 articles under review, four papers discuss women's entrepreneurship in Oman and the UAE, followed by three in Kuwait. Two articles on Saudi Arabia and Bahrain have been included in this review. Three articles do not specifically examine the situation in any individual country, instead observing various themes collectively in the GCC. **Table 1** indicates the country-wise distribution of reviewed articles along with the names and titles of reviewed studies.

Table 2 shows the multi-disciplinary contribution to female entrepreneurship in the GCC, outlining multiple subject areas that researchers have explored, taking interesting perspectives from economics, business, management sciences, education, and development.

ARTICLES	JOURNALS	RESEARCH AREA
3	Journal of Developmental Entrepreneurship	Entrepreneurship, Business Development in SMEs
3	Gender in Management: An International Journal	Gender, Management, Organizational Behavior, Gender Studies
2	Equality, Diversity, and Inclusion: An International Journal	Social Sciences, Business, Public Policy
2	International Journal of Gender and Entrepreneurship	Gender, Entrepreneurship
1	Gender, Work, and Organization	Gender, Management, Women's Studies
1	Journal of Applied Management and Entrepreneurship	Management Studies, Business, Entrepreneurship
1	International Journal of Commerce & Management	Strategy, International Business
1	New Political Economy	Political Economy, Law, Development, Trade
1	International Journal of Entrepreneurial Behavior & Research	Management, Entrepreneurship Research
1	Journal of International Women's Studies	Women's Studies
1	Journal of Women's Entrepreneurship and Education	Entrepreneurship, Education, Technology

Table 2
Multi-disciplinary Nature of Women Entrepreneurship as a Subject Area

Results and Implications

A thorough look at the literature allowed us to identify three main sociocultural themes impacting women entrepreneurs' development. Family influence emerges as the most crucial sociocultural attribute, with ten articles exploring the family's approval to start a venture and the financial, emotional, and business support entrepreneurs receive from their immediate and extended family networks as key areas impacting entrepreneurial success.

Since social relations are gendered in the conservative GCC, carrying out fixed gender roles (such as the expectations of women carrying out responsibility as caretakers, child-rearing, and facing gender stereotypes) presents challenges for women-led entrepreneurial activities, with a total of 11 articles exploring themes around gender. For a successful business venture, mobility and networks play a crucial role. In those gender-segregated public spaces, lack of access to business networks, cultural restrictions on women traveling alone for business meetings, and, in general, restrained mobility have a direct impact on the probability of success for women entrepreneurs. A total of five articles discuss the challenges related to social mobility and business interactions.

Conceptual Model

Employing Stam and Van De Ven's (2019) model of entrepreneurial ecosystems, the current study explores how sociocultural and informal institutional factors shape women's entrepreneurial development and the attitudes towards women's entrepreneurship in Qatar and other GCC countries. It shows how it influences other components of the entrepreneurial ecosystem. Although the original model visualizes the ecosystem from a more holistic view, we have adopted the model by focusing only on informal institutions.

It is pertinent to highlight fundamental differences between the original model and our conceptual model version. Firstly, the original model broadly uses the term 'institution', pointing to the infrastructural preconditions required to maximize economic output. At the same time, we have narrowed our scope to explore the influence of family on the success of female entrepreneurs, given how crucial family is in the collectivist GCC culture. Secondly, we have used the term "culture" not just in terms of how the business culture is for entrepreneurs; instead, the scope is much broader and specifically explores gender norms underscoring the overarching impact of gendered social and economic spaces on the lives and businesses of female entrepreneurs. However, it should be noted that we also recognize the original model's intention to show the interplay and interdependency between resources and institutional arrangements. The current model, shown in Figure 2, attempts to capture an ecosystem's institutional arrangements by expanding on Stam's elements of informal institutions, culture, and networks to incorporate family, gender roles, and social interaction and mobility.

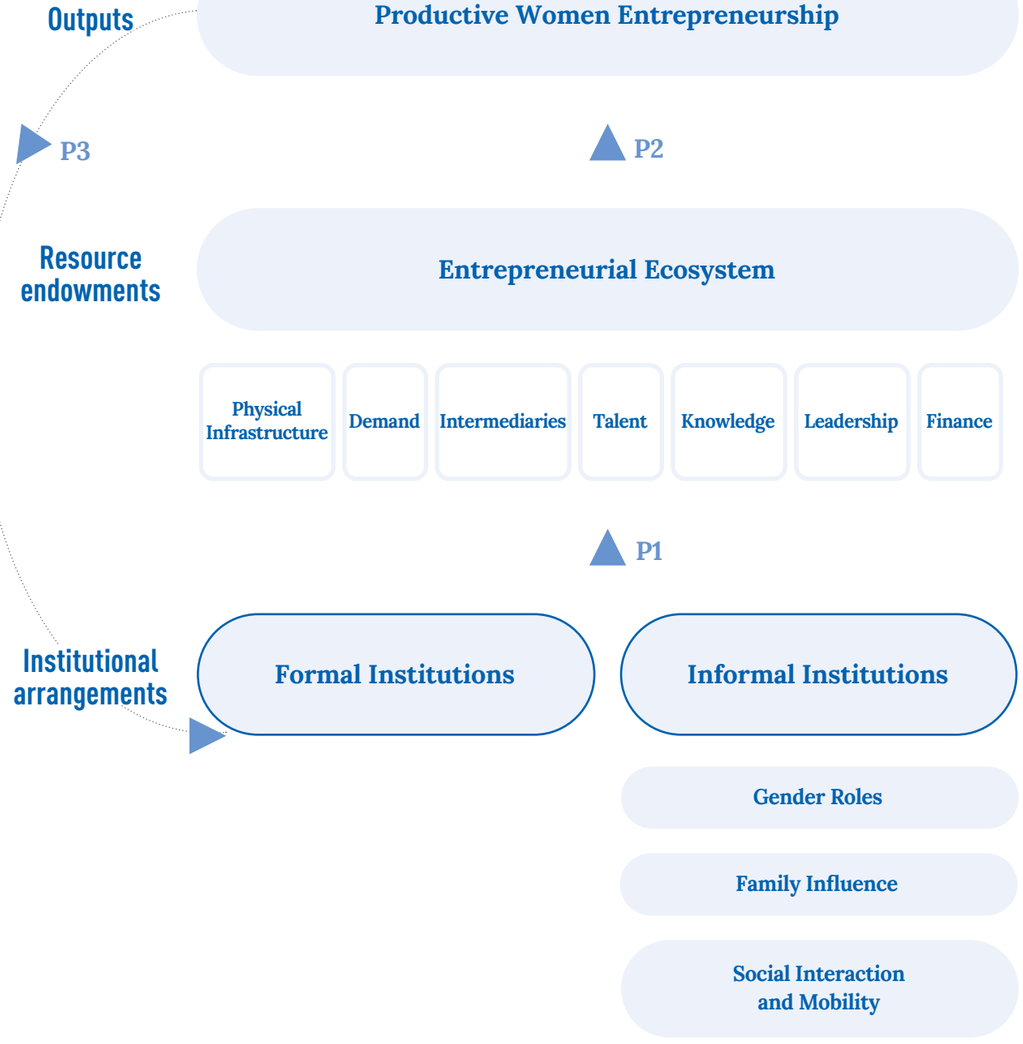


Figure 2
Adaptation of the conceptual model based on Stam and Van de Ven (2019).

Discussion

FAMILY INFLUENCE

Our findings suggest that family plays a vital role in influencing women entrepreneurs' decisions. Despite considerable societal changes in the region over the past decades, the family still acts as a critical institution of influence, and social relations revolve predominantly around the family. This finding aligns with studies on Arab entrepreneurs, where family orientation significantly influenced many of their entrepreneurial activities (Lalonde, 2013). The significant value of the family is also recognized in the Islamic religion (Rusli, 2020), with family ties and cohesion integral to a "good" life.

The approval of the family dramatically influences women entrepreneurs in the region. For instance, Naguib (2015) asserts that it is the cultural associations that steer women to seek "permission" from their family (mainly their father or husband) to start a venture. Similarly, women who participated in Al-Harthi's (2017) study described family approval as necessary for all business-related decisions. This finding supports Hofstede's (2011) cultural theory indicating that the Qatari culture is a collectivist culture where individual goals should be aligned with family preferences. While family bonds and cohesion bring a sense of satisfaction, they can also coerce individuals to conform to family preferences owing to moral obligations. In that sense, families' opinions and attitudes regarding female entrepreneurship affect women's entrepreneurial intentions and success more than these entrepreneurs' opinions and attitudes.

The reviewed articles also reveal power relations within the family as men are mostly the ones to approve (Barragan et al., 2018; Jabeen and Faisal, 2017), which confirms Salem and Yount's (2019) observation about how, in Qatar, male members eventually decide if women can participate in the workforce (Salem and Yount, 2019). Moreover, our analysis suggests that family support significantly influences women's entrepreneurship. In collectivist cultures, family is considered the primary source of support for individuals. We found that women entrepreneurs rely heavily on their families for emotional, financial, and business support. Several articles indicate that family emotional support and encouragement were essential for women to start and grow their ventures (Alexandre and Kharabsheh, 2019; Jabeen et al., 2019; Jabeen and Faisal, 2017; Muhammad and Norean, 2016).

Even though families financially support women entrepreneurs, women rely primarily on government and funding institutions for their money needs. (Al-Harthi, 2017), (Alexandre and Kharabsheh, 2019). In cases where access to capital from traditional financial mediums is unavailable, women have to rely solely on the family for money (Ahmad, 2011; Mcelwee and Durrah, 2018). Moreover, women also rely on their families to get business or practical support to facilitate the development of their ventures. For example, in generating feasible business ideas (Jabeen et al., 2019), seeking business advice and mentorship, having them assist with paperwork and business requirements (Al-Harthi, 2017), and facilitating networking needed for their businesses (Barragan et al., 2018; Jabeen and Faisal, 2017).

Finally, our analysis reveals that fear of failure discourages women entrepreneurs in the region, as failure may elicit negative remarks from society and potentially harm the family's reputation in the community (Al-Harthi, 2017; Ennis, 2019). Scholars indicate that individuals in the GCC believe that they represent their whole family, and thus, maintaining a positive image is critical, as the entire family's reputation is at stake (Al-Harthi, 2017). This cultural attribute is an added pressure on entrepreneurs and contributes to their fear of failure. According to the GEM report (2018), Qatari entrepreneurs have a relatively higher fear of failure. Perhaps, the cultural expectation to uphold family reputation has implications for this observation.

The discussion above shows the significant influence of the family on women entrepreneurs: their attitudes, motivation, and success. The importance of family reveals that women entrepreneurs in Qatar cannot be looked at as a single unit of examination. The role of the family in women's entrepreneurial development should be considered.

GENDER ROLES

Gender roles are a set of behaviors and attitudes assigned to each gender as determined by society and the prevalent cultural norms. Social and cultural perceptions of what is appropriate, acceptable, and desirable for each gender disproportionately affect women's entrepreneurship. Previous studies argue that norms of behavior are gendered in the GCC, with men being socially perceived as providers and women as primary homemakers for the family (Ahmad, 2011). Although this is a global tendency, such gender convention is intense in developing and patriarchal countries (Marques, 2017).

Typically, studies on women entrepreneurs in the region emphasize the dominant influence of gender roles on women's entrepreneurial development. Cultural conventions of gender roles and their effect on women are discussed in two sociocultural contexts. On the one hand, women in the region value their roles as homemakers and strive to balance business activities and family responsibilities. Additionally, within the male-dominated society, they face negative stereotyping as they take on entrepreneurial roles on par with their male counterparts.

Women place a high significance on their family duties. Taking care of the family is one of the most critical priorities for women in Qatari society. Al-Ghanim (2017), investigating women's participation in the public sphere, found that 52% of the sampled women in Qatar "strongly agree" and 22% "somewhat agree" that their primary responsibility should be their family and home. Similarly, our literature analysis indicates that one of the main reasons women are motivated to be entrepreneurs is because of the flexibility it offers (Almobaireek and Manolova, 2013; Tlaiss, 2015; Muhammad and Norean, 2016), allowing them to have control over their time, which eases attending family responsibilities (Tlaiss, 2015). Itani et al. (2011) found that women believe entrepreneurship allowed them to enrich their societal roles. Thus, the aim for women entrepreneurs is not to shirk away from their responsibilities as caregivers but rather to transcend that societal imposition, balancing their roles inside and out of their homes.

Nevertheless, women entrepreneurs feel challenged by the duality of their roles as both caregivers and entrepreneurs (Ennis, 2019; Mcelwee and Durrah, 2018; Naguib, 2015). In addition to household duties and taking care of their families, women entrepreneurs have to network, visit banks, attend workshops, and deal with customers, suppliers and employees. Ennis (2019) found that women in the GCC feel constrained in managing tight schedules while running a venture and attending to family responsibilities, making entrepreneurship doubly challenging. This finding supports research on developing countries, which indicates that time constraints are a significant obstacle for women entrepreneurs (Karim, 2000; De Groot, 2001).

Moreover, women entrepreneurs face pressure due to society's judgment and negative stereotypes of women entrepreneurs (Barragan et al., 2018; Imahorihiromi and Sakaguchi, 2008; Naguib, 2015). Entrepreneurship is traditionally seen as a man's domain (Panda, 2018). Therefore, women are not encouraged to pursue entrepreneurship as it goes against the conventional gender norms in the region. Additionally, women who seek entrepreneurship are still expected to start a business within the fields classified as

"feminine" and well-aligned with their gender (Al-Harthi, 2017). If women take on the role of a "provider" in the public domain, it directly challenges cultural expectations. It imposes changes on the traditional gender roles and family structures within society. This is why women's entrepreneurship is often perceived as disruptive to local family structures and receives social backlash (Naguib and Jamali, 2015).

From our analysis, it can be concluded that women's role in taking care of the family and the societal expectations of gender roles influence women's entrepreneurial development. It follows, therefore, that to facilitate women's entrepreneurship, stakeholders within the entrepreneurial ecosystem should implement women-inclusive strategies considering women's complicated place in society.

SOCIAL INTERACTIONS AND MOBILITY

Entrepreneurs need to interact with potential stakeholders, customers, and organizations to gain crucial social capital essential for their businesses. Literature on entrepreneurial ecosystems emphasizes the role of networking and social capital in identifying opportunities, accessing resources, facilitating venture growth, and enhancing entrepreneurs' knowledge (McAdam et al., 2019; Memon, 2020; Neumeyer et al., 2019; Stam and van de Ven, 2019; Spigel, 2020). However, research shows that women have low access to social capital and networking opportunities in the region owing to gender segregation in public spaces (Barragan et al., 2018; Bertelsen et al., 2017; Dechant and Lamky, 2005; Itani et al., 2011; Naguib, 2015).

In gender-segregated Qatari culture, women's economic participation and choices are adversely impacted. For example, according to Al-Ghanim (2017), 62% of men in Qatar and 36% of women believe that women should not work in gender-mixed workplaces. While women are more open to working in gender-mixed spaces, 76% think they should work only after seeking their husbands' permission. These findings suggest that social interactions and gender mixing significantly influence women's engagement in work in Qatar and that men's approval of women's nature of work is essential, as discussed in the previous section.

The region is culturally desensitized towards women intermingling with men because of traditions and religious beliefs. Women in the Arab culture limit their interaction to only males in the family and are not encouraged to participate in the public domain (Sabri and Thomas, 2019). However, starting and growing a venture requires women to network with people (including men) and visit public spaces. With men dominating the public sphere and financial centers, women experience barriers to conducting their businesses comfortably. While some women value their privacy and feel more at ease networking within the private sphere (Bertelsen et al., 2017; Dechant and Lamky, 2005; Itani et al., 2011), others who wish to interact and appear in the public sphere feel constrained by their families and society (Barragan et al., 2018; Itani et al., 2011). For example, Itani et al. (2011) found that several women entrepreneurs felt discomfort visiting institutions and organizations dominated by men and where they had to interact with men to conduct their ventures. Interestingly, the authors also found that many women had no issues sharing social spaces with men but feared resistance from their families and society.

Some scholars have discussed cultural constraints on women's mobility, specifically the restrictions on traveling alone to conduct business (Barragan et al., 2018; Naguib, 2015). Some women are only allowed to travel if accompanied by their husbands or a male family member (Barragan et al., 2018). In this sense, women entrepreneurs can potentially miss crucial chances to develop networks invaluable to growing their businesses. Women entrepreneurs must also adhere to cultural expectations regarding social interactions and mobility. Those who pursue public leadership positions risk provoking the collective ire of society (Ahmad, 2011). Their roles as leaders and entrepreneurs may require them to move beyond the private sphere, network publicly with men, carry out a presentation or a public speech, appear in media channels, or constantly travel for work, activities considered culturally unacceptable. Consequently, cultural expectations to maintain a reputation and a positive public image serve as a form of pressure on women entrepreneurs, increasing the cost of pursuing entrepreneurship for women.

Cultural norms, in effect, relegate women to the private sphere, which influences women's social interactions and mobility. However, recent studies indicate that women in the region utilize digital technologies to navigate the public sphere (Alghamdi, 2021; McAdam et al., 2020; McAdam et al., 2019) by circumventing regressive cultural practices without the need to challenge prevalent attitudes directly. For example, McAdam et al. (2019) found that digital spaces allowed women to interact more freely with people outside their social circle (including men), where women employ digital technology to increase their social connections, contact mentors, and conduct their business, rather than depending on a male family member to facilitate their activities.

The discussion above shows that sociocultural norms and attitudes impact women entrepreneurs' engagement and success in the region. Facilitating women's entrepreneurship in Qatar requires integrating the different components of the entrepreneurial ecosystem to mitigate the negative impact of social norms and cultural values to allow women much-needed mobility. A better understanding of the local cultural context will help create effective women-centric policies essential for an inclusive entrepreneurial ecosystem.

RECOMMENDATIONS TOWARDS A MORE INCLUSIVE ENTREPRENEURIAL ECOSYSTEM

Based on the findings of this study, the following recommendations were formulated for different stakeholders within the entrepreneurial ecosystem to support women's entrepreneurship:

- Government and non-governmental organizations should target the family as a unit. Focusing efforts solely on women to improve entrepreneurial intention and success might not be as effective as including other family members, especially men (fathers or husbands), due to their influential role in women's entrepreneurial development. For example, universities and incubators could consider inviting family members to entrepreneurial sessions. Raising awareness regarding the benefits of entrepreneurship for women should be done on a broader social level, targeting families of women entrepreneurs and potential entrepreneurs.
- Entrepreneurship support organizations should target family support for those who lack it, given that it is essential to women's entrepreneurial development. For example, initiating a women entrepreneurs' association or club that conducts regular meetings to provide emotional and practical support and where women entrepreneurs can discuss their experiences and challenges.
- Entrepreneurial initiatives aiming to escalate women's entrepreneurship in Qatar should promote entrepreneurship as a flexible opportunity where women can meet both their social and professional roles.
- Organizations, incubators, and accelerators should consider providing childcare services. For example, providing workspaces for women entrepreneurs with childcare facilities can benefit working mothers.
- Support organizations should provide women entrepreneurs with easy-to-access assistance and mentorship that do not require women to go to the centers but use platforms such as WhatsApp. This could help women attend to their other social responsibilities and might help them to overcome certain cultural restrictions related to social interaction and mobility.
- Entrepreneurial initiatives aiming to escalate women's entrepreneurship in Qatar should promote digital technologies for women entrepreneurs to overcome several sociocultural limitations. In addition, organizations should facilitate digital services to increase efficiency and productivity for women entrepreneurs.
- Stakeholders should organize business networking activities considering cultural barriers to women's social interaction. For example, extend the invitation to accommodate the women's fathers or husbands or create female-inclusive areas.
- Universities, incubators, accelerators, and other organizations can organize women-only business trips to ease travel restrictions.
- The government and other organizations should acknowledge women entrepreneurs' efforts and successes by providing financial and non-financial rewards to encourage women and reinforce the positive image of women entrepreneurs within society.
- Different stakeholders within the entrepreneurial ecosystem should acknowledge the sociocultural challenges imposed on women, work collectively to investigate related challenges and develop creative solutions to facilitate women's entrepreneurship in Qatar.

Conclusion and Limitations

This study has presented the existing research on women entrepreneurs in the GCC region to investigate significant sociocultural influences. Despite substantial economic and social advancement in Qatar, Qatari women entrepreneurs remain underrepresented. While previous research primarily focuses on the role of formal institutions for entrepreneurs, our study sheds light on the role of informal social and cultural institutions for women entrepreneurs in Qatar and other GCC countries. Existing theoretical approaches to the entrepreneurial ecosystem acknowledge the role of conducive culture in developing entrepreneurial projects; however, they tend to oversimplify and generalize the influence of culture. Applying frameworks uncritically to the GCC context may be problematic.

Women entrepreneurs in the region face considerable sociocultural complexities, and thus, understanding how cultural influences can produce effective policymaking is gender-inclusive and entrepreneurially productive. Our chapter contributes to the body of literature by extending the attributes of culture and offering a more nuanced examination of the influence of culture in Qatar and the GCC on women's entrepreneurial development.

The findings of this study offer three broad insights. Firstly, family plays an influential role in women entrepreneurs' business decisions in the region: it can either facilitate or discourage women's entrepreneurship. The family's approval appears crucial in many stages of a women's entrepreneurial cycle. More specifically, the role of men in the family has been highlighted. Secondly, gender roles impact women's entrepreneurship. Women in the region value their socially assigned role as caretakers. However, they face challenges balancing their social and professional roles if they wish to pursue entrepreneurship. In addition, they face societal judgment and negative stereotypes based on cultural expectations of gender roles.

Thirdly, gendered cultural conventions of social interaction and mobility influence women entrepreneurs in Qatar and other GCC countries. Gender segregation, a norm in the broader GCC culture, imposes barriers for female entrepreneurs as they cannot correctly network with investors, suppliers, customers, and other stakeholders and, therefore, cannot successfully grow their businesses. The findings of this paper offer significant insights into the influence of cultural attributes on women's entrepreneurship in Qatar and other GCC countries. The theoretical contribution lies in reconceptualizing the role of culture within the entrepreneurial ecosystem through its context-specific examination of women in the GCC region. For practical implications, we have offered several recommendations and policy suggestions.

To create a more conducive environment for women entrepreneurs, different institutions within the entrepreneurial ecosystem must work together to enhance the ecosystem's overall productivity. As indicated earlier, owing to the limited data available on women entrepreneurs, especially in Qatar, this study only utilized secondary data from a relatively small sample of published academic research. Future researchers could investigate in more detail the cultural attributes that influence women's entrepreneurship in Qatar and how other institutions within the entrepreneurial ecosystem influence women's entrepreneurial development by conducting in-depth interviews with larger samples.

References

Adema, W. Ali, N. Frey, V. Kim, H. Lunati, M. Piacentini, M. and Queisser, M. (2014). Enhancing women's economic empowerment through entrepreneurship and business leadership in OECD countries. available at: www.oecd.org/gender/Enhancing%20Women%20Economic %20Empowerment_Fin_1_Oct_2014.pdf

Ahl, H. and Marlow, S. (2012). Exploring the dynamics of gender, feminism and entrepreneurship: advancing debate to escape a dead end? *Organization*, 19 (5), 543-562.

Ahmad, S. Z. (2011). Businesswomen in the Kingdom of Saudi Arabia: Characteristic, growth patterns and progression in a regional context. *Equality, Diversity and Inclusion*, 30(7), 610–614. https://doi.org/10.1108/02610151111167052

Alowaihan, A. K. (2004). Gender and business performance of Kuwait small firms: A comparative approach. *International Journal of Commerce and Management*, 14(3/4), 69-82

Al Mutairi, A., and Fayez, F. (2015). Factors Motivating Female Entrepreneurs in Kuwait. *The Journal of Applied Management and Entrepreneurship*, 20(1), 50–68. https://doi.org/10.9774/gleaf.3709.2015.ja.00005

Al-Ghanim, K. (2017). Transitional society and participation of women in the public sphere: A survey of Qatar society. *International Journal of Humanities and Social Science Research*, 3(2), 2455–2070.

Al-Harthi, A. S. A. (2017). Understanding entrepreneurship through the experiences of Omani entrepreneurs: Implications for entrepreneurship education. *Journal of Developmental Entrepreneurship*, 22(1), 1–21. https://doi.org/10.1142/S1084946717500017

Alexandre, L., and Kharabsheh, R. (2019). The evolution of female entrepreneurship in the Gulf Cooperation Council, the case of Bahrain. *International Journal of Gender and Entrepreneurship*, 11(4), 390–407. https://doi.org/10.1108/IJGE-02-2019-0041

Ali, S., and Weir, D. (2020). Wasta: Advancing a Holistic Model to Bridge the Micro-Macro Divide. *Management and Organization Review*, 16(3), 657–685. https://doi.org/10.1017/mor.2020.27

Almobaireek, W. N., and Manolova, T. S. (2013). Entrepreneurial motivations among female university youth in Saudi Arabia. *Journal of Business Economics and Management*, 14(SUPPL1), 56–76. https://doi.org/10.3846/16111699.2012.711364

Ambepitiya, K. R. (2016). The Role of Women Entrepreneurs in Establishing Sustainable Development in Developing Nations. *World Review of Business Research Issue*. Pp, 6(1), 161–178.

Aoyama, Y. (2009) Entrepreneurship and Regional Culture: The Case of Hamamatsu and Kyoto. *Japan. Regional Studies*, 43(3), 495-512.

Baalousha, H. M., and Ouda, O. K. M. (2017). Domestic water demand challenges in Qatar. *Arabian Journal of Geosciences*, 10(24) https://doi.org/10.1007/s12517-017-3330-4

Badahdah, A. M., and Foote, C. E. (2010). Role of shame in the stigmatization of people with human immunodeficiency virus. *Eastern Mediterranean Health Journal*, 16(9), 982–987. https://doi.org/10.26719/2010.16.9.982

Barragan, S., Erogul, M. S., and Essers, C. (2018). 'Strategic (dis)obedience': Female entrepreneurs reflecting on and acting upon patriarchal practices. *Gender, Work and Organization*, 25(5), 575–592. https://doi.org/10.1111/gwao.12258

Basaffar, A. A., Niehm, L. S., and Bosselman, R. (2018). *Saudi Arabian women in entrepreneurship: challenges, opportunities and potential*. 23(2), 1–21. https://doi.org/10.1142/S1084946718500139

Benbouziane, M. and Benmar, A. (2010). Could GCC countries achieve an optimal currency area? *Middle East Development Journal*, 2(2), 203-227

Bertelsen, R. G., Ashourizadeh, S., Jensen, K. W., Schøtt, T., and Cheng, Y. (2017). Networks around entrepreneurs: gendering in China and countries around the Persian Gulf. Gender in Management, 32(4), 268–280. https://doi.org/10.1108/GM-03-2016-0030

Bosma, N., and Holvoet, T. (2015). The role of culture in entrepreneurial ecosystems: An investigation for European regions. Paper presented at the 6th Annual George Washington University (GWU)- International Council for Small Business (ICSB) Global Entrepreneurship Research and Policy Conference.

Brush, C., Edelman, L. F., Manolova, T., and Welter, F. (2019). A gendered look at entrepreneurship ecosystems. *Small Business Economics*, 53(2), 393–408. https://doi.org/10.1007/s11187-018-9992-9

Bullough, A., Guelich, U., Manolova, T. S., and Schjoedt, L. (2022). Women's entrepreneurship and culture: gender role expectations and identities, societal culture, and the entrepreneurial environment. *Small Business Economics*, 58(2), 985–996. https://doi.org/10.1007/s11187-020-00429-6

Cacciotti, G., and Hayton, J. C. (2002). National Culture and Entrepreneurship: A Review of Behavioral Research. Entrepreneurship *Theory and Practice*, 401–422. https://doi.org/10.1002/9781118970812.ch18

Cardella, G. M., Hernández-Sánchez, B. R., and Sánchez-García, J. C. (2020). Women Entrepreneurship: A Systematic Review to Outline the Boundaries of Scientific Literature. *Frontiers in Psychology*, 11(July), 1–18. https://doi.org/10.3389/fpsyg.2020.01557

Colombo, M. G., Dagnino, G. B., Lehmann, E. E., and Salmador, M. P. (2019). The governance of entrepreneurial ecosystems. *Small Business Economics*, 52(2), 419–428. https://doi.org/10.1007/s11187-017-9952-9

Dechant, K., and Lamky, A. asya. (2005). Toward an Understanding of Arab Women Entrepreneurs in Bahrain and Oman. *Journal of Developmental Entrepreneurship*, 10(02), 123–140. https://doi.org/10.1142/s1084946705000100

Donaldson, C. (2021). Culture in the entrepreneurial ecosystem: a conceptual framing. *International Entrepreneurship and Management Journal*, 17(1), 289–319. https://doi.org/10.1007/s11365-020-00692-9

Elert, N., and Henrekson, M. (2017). Entrepreneurship and institutions: A bidirectional relationship. *Research Institute of Industrial Economics*.

Ennis, C. A. (2019). The Gendered Complexities of Promoting Female Entrepreneurship in the Gulf. *NEW POLITICAL ECONOMY*, 24(3), 365–384.

Erogul, M. S., Rod, M., and Barragan, S. (2019). Contextualizing Arab female entrepreneurship in the United Arab Emirates. *Culture and Organization*, 25(5), 317–331. https://doi.org/10.1080/14759551.2016.1244824

Faisal, M. N., Jabeen, F., and Katsioloudes, M. I. (2017). Strategic interventions to improve women entrepreneurship in GCC countries: A relationship modeling approach. *Journal of Entrepreneurship in Emerging Economies*, 9(2), 161–180. https://doi.org/10.1108/JEEE-07-2016-0026

Fernandez, R. and Ali, S. (2015). SME contributions for diversification and stability in emerging economies – an empirical study of the SME segment in the Qatar economy. *Journal of Contemporary Issues in Business and Government*, 21(1), 23-45.

Foss, L., Henry, C., Ahl, H., and Mikalsen, G. H. (2019). Women's entrepreneurship policy research: a 30-year review of the evidence. *Small Business Economics*, 53(2), 409-429.

General Secretariat for Development Planning. (2008). July 2008 *General Secretariat for Development Planning*. July. www.planning.gov.qa

Global Entrepreneurship Monitor. (2018). *Qatar National Report 2018*.

Gupta, A., Batra, S., and Gupta, V. K. (2022). Gender, culture, and implicit theories about entrepreneurs: a cross-national investigation. *Small Business Economics*, 58(2), 1073–1089. https://doi.org/10.1007/s11187-020-00434-9

Golkowska, K. (2017). Qatari women navigating gendered space. Social Sciences, 6(4). https://doi.org/10.3390/socsci6040123

Hattab, H. (2012). Towards understanding female entrepreneurship in Middle Eastern and North African countries. *Education, Business and Society: Contemporary Middle Eastern Issues*, 5(3), 171-186.

Hechavarria, D., Bullough, A., Brush, C., and Edelman, L. (2019). High-Growth Women's Entrepreneurship: Fueling Social and Economic Development. *Journal of Small Business Management*, 57(1), 5–13. https://doi.org/10.1111/jsbm.12503

Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. 2, 1–26.

Hutchings, K., and Weir, D. (2006). Understanding networking in China and the Arab World: Lessons for international managers. *Journal of European Industrial Training*, 30(4), 272–290. https://doi.org/10.1108/03090590610673641

Isenberg, D. (2011). The entrepreneurship ecosystem strategy as a new paradigm for economy policy: Principles for cultivating entrepreneurship. Babson College, Babson Park: MA: Babson Entrepreneurship Ecosystem Project.

Imahorihiromi, Y., and Sakaguchi, S. (2008). Woman Entrepreneurship in the Al-Batinah Region of Oman: An identification of the Barriers. *Journal of International Women's Studies*, 12(4959), 49–59.

Itani, H., Sidani, Y. M., and Baalbaki, I. (2011). United Arab Emirates female entrepreneurs: Motivations and frustrations. *Equality, Diversity and Inclusion*, 30(5), 409–424. https://doi.org/10.1108/02610151111150654

Jabeen, F., and Faisal, M. N. (2017). Imperatives for improving entrepreneurial behavior among females in the UAE: An empirical study and structural model. *Gender in Management*, 33(3), 234–252. https://doi.org/10.1108/GM-03-2016-0042

Jabeen, F., Faisal, M. N., and Al Matroushi, H. (2019). Determinants of innovation decisions among Emirati female-owned small and medium enterprises. *International Journal of Gender and Entrepreneurship*, 11(4), 408–434. https://doi.org/10.1108/IJGE-02-2019-0033

Javadian. G. and Singh. R.P. (2012). Examining successful Iranian women entrepreneurs: an exploratory study. *Gender in Management: An International Journal*, 27(3), 148-164.

Khayal, H. (2021). *The Entrepreneurial Ecosystem in Egypt : A Gendered Perspective The American University in Cairo*.

Kraus, S., Breier, M., and Dasí-Rodríguez, S. (2020). The art of crafting a systematic literature review in entrepreneurship research. Content courtesy of Springer Nature, terms of use apply. Rights reserved. *International Entrepreneurship and Management Journal*, 16, 1023–1042.

Lalonde, J. F. (2013). Cultural determinants of Arab entrepreneurship: An ethnographic perspective. *Journal of Enterprising Communities*, 7(3), 213–232. https://doi.org/10.1108/JEC-01-2012-0007

Linan, F., and Fernandez-Serrano, J. (2014). National culture, entrepreneurship and economic development: Different patterns across the European Union. *Small Business Economics*, 42(4), 685–701. https://doi.org/10.1007/s11187-013-9520-x

Mack, E., and Mayer, H. (2016). The evolutionary dynamics of entrepreneurial ecosystems. Urban Studies, 53(10), 2118– 2133.

Marques, H. (2017). Gender, entrepreneurship and development: which policies matter? *Development Policy Review*, 35(2), 197–228. https://doi.org/10.1111/dpr.12206

Mason, C., and Brown, R. (2014). Entrepreneurial ecosystems and growth oriented entrepreneurship. Final report to OECD, Paris, 30(1), 77-102.

McAdam, M., Crowley, C., and Harrison, R. T. (2020). Digital girl: cyberfeminism and the emancipatory potential of digital entrepreneurship in emerging economies. *Small Business Economics*, 55(4), 1179. https://doi.org/10.1007/s11187-020-00321-3

McAdam, M., Harrison, R. T., and Leitch, C. M. (2019). Stories from the field: women's networking as gender capital in entrepreneurial ecosystems. *Small Business Economics*, 53(2), 459–474. https://doi.org/10.1007/s11187-018-9995-6

Mcelwee, G., and Durrah, O. (2018). Entrepreneurial success of cottage-based women entrepreneurs in Oman. *International Journal of Entrepreneurial Behavior & Research*, 25(2019), 480–498. https://doi.org/10.1108/IJEBR-10-2018-0691

Memon, A. (2020). Analyzing the entrepreneurial ecosystem for women entrepreneurs: A study of rural Jamshoro, Pakistan. *Indian Journal of Commerce & Management Studies*, XI(3), 45. https://doi.org/10.18843/ijcms/v11i3/05

Muhammad, K. R., and Norean, S. (2016). *Intrinsic Subtleties of Saudi Arabian Female Startups*. 2(53).

Naguib, R. (2015). Female entrepreneurship in the UAE : a multi-level integrative lens. *Gender in Management: An International Journal*, 30(2), 135–161. https://doi.org/10.1108/GM-12-2013-0142

Neck, H. M., Meyer, G. D., Cohen, B., and Corbett, A. C. (2004). An entrepreneurial system view of new venture creation. *Journal of Small Business Management*, 42(2), 190–208. https://doi.org/10.1111/j.1540-627X.2004.00105.x

Naser, K., Nuseibeh, R., and Al-Hussaini, A. (2012). Personal and external factors effect on women entrepreneurs: Evidence from Kuwait. *Journal of Developmental Entrepreneurship*, 17(2). https://doi.org/10.1142/S1084946712500082

Neumeyer, X., Santos, S. C., Caetano, A., and Kalbfleisch, P. (2019). Entrepreneurship ecosystems and women entrepreneurs: a social capital and network approach. *Small Business Economics*, 53(2), 475–489. https://doi.org/10.1007/s11187-018-9996-5

Olanrewaju, A. S. T., Hossain, M. A., Whiteside, N., and Mercieca, P. (2020). Social media and entrepreneurship research: A literature review. *International Journal of Information Management*, 50(November 2018), 90–110. https://doi.org/10.1016/j.ijinfomgt.2019.05.011

Ottsen, C. L., and Berntsen, D. (2014). The cultural life script of Qatar and across cultures: Effects of gender and religion. *Memory*, 22(4), 390-407.

Panda, S. (2018). Constraints faced by women entrepreneurs in developing countries: review and ranking. *Gender in Management*, 33(4), 315–331. https://doi.org/10.1108/GM-01-2017-0003

Planning and Statistics Authority. (2019). *Labor Force Sample Survey*.

Rugh, A. B. 2007. The Political Culture of Leadership in the United Arab Emirates. New York: Palgrave MacMillan. Sayed, S. 2002. Women, Politics and Development in the United Arab Emirates. Dubai: Special Emirates Collection, Zayed University.

Sahli, S. (2021). Entrepreneurship in Qatar. *In Entrepreneurship in the Gulf Cooperation Council Region: Evolution and Future Perspectives* (pp. 79-109).

Salem, R., and Yount, K. M. (2019). Structural accommodations of patriarchy: Women and workplace gender segregation in Qatar. *Gender, Work and Organization*, 26(4), 501–519. https://doi.org/10.1111/gwao.12361

Sarwar, Z. (2014). Exploring Muslim Feminisms : A Response to Orientalist Discourses About Muslim Women.

Sharma, A., Dua, S., and Hatwal, V. (2012). Micro Enterprise Development and Rural Women Entrepreneurship : Way for Economic Empowerment. Arth Prabandh: A *Journal of Economics and Management*, 1(6), 114–127. http://www.prj.co.in/setup/business/paper45.pdf

Sperber, S., and Linder, C. (2018). Gender-specifics in start-up strategies and the role of the entrepreneurial ecosystem. *Small Business Economics*

Spigel, B. (2017). The Relational Organization of Entrepreneurial Ecosystems. *Entrepreneurship: Theory and Practice*, 41(1), 49–72. https://doi.org/10.1111/etap.12167

Spigel, B. (2020). Global entrepreneurial ecosystems. *Entrepreneurial Ecosystems*, 105–127. https://doi.org/10.4337/9781788975933.00009

Stam, E. (2015). Entrepreneurial Ecosystems and Regional Policy: A Sympathetic Critique. *European Planning Studies*, 23(9), 1759–1769. https://doi.org/10.1080/09654313.2015.1061484

Stam, E., and van de Ven, A. (2019). Entrepreneurial ecosystem elements. *Small Business Economics*, 56(2), 809–832. https://doi.org/10.1007/s11187-019-00270-6.

Steyaert, C., and Katz, J. (2004). Reclaiming the Space of Entrepreneurship in Society: Geographical, Discursive and Social Dimensions. *Entrepreneurship and Regional Development*, 16, 179-196.

Thébaud, S. (2015). Status beliefs and the spirit of capitalism: Accounting for gender biases in entrepreneurship and innovation. *Social Forces*, 94(1), 61–86. https://doi.org/10.1093/sf/sov042

Tlaiss, H. A. (2014). Women's entrepreneurship, barriers and culture: Insights from the United Arab Emirates. *Journal of Entrepreneurship*, 23(2), 289–320. https://doi.org/10.1177/0971355714535307

Tlaiss, H. A. (2015). Entrepreneurial motivations of women: Evidence from the United Arab Emirates. International *Small Business Journal: Researching Entrepreneurship*, 33(5), 562–581. https://doi.org/10.1177/0266242613496662

Verheul, I. (2005). Is there a (fe)male approach?: *Understanding gender differences in entrepreneurship*. 270.

CHAPTER 6

Scaling Qatar's Entrepreneurial Ecosystem: A Policy Analysis and Practical Recommendations

Allan Villegas-Mateos

Introduction

Qatar has positioned itself as a nation undergoing rapid transformation. It is determined to attract the world's leading companies and brightest minds to help deliver a future driven by innovation. The Qatar National Vision (QNV) 2030 was launched in 2008 as a strategic development plan in collaboration with key stakeholders. It provides a master vision and roadmap toward Qatar becoming an advanced society capable of sustainable development and providing a high standard of living for all citizens by 2030. Driven by that goal, Qatar has established a world-class digital infrastructure, top education institutions, enabling regulations and laws, and thriving innovation systems that have created the conditions for the world's leading companies to establish and grow their operations in the country. However, business experts and entrepreneurs have criticized the inequality of opportunities between Qatari citizens and expatriate residents. According to the Ministry of Interior and the Planning and Statistics Authority, 94 nationalities live and work in Qatar, representing nearly 86% of the total population. It is relevant to analyze this fact because the disadvantage of the entrepreneurial ecosystem and investment climate could be driving lower innovation outputs and human capital leaks, even though the entrepreneurship rankings are usually very optimistic (see Table 1). It means the entrepreneurial ecosystem and investment climate are causing a systematic gap, creating barriers to the exploitation of ideas and opportunities for a highly skilled segment of the population in Qatar.

Looking at the leading world indicators related to the entrepreneurial ecosystem in Table 1, Qatar is well positioned in most of them, but desegregating them by their pillars, identifies issues related to the protectionism of minority shareholders, access to credit, resolving insolvency, and enforcing contracts, among others, depending on the indicator. The rapid growth of Qatar's economy since the discovery of oil in 1940 has brought challenges to the regulatory framework, education, infrastructure, investments, economic diversification, and of course, immigration laws to attract and retain the right human capital to support that growth. Qatar is a small country competing for the same resources as big countries. However, it faces almost the same challenges as other GCC states in attracting and retaining international talents and foreign investments. Besides their hydrocarbon-based economies, a common denominator among the GCC states is the reinvestment of their revenues to transform into knowledge-based economies where creating, attracting, and retaining talent is perhaps the most relevant factor. Consequently, all GCC countries have populations of 51% or more expatriates. The UAE has the most significant share with 89% expatriates, followed by Qatar with a share of 86% non-Qataris.

BENCHMARK REPORTS	RANK BETWEEN COUNTRIES	SOURCE
Competitiveness Index	17 out of 64	International Institute for Management Development (2021)
Global Competitiveness Report	29 out of 141	World Economic Forum (2019)
Ease of Doing Business	77 out of 190	World Bank (2019)
Global Innovation Index	68 out of 132	World Intellectual Property Organization (2021)
Total Early-stage Entrepreneurial Activity	13 out of 43	Global Entrepreneurship Monitor (2020)
National Entrepreneurship Conditions Index	8 out of 44	Global Entrepreneurship Monitor (2020)
Global Entrepreneurship Index	22 out of 137	Global Entrepreneurship Development Institute (2019)

Table 1
International Reports Benchmark

According to the Qatar Planning and Statistics Authority, the country's total population is 2,846,118, as of writing; 46.6% are blue-collar workers living in labor camps, 19.2% are under-aged, and 10.1% are Qatari citizens. It is hard to define an exact number, but with these assumptions, it is a reality that the number of highly skilled expatriates with an ideal profile to start their own business is equal to or less than the Qatari citizens. Therefore, "[it] is a numbers game," and the opportunities for both groups of the population must be equal in this plan to transform the country into a knowledge-based economy (QNV 2030), where research, innovation, technology, and entrepreneurship are highlighted as drivers of the desired transformation. The problem today is the reality lived by expatriates residing in Qatar, experiencing gaps and significant challenges, from the legal aspects of the business up to its development.

Policies and regulations

Policymakers worldwide seek to build vibrant entrepreneurial ecosystems to promote innovative entrepreneurship (Wang et al., 2022). However, very few incorporate the entrepreneurial community's needs when designing them, thereby creating systematic issues that increase risks, time to go to market, and operational expenses. The rules must be clear for all stakeholders and accessible to any group of the population, whether it's a micro, small, medium, or big company, and the same applies to the company's ownership. For example, Qatar's Foreign Investment Law No. 13, established in 2000, states that a foreign investor (or entrepreneur) who wants to set up a company in Qatar must have a local Qatari partner holding at least 51% of its shares. Exceptions to this law were specific to priority sectors and limited to multinational companies but not entrepreneurs. This law was the first effort to attract human capital to invest in Qatar and create companies that would help diversify the economy. Little was known about small firms or technology start-ups founded by expatriates during this period, given the lack of access to information. The exceptions were start-ups co-founded with Qatari partners following the 51% rule. Consequently, most registered companies, such as salons, coffee shops, restaurants, etc., were low in innovation. For years it was enough, considering the rapid growth of the economy, the infrastructure development, and the protected wealth among the Qatari citizens. The ecosystem began to change again after December 2010, when Qatar made history by winning the right to host the FIFA World Cup 2022. This milestone also meant bringing more than 2 million expatriates to build that dream in the following years.

Today, 2022 has arrived, and just eight more years remain to achieve the QNV 2030. How much has Qatar advanced in its proposed economic transformation? For this report, the author and research team interviewed close to a hundred entrepreneurs who founded a business in Qatar between 2017 and 2021 to better understand the entrepreneurial ecosystem and investment climate in an effort to continue understanding Qatar's entrepreneurial ecosystem that started two years ago. One crucial fact of its development has been the commercial blockade that began in 2017 and ended only at the beginning of 2021. When the blockade began, many more government programs and policies were created to support the creation of new businesses that would cover the domestic demand for essential products. The manufacturing, agricultural, and farm sectors benefited the most since the competition was very low or non-existent in some cases, and it was easy to access subsidies and funds to start, but these were limited to Qatari citizens or Qatari-owned companies (51% or more ownership). Many business incubators emerged and consolidated as leading supporters of local entrepreneurs, providing mentorship, office space, and cash investments. However, commercial registration and licensing must be done with a corresponding government entity.

> *"This new law, in theory, permits foreign investments in all sectors of the economy, allowing a 100% shareholding of a Qatar-registered company"*

Registering a company at the Ministry of Commerce and Industry (MOCI) requires a Qatari majority shareholding. With all these fast changes and aiming to attract and support more entrepreneurs and investors to come to Qatar, in 2019, Law No. 1 was created to regulate non-Qatari investments in economic activities. This new law, in theory, permits foreign investments in all sectors of the economy, allowing a 100% shareholding of a Qatar-registered company, including those registered with MOCI. In practice, its implementation is still not entirely complete. In the words of entrepreneurs, "you still need a Qatari partner to gain contracts, to do the legal paper works with the authorities faster, to be taken seriously, and to access certain support like subsidies and funding." Nevertheless, the law is a significant step and shows how Qatar is working to advance in making opportunities equal for all segments of the population.

Some years before, in 2005, under Law No. 7, the Qatar Financial Centre (QFC) was authorized to regulate and register firms and individuals (100% foreign) conducting financial services. This law has since evolved, with the QFC offering an option for many services, including digital marketing, e-commerce, business councils, etc. The QFC has become the primary option for entrepreneurs in digital technologies and services. In collaboration with Qatar Development Bank (QDB), they started the FinTech Hub in 2021 as an incubator for financial technology firms. They offer a fast-track registration for companies incubated in Qatar Business Incubation Center and Qatar SportsTech, both part of QDB. These three incubators, plus Scale7 (a fashion business incubator), are part of QDB's incubation network, which only supports companies with an active Qatari partner, but that could be a partner with a share capital of less than 51% nowadays.

The same year, in 2005, Law No. 36 established the first free zone, Qatar Science and Technology Park (QSTP), a member of QF, the first place able to register a wholly foreign-owned company if the company was doing research and development, product development, technical training, or technical advice. Today, QSTP offers incubation and acceleration services and funding, although funding is limited to companies with an active Qatari partner owning at least 20% of the shares. The type of activities you can register at QSTP could be a limitation; for example, it is not for heavy manufacturing or a marketing company, and the registration comes with a leasing contract for offices with them (not a cheap option). If the company is incubated, the company registration and office are free, accompanied by mentoring.

Therefore, an option for the remaining list of economic activities was missing. The Qatar Free Zones Authority (QFZA) was created in 2018, offering two more chances to foreigners at Umm Al Houl and Ras Bufontas. These free zones host some of the world's leading companies delivering products and services across the country's key sectors, including cloud data services, autonomous vehicle assembly, and marine services, but not entrepreneurs because they lease land, office, or warehouse by initiating the registration and licensing of the company. An additional benefit of the free zones is the exemption from import and export customs duties. That leaves only the QFC or QSTP (if incubated) as options for expatriate entrepreneurs, which does not cover all the sectors of the economy. MOCI will be the next option when the last law is fully implemented. The possibilities are broader when you are willing to invest from day one in leasing spaces and even more if you are a foreign firm or if, as an entrepreneur, you have a local partner as a major shareholder for your business.

Challenges for less supported groups

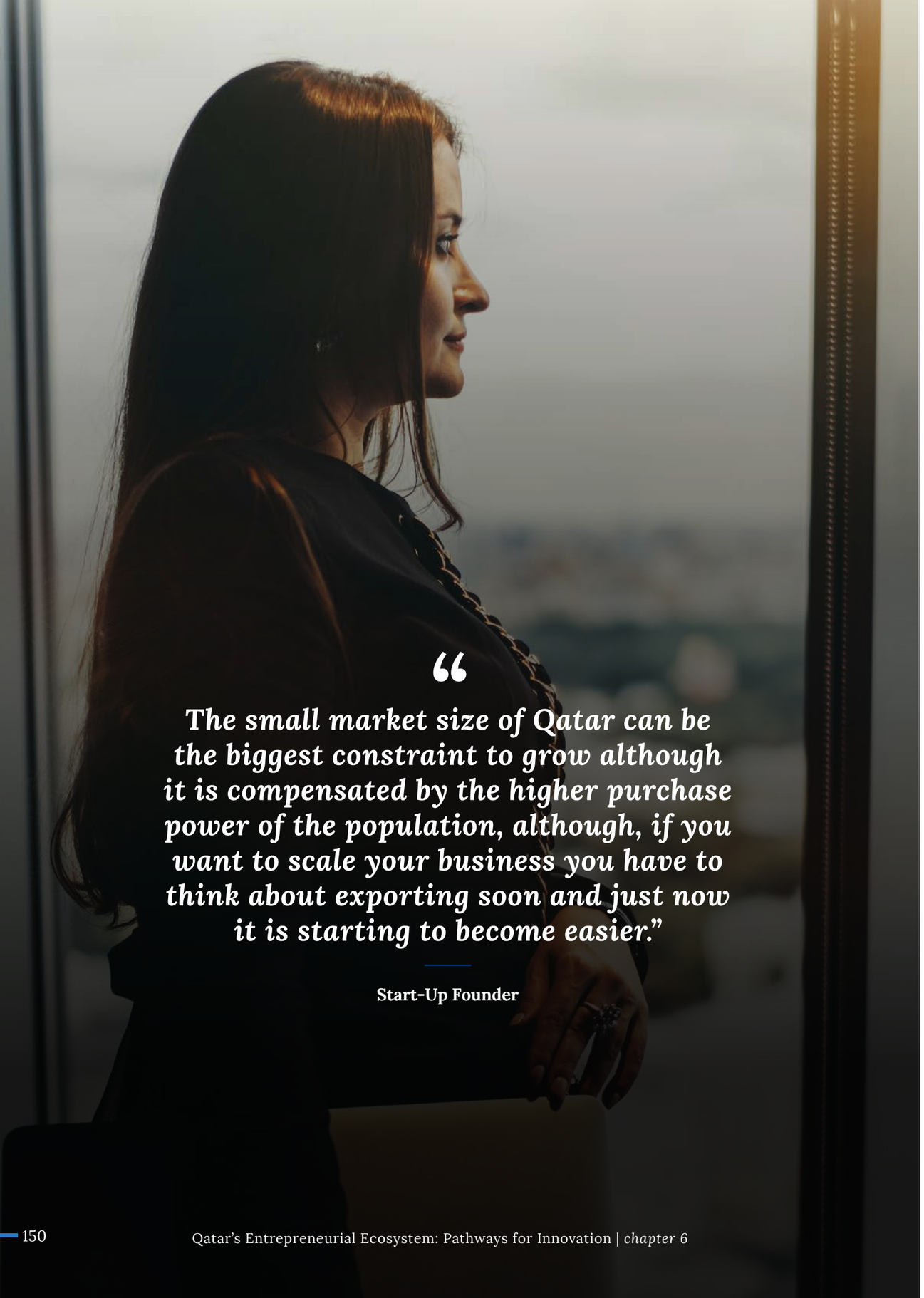
> ***"Starting the company was not the problem; getting the projects was because established companies expect you to be a Qatari business."***
>
> **Entrepreneur in IT and Construction**

Across the interviews gathered for the report, 63% were expatriate entrepreneurs who did not declare facing difficulties in registering the company but were incubated and given those facilities or had a Qatari partner who helped them. Nevertheless, the general perceptions are that regulations and the legal framework to do it are too bureaucratic and not suitable for expatriates. As previously quoted, the challenges are related to the business's daily operations, where finding clients involves selling directly to consumers or from business to business. One finding that explains the difficulty is that with the blockade imposed in 2017, the national culture changed to produce and consume Qatari products over imported goods. Until 2021, most registered businesses have majority ownership by Qatari citizens, and the shareholding is even higher in the strategic sectors. This means that having a company in the food and agriculture sector requires competing or negotiating with the local community since the blockade converted them into one of the priority sectors to overcome the crisis in demand for essential products. In retail, you would find products labeled as a "Qatari product" to identify them quickly. This is an initiative of the QDB to urge local consumption, but even if the product is produced in Qatar, the business cannot be owned in the majority by an expatriate according to regulations. Then, in construction and real estate, the most significant infrastructure projects are from the government, where the scenario is similar. However, the interviewed expatriate entrepreneurs highlighted that speaking Arabic helps them negotiate and is compulsory to complete certain government procedures. Finally, in the ICT sector, the challenge is different because it depends on exactly which product or service you are offering, as in the following case:

> ***"My business model relies on technology for banks, I need them, and they need me, but in many negotiations, we have not reached an agreement only because I don't have a Qatari partner, and 90% of the banks are Qatari-owned."***
>
> **FinTech Entrepreneur**

This is an example of the rentier state mentality impacting the economic productivity of the nation (Beblawi, 1990), where the entrepreneur is losing contracts based on his nationality. A rentier state relies on substantial external rent in the form of the sale of oil, transit charges (for example, the Suez Canal or Panama Canal), or tourism. One of the cases shared by an interviewee is that of a company in the construction sector. Having started the company because of a contract arranged with a big oil company before quitting his job, he registered the business to focus on it, but when formalizing the deal, it failed for undisclosed terms, and he had to spin off the idea. He then applied to an incubation program that helped him access clients and validated his business model.

On the other hand, in another case reported by an entrepreneur operating in Dubai (UAE), while developing his start-up, he received a direct invitation from an incubation program linked to QDB to move his headquarters to Qatar, which would make available office space, registration, and seed investment. He moved, and his experience since 2020 as a wholly foreign company operating in Qatar has been outstanding. Nevertheless, he has a digital product that must be scaled to international markets, so keeping contracts with Dubai companies was difficult in the middle of the blockade, but not being a Qatari national turned out to be an advantage for international negotiations. The end of the commercial blockade in 2021 and the 2022 FIFA World Cup should impact the internationalization strategies followed by companies so far started and growing within the national market of 2.5 million people, but in terms of ecosystem support, the government could try to foster those firms more intensively.



“The small market size of Qatar can be the biggest constraint to grow although it is compensated by the higher purchase power of the population, although, if you want to scale your business you have to think about exporting soon and just now it is starting to become easier.”

Start-Up Founder

The interviews showed a relationship between the entrepreneur’s background to their internationalization vision of the business. All the expatriate entrepreneurs answered that they have thought about bringing their business to their country of origin. Some do not know how to advance internationalization, while construction and real estate entrepreneurs consider this aspect very complicated for their sectors. In that sense, the Qatari regulations are very friendly to the repatriation of profits and taxes. The general perception is that with the blockade, the options to expand internationally were not suited to the closest countries, but now entrepreneurs perceive more significant opportunities and have heard of at least one government program to help them do it. Additionally, analyzing another Qatari entrepreneur, it seems everyone has equal opportunities to expand their business abroad. One business case is established in one Qatar Free Zones, Ras Bufontas, next to Hamad International Airport, with custom fees exemption, 100% ownership, and facilities to repatriate resources. He said his location is strategic, and the company has been exporting to Asia and Europe since 2019.

Regarding the economic climate conditions and the local business landscape, expatriates have more significant challenges in accessing resources, navigating regulations, securing contracts, negotiating, and entering sales channels. The market size, available income, and city landscape make it easier to produce and deliver products or services directly to customers and grow fast. However, all the interviewed entrepreneurs feel that labor costs are expensive, increasing operating costs and exacerbating the struggle to attract talent. The rentier state’s income and resource availability are then perceived as leveraged between expatriates and citizens, although, in practice, some economic sectors are unbalanced. This is also linked to the condition of protectionist government and political power since it has openly shown higher support for Qatari-owned companies than for expatriate-owned companies through opportunities for funding, land, and registration, among others. Finally, 66.7% of expatriate entrepreneurs have experienced challenges to their business creation and development at least once because of their immigration status. This supports the argument that the business culture impacts the economic environment in rentier states. Aspects related to the culture, such as nationality, language, physical appearance, and successful background, could be constraints during negotiations, considering that a significant portion of the companies are Qatari-owned. However, the private sector is relatively small compared to other countries. It must be developed further, and given that the local human capital is not enough to accomplish this, Qatar must place more trust in other less represented groups among its residents.

Conclusions and Implications

Considering that pursuing an idea and transforming it into a profitable business is already risky, the existing mentioned conditions, plus the restrictive immigration and labor laws, present systemic barriers for expatriates to innovate and become entrepreneurs. Nevertheless, Qatar offers a strategic geographical position, safety, protection against unlawful expropriation, low energy costs, a 10% corporate tax rate, zero tax on personal income, and no profit and salary repatriation restrictions, among others. As a result, the entrepreneurial and investment climate mix for expatriates is, on the one hand, posing an attractive, growing package of benefits for pursuing entrepreneurial endeavors. On the other hand, the comfort of secure, well-paid positions is not comparable with the risks that must be taken in pursuing a business idea. It is common in Qatar to see part-time entrepreneurs or people saving money to return home to be full-time entrepreneurs. There is no room for failure as an expatriate.

Based on the research conducted by different contributors and the main editor and author's interpretations, much is needed to attain a sustainable entrepreneurial ecosystem in Qatar. However, the country has already advanced significantly in putting in place the structural conditions necessary to succeed, but now is the time to leverage them and align the efforts of diverse community members. In Chapter 2, much of the work mapping the stakeholders and understanding the entrepreneurial community composition and interactions can serve as a tool to engage them in programs, discussions, new policies, etc. Chapter 3 highlighted the strategic technology sectors and gathered the perceptions of most of the high-performing entrepreneurs in Qatar. It should guide decisions to address the challenges and difficulties that they have gone through to reduce the constraints the next generations of entrepreneurs will face, at least in those parts of the entrepreneurial process that can be controlled through community support, policies, and programs. Then, in Chapter 4, we move on to a deeper analysis of the entrepreneurial training and education the entrepreneurs are getting informally (not from degree programs) in the business incubators. More than a critique or assessment of its performance, it is a comprehensive analysis to guide future program designs (or re-designs) that fit better with the founders' experiences and the challenges they face when starting a company in Qatar. Lastly, the literature review in Chapter 5 provides an updated status of the latest knowledge we have on the field of women entrepreneurship and culture in the Arab world. It identifies and understands the needs of another less supported group of the population besides expatriates, which is women. In Qatar, culture is a significant factor in stifling women's economic participation (Al-Ghanim, 2017). The legislative policies can indeed increase women's entrepreneurship in Qatar; however, a lack of understanding of the local social and cultural context and how it influences businesswomen will only lead to impractical and ineffective strategies.

Therefore, based on our research and facts on doing business as an expatriate entrepreneur, the following recommendations could drive the enhancement of innovative solutions and attract and retain talent to build the desired knowledge-based economy:

- Eliminate the Qatari partner requirement from all existing and future programs. Instead, incentivize multicultural team building through networking and matching events.
- Provide a legal grace period to test business ideas before commercial registration (with QSTP, QFC, and QFZA) and before signing any leasing contract with the entrepreneurs.
- Introduce an entrepreneur e-visa to facilitate procedures in English to enable businesses to operate faster, not only for major investors and big companies.
- Integrate the information for business incorporation and channels to expatriates in a customer-oriented manner.
- Integrate entrepreneurship education as part of the curriculum, from schools to universities, and enhance the collaboration between academia, industry, and government.
- Incentivize becoming an entrepreneur and target the growth of the entrepreneurial culture by reducing the risks related to immigration laws and providing greater access to ecosystem resources.

References

Al-Ghanim, K. (2017). Transitional society and participation of women in the public sphere: A survey of Qatar society. *International Journal of Humanities and Social Science Research*, 3(2), 2455–2070.

Beblawi, H. (1990). *The rentier state in the Arab world. In Luciani*, G. (Ed.), The Arab State (pp. 85-98). Routledge.

Wang, H., Zhao, T., Cooper, S.Y., Wang, S., Harrison, R. T., and Yang, Z. (2022). Effective policy mixes in entrepreneurial ecosystems: a configurational analysis in China. *Small Business Economics*. https://doi.org/10.1007/s11187-022-00658-x

List of Contributors

Allan Villegas-Mateos

Dr. Allan Villegas-Mateos is a Research Associate and founder of the Observatory of Entrepreneurship and Innovation at HEC Paris in Qatar. He holds a Ph.D. in Business Administration with a major in entrepreneurship and innovation from the EGADE Business School, Technological Institute of Monterrey. He graduated with a Bachelor's degree in Business Creation and Development from the same institute. He is currently a member of the National System of Researchers of the Mexican National Council of Science and Technology and a lifetime member of the international business honor society Beta Gamma Sigma. His research interests are the macroeconomic determinants of entrepreneurship in emerging economies, entrepreneurship education, women entrepreneurship, and university-based entrepreneurial ecosystems. Dr. Villegas-Mateos is the author of "Qatar's Entrepreneurial Ecosystem – Edition 2021: Empowering the Transformation" and has published in peer-reviewed journals, including the Journal of Entrepreneurship in Emerging Economies and the International Journal of Entrepreneurship as well as book chapters in recognized editorials such as Emerald Publishing Limited, Edward Elgar, IGI Global, and De Gruyter. Currently, he is also the national coordinator of the Global University Entrepreneurial Students' Survey and the Global Leadership and Organizational Behavior Effectiveness, two major international research projects being implemented in Qatar.

Hamda Alboinin

Hamda Alboinin is a Ph.D. candidate at the College of Humanities and Social Sciences at Hamad Bin Khalifa University (HBKU), where she has also held the roles of teaching assistant and research assistant. Her doctoral research is on women's digital entrepreneurship and culture. She holds a Bachelor's degree in Business Administration and a Master's in Digital Humanities and Societies. During her career and research, she has focused on the role of digital technologies in shaping both business and social life. Her research strives to combine business disciplines with humanities and the social sciences. She has presented her work at several conferences, including the DAKAM Conference in Humanities and Social Sciences 2017, the International Conference on Social Informatics (SocInfo) 2019, the European Conference on Information Systems (ECIS) 2020, the International Conference on Behavioral and Social Computing 2021, and the Conference on Entrepreneurship and Economic Development (CEED) 2022. Hamda is a member of the Observatory of Entrepreneurship and Innovation, managed by HEC Paris in Qatar.

Maryam Al-Khalaf

Maryam Al-Khalaf is a Research Associate at the World Innovation Summit for Education (WISE), an initiative of the Qatar Foundation. Her main research areas are well-being in education, the learning sciences, and educational leadership. Maryam has published multiple book chapters, research reports, and articles in the area of education, including a Special Edition E-book: "Education Disrupted, Education Reimagined, Teacher Wellbeing: Findings from a Scoping Literature Review and Case Studies in Cambodia, Kenya and Qatar, Embedding Innovation Labs in Schools as a Vehicle for Transformation in Education, and Technology Overuse Amongst Adolescents in Qatar". Maryam holds a bachelor's degree from King's College London and a Master's in Strategic Business Unit Management from HEC Paris. Maryam worked at Qatar Airways for three years as a project specialist. She planned and coordinated projects in such areas as commercial new business while working on bilateral agreements with multiple global corporates. Maryam is also a member of the Observatory of Entrepreneurship and Innovation, managed by HEC Paris in Qatar.

Mohsin Ali

Mohsin Ali is the Chief Strategy Officer at Madre Integrated Engineering. He is also a member and advisor of the Observatory of Entrepreneurship and Innovation, managed by HEC Paris in Qatar. An innovation and strategy expert with a strong background in business and process optimizations and innovation management specializing in advanced strategy management from the Indian Institute of Management Kozhikode (IIM-K). He has additional certifications as an International Project Management Officer, Lead Auditor in Management Systems, and Psychometric Consultant. Mohsin holds a post-graduate qualification in Biotechnology. Before joining Madre Integrated Engineering, he was a Senior Strategy Analyst and Innovation Manager at Excelledia and Manager for Strategy Development at Elegant. He began his career by developing concepts and frameworks for healthcare organizations in India, gradually shifting his specializations to policy development and innovation management system. His concentration on management systems led to his roles as an advisor for various multinational corporates to achieve organizational and technological excellence in multiple domains and contexts.

Savanid (Nui) Vatanasakdakul

Dr. Savanid (Nui) Vatanasakdakul is an Associate Teaching Professor in Information Systems (IS) at Carnegie Mellon University in Qatar (CMU-Q). Before joining CMU-Q, she was a senior lecturer in IS (tenure track) at Macquarie University (MQ), Australia, for ten years. Dr. Nui holds a Ph.D. in IS from the University of New South Wales, where she received a prestigious Australian Postgraduate Scholarship Award (2004 to 2007). She has taught and conducted research in the social and global landscapes of IS, e-business, risk management and auditing, digital transformation, innovation, tech start-up, and IS education. She is the author of over 60 international peer-reviewed publications. She has been awarded research grants totaling over $250,000. She chairs over 20 international research tracks in leading IS conferences and has been the research track chair on sustainability and IS at the Americas Conference of Information Systems for eight years. She was honored to be chosen as a recipient of the Meritorious Teaching Award from CMU-Q in 2020, a lifetime award. In 2010, she received the Learning and Teaching Award from the Faculty of Business and Economics at MQ, Australia. Presently, she is the president of the Association of Information (AIS), Qatar chapter, and a founding president of the Thailand chapter. From 2010 to 2019, she served as a co-founding member, treasurer, and secretary of an AIS special interest group in Green Information Systems (SIGGreen).

List of Reviewers

Pablo Martin de Holan

Dr. Pablo Martin de Holan is the Dean of HEC Paris in Qatar, where he also teaches strategy and entrepreneurship. He is the Co-Editor in Chief of the Journal of Management Inquiry, a respected peer-reviewed academic journal created over 25 years ago. Previously he was the Dean of MBAs (EMLYON France) and managed the Global Entrepreneurship Program with Purdue and ZJU (China) and the DBA with Lingnan – Sun Yat-Sen University, China, among others. Before that, he acted as the Vice-President of International Executive Education for EMLYON. From 2006 to 2012, he was the Chairman of the Entrepreneurial Management Department of the IE Business School. His research explores the different dimensions of knowledge creation in organizations and the relationship between them and sustainable competitive advantage in established organizations and start-ups. His publications explore the problems that emerge when organizations try to implement their strategic decisions and change processes and the solutions that can be implemented. Before attaining his Ph.D. from McGill University, Pablo earned two masters' degrees from Sorbonne University in Paris. In parallel with his academic career, he has worked as a consultant to several international organizations such as the World Bank (IFC), NGOs (CARE, Intermon – Oxfam), transnational corporations, state-owned firms, and several privately-owned companies in Canada, France, Spain, and Latin America. Since the beginning of his career, Pablo has taught in over 30 countries in three different languages (French, English, and Spanish).

Deval Kartik

Dr. Deval Kartik is a Senior Case Writer at HEC Paris in Qatar. She holds a Ph.D. in Marketing from the UK and has two decades of teaching experience at the post-graduate level. She is an award-winning case writer, having written and published case studies on Indian and Middle East businesses. These case studies cover broad areas of leadership, strategy, marketing, entrepreneurship, branding, and innovation. They are used for teaching in custom and executive programs and management programs at the undergraduate and post-graduate levels.

ABBREVIATIONS

ANOVA	Analysis of Variance
AZF	Aspire Zone Foundation
DIC	Digital Incubation Center
EE	Entrepreneurship Education
FDI	Foreign Direct Investment
FIs	Financial Institutions
GEM	Global Entrepreneurship Monitor
GII	Global Innovation Index
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GERD	Gross Expenditure on Research and Development
GCC	Gulf Cooperation Council
HBKU	Hamad Bin Khalifa University
HMC	Hamad Medical Corporation
HCDM	Health Care Delivery Model
ICT	Information and Communication Technology/Technologies
IP	Intellectual Property
IDKT (QF)	Innovation, Development, and Knowledge Transfer office
IPA	Investment Promotion Agency
KPIs	Key Performance Indicators
MENA	Middle East and North Africa
MOCI	Ministry of Commerce and Industry
MCIT	Ministry of Communications and Information Technology
MOEHE	Ministry of Education and Higher Education
OECD	Organization of Economic Development
QBIC	Qatar Business Incubation Center
QCB	Qatar Central Bank
QDB	Qatar Development Bank
QF	Qatar Foundation for Education, Science and Community Development
QFBA	Qatar Finance and Business Academy
QFC	Qatar Financial Centre
QFTH	Qatar Fintech Hub
QFZA	Qatar Free Zones Authority
QIA	Qatar Investment Authority
QIC	Qatar Insurance Company
QNB	Qatar National Bank
QNRF	Qatar National Research Fund
QNV 2030	Qatar National Vision 2030
QRDI	Qatar Research, Development, and Innovation Council
QSTP	Qatar Science and Technology Park
QST	Qatar SportsTech
QU	Qatar University
QU CFE	Qatar University Center for Entrepreneurship
QU SIEED	Qatar University Office of Strategic Innovation, Entrepreneurship & Economic Development
SDG	Sustainable Development Goal
SEE	Sustainable Entrepreneurial Ecosystem
TEA *(indicator)*	Total Early-Stage Entrepreneurial Activity
UAE	United Arab Emirates
UN	United Nations
VC	Venture Capital
WEF	World Economic Forum
WIPO	World Intellectual Property Organization
WISE	World Innovation Summit for Education
WISH	World Innovation Summit for Health

HEC PARIS IN QATAR في قطر | Observatory of Entrepreneurship & Innovation

The map is based on Allan Villegas-Mateos (2021; 2022) Qatar's entrepreneurial ecosystem research books and is intended as a general information resource only. Updated: June 2022, subject to periodic revision.

SUPPORTERS

1. ENTREPRENEURIAL LEADERS

Abdullah Soomro
Afraa Al-Noaimi
Agata Braja
Ahmed Isse
Ahmed Mohamedali
Amin Matni
Awdesh Chetal
Francisco Miguel de Sousa
Ghanim Al-Sulaiti
Hamad Al-Hajri
Hanan El Basha
Haris Aghadi
Hesham Elfeshawy
Hessa Al-Jaber
Hijas Hassan
Intiqab Rawoof
Majed Lababidi
Michael Javier
Mohammad Ali Abbaspour
Mohammad Hammoud
Mohammed Al-Delaimi
Nayef Al-Ibrahim
Omar Ashour
Ramzan Al-Naimi
Ramzi Hasan
Safarudheen Farook
Saif Qazi
Sheik Mansoor Al-Thani
Wisam Costandi
Saud Al-Attiyah

2. GOVERNMENT

Hassad Food
Investment Promotion Agency of Qatar
Ministry of Commerce and Industry
Ministry of Communications and Information Technology
Ministry of Education and Higher Education
Ministry of Interior
Ministry of Justice
Ministry of Municipality
Ministry of Public Health
Qatar Central Bank
Qatar Chamber of Commerce and Industry
Qatar Development Bank
Qatar Financial Center Authority
Qatar Financial Markets Authority
Qatar Foundation
Qatar Free Zones Authority
Qatar Investment Authority
Qatar Research, Development, and Innovation council
Qatar Stock Exchange
Supreme Council for Economic Affairs and Investment

3. TALENT

AFG College with the University of Aberdeen
Al Rayyan International University College
Arkansas State University
Carnegie Mellon University in Qatar
City University College with the University of Ulster
Community College of Qatar
Doha Institute for Graduate Studies
Global Studies Institute GSI
Hamad Bin Khalifa University
HEC Paris in Qatar
Lusail University
MIE-SPPU Higher Education Institute
Orix Universal College with the University of Liverpool John Moores
Qatar Finance and Business Academy
Qatar Leadership Centre
Qatar University
Texas A&M University in Qatar
University of Doha for Science & Technology

4. LOCAL EMPLOYERS

Baladna
Commercial Bank
Kahramaa
Ooredoo
Qatar Airways
Qatar Energy
Qatar Gas
Qatar Insurance Company
Qatar National Bank
United Development Company
Vodafone

JOIN THE COMMUNITY!

For general enquiries:
qatar-entrepreneurship@hec.fr

QATAR'S ENTREPRENEURIAL ECOSYSTEM: Pathways for Innovation

Edited by Dr. Allan Villegas-Mateos

HEC PARIS IN QATAR | في قطر
عضو في مؤسسة قطر
Member of Qatar Foundation

OBSERVATORY ENTREPRENEURSHIP & INNOVATION