

# Qatar University Research Magazine

Issue 24, February 2026

## Society A Research Pillar

Special Edition 

**Identity between Challenges  
and Response in the State of Qatar**

**Applying CEDAW in Qatar**

**Cybersecurity Regulation and  
Minors' protection in Qatar**

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# Editorial

## Prof. Aiman Erbad

Vice President for Research and Innovation  
Qatar University



### Dear pioneers of scientific research and esteemed readers,

The release of Issue 24 of Qatar University Research Magazine aligns with the unveiling of the University's research priorities for 2025–2030. These priorities articulate a renewed strategic vision aimed at steering scientific inquiry toward sustainable developmental impact, reinforcing the University's role as a generator of knowledge, and translating that knowledge into meaningful contributions to society and the advancement of sustainable development.

These priorities have identified five interconnected research pillars: health, energy, resource sustainability, digital technology, and society. This framework promotes interdisciplinary integration and links scientific research to real-world issues and national challenges, ensuring that knowledge moves beyond theory into practical applications that meaningfully affect individuals and institutions.

Based on the University's belief that human beings are both the focus and the ultimate goal of development, this issue is dedicated to the "Society" pillar. Its research addresses topics such as identity and societal values amid social change, digital transformation and the building of a knowledge society, and the impact of digitization and modern technologies on shaping the economy, public services, and their related legal frameworks. Other studies discuss sustainability initiatives, the circular economy, clean energy, and their role in supporting economic diversification, alongside research focused on developing digital education, enhancing future skills, and building human capacity. The issue also features studies on community security, public health, road safety, and humanitarian diplomacy, alongside research exploring family dynamics, women's empowerment,

and the balance of social roles. This diversity reflects a deep awareness of the transformations the world is witnessing and the need for integrated scientific approaches that preserve authenticity, invest in innovation, and build a society more capable of adaptation and responsiveness. The issue further highlights the convergence of humanities and social sciences with applied disciplines in addressing societal issues from multiple perspectives, contributing to the formulation of more effective policies, the development of human capital, the enhancement of quality of life, and the reinforcement of values of participation and social responsibility.

Through this publication, the magazine continues to fulfill its mission as a scientific platform for publishing rigorous research aligned with national priorities and for bridging the gap between knowledge and practice, thereby supporting the path of comprehensive development and strengthening the position of Qatar University as a driver of knowledge and innovation and as an active center for community service and national capacity building.





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# Identity between Challenges and Response in the State of Qatar

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The concept of identity is fundamental to understanding individuals and societies, as researchers continuously seek to answer the central question of: “Who are you? Or who are we?” From this starting point, individuals begin to express themselves within their communities, while groups define themselves in relation to other groups. Identity may therefore be acquired through living within a particular political or social community or inherited through ethnic or racial identities. Hence, identity today carries both a symbolic and a social significance. It has also become a major concern for governments and scholars alike because of its crucial role in social stability and human development. In this article, we explore the nature of the challenges facing Qatari identity, examining at the same time how the government is responding to these challenges.

## Historical and Contemporary Challenges to Qatari Identity

Challenges to national identity in the Gulf region emerged as early as the 1950s and 1960s as part of the vast modernity wave caused by the discovery of oil. At that time, the challenges arose from the need to balance the initial development plans—aimed at forging a civic identity suited to massive transformation—and preserving social values and heritage amid rapid development. Governments seized the opportunities arising from oil wealth to respond to these challenges, focusing on nation-building by establishing national educational institutions that helped create a comprehensive cultural renaissance.

These challenges quickly became more complex as local societies opened up to Western modernity, whether through media and culture or through direct contact when traveling abroad for study or for other reasons. Studies have noted conflict within the individual in the Gulf between the desire for openness and adoption of Western cultural and consumer concepts and the need to satisfy traditional social and family expectations. This conflict has produced a troubled or hybrid individual identity marked by tension between openness to the world and adherence to inherited values—a dynamic that has posed a threat to the individual's acceptance of their own customs, traditions, and society.

At the same time, new social circumstances have influenced identity transformations, perhaps most notably the acceleration and increasing complexity of lifestyles compared to traditional ways of life, whether in terms of women's work or the nature of the school and workday. These lifestyle changes have had a significant impact on family cohesion and the role of the nuclear or extended family in shaping their children's identity and sustaining inherited values and traditions.

These challenges have recently become

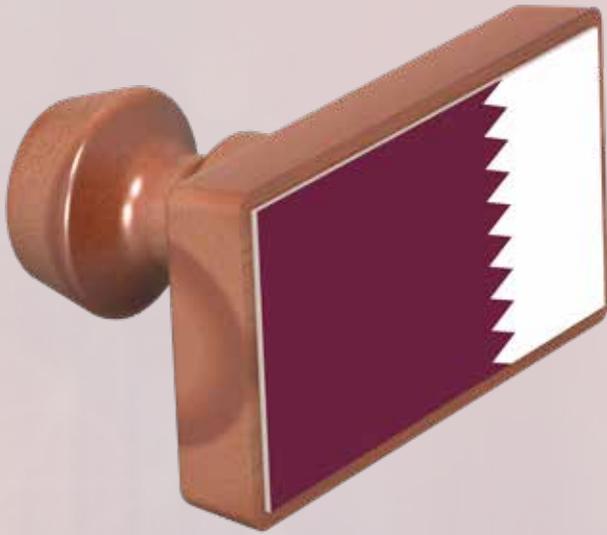
more acute, and external culture has come to dominate local culture as a result of technological development and the growing forces of cultural interpenetration, whether through the dissemination of international education or technological connectivity. Studies also indicate that these active challenges have helped shape the linguistic and personal identity of the younger generation and have influenced their relationship with state-building projects and the concept of citizenship. In the same context, the dominance of consumer culture and its link to the spread of social media have influenced individuals' future aspirations—both material and moral—as well as their capacity to assume responsibility, which is the most important requirement of responsible citizenship.

From this standpoint, with the increasing complexity and intensity of pressures on national identity, the sustainability of values and traditions has become one of the state's most significant challenges, especially as governments and societies alike address the demands of globalization and modernity.

## Identity in Government Policies in Qatar

Qatar's response to identity-related challenges has been largely positive and proactive. The state has developed comprehensive legislative frameworks that address shifts in national identity and has formulated policies aimed at balancing both individual and collective identities within the country. As a result, national identity has become a central concern of governmental and legislative institutions at all levels, given its crucial role in shaping the state's direction, strategic policies, and national security.

The Permanent Constitution of the State of Qatar outlines key components of national identity in its first Article, which states that “Qatar is an independent sovereign Arab State. Its religion is Islam, and Islamic Sharia is a principal source of its



legislation. Its governing system is democratic, based on consultation, justice, and the rule of law, and its official language is Arabic. The people of Qatar are part of the Arab nation.”

Article 57 further underscores the importance of preserving traditions within the context of public rights and responsibilities, stating that “respecting the Constitution, obeying laws issued by public authority, adhering to public order and public morals, and observing national traditions and established customs are duties of all who reside in the State of Qatar or enter its territory.”

Qatar National Vision 2030 reaffirms this commitment to preserving identity, noting that one of the most important challenges facing the state is “modernization while preserving traditions.” The Human Development pillar stresses the importance of adopting an educational system that upholds Qatari social values and heritage, strengthens social cohesion, and fosters a spirit of belonging and citizenship. Meanwhile, the Social Development pillar emphasizes maintaining a sound social structure through policies that preserve national cultural heritage and reinforce Arab and Islamic values and identity, while also cultivating and developing a spirit of tolerance, constructive dialogue, and openness to others.

The state has also adopted these frameworks and worked to provide a legislative environment that nurtures Qatari identity, whether through amending the Civil Human Resources Law or through the ministries that adopted visions that translate Qatari identity and values into practice through school curricula, social initiatives, or other measures. Public policies, here, have focused on creating long-term social and human development visions that prioritize the sustainability of the authentic values and characteristics of Qatari society, whether in terms of family cohesion or social harmony.

## Conclusion

It is clear that preserving national identity is neither a temporary nor a marginal concern; rather, it remains a fundamental and enduring issue on the policy agenda, even as its form and intensity change over time. Individuals now often find themselves navigating between consumerist and Western cultural influences on one side and the expectations of family and society on the other. At the same time, communities face persistent value-based challenges as they work to preserve social cohesion, shared traditions, and cultural heritage while also meeting the demands of economic development and engagement.

These individual and social tensions have rapidly become a national priority—one that guides efforts to safeguard identity and serves as a central reference point for drafting legislation and shaping public policy in both the short and long term.

\*This article is part of the project “Social Determinants and Factors Shaping Qatari Identity from the Perspective of Qatari Youth,” which received funding from the Research Program for Humanities and Social Sciences at Qatar University.



# How to Advance Volunteer Work at Qatar University?

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Distinguished academic institutions strive to bring vibrant ideas to life and translate them into tangible frameworks, to elevate university members towards active citizenship, which is capable of equipping society with the expertise that advances it to the ranks of historically impactful communities. One of the key areas in which education, development, and systematic advancement occur is volunteerism, which serves as a reflection of a society's energy, vitality, and sense of solidarity. It is therefore natural that such engagement is deeply intertwined with our Arab-Islamic cultural heritage and identity.



Our Islamic nation fundamentally rests on the emotional unity that gives rise to organizational forms. The emotional unity of the Muslim community stems from bonds of allegiance. Our Prophet, peace be upon him, said: “A believer to another believer is like a building; each part strengthens the other” (Sahih Muslim, No. 2585). In another hadith: “He who does not care about the affairs of the Muslims is not one of them; and he who does not offer advice by day and night for Allah, His Messenger, his imam, and the generality of the Muslims, is not one of them” (Al-Tabarani in Al-Awsat, No. 7473).

**however does not concern himself with the affairs of the Muslims is not one of them; and whoever does not offer advice by day and night for Allah, His Messenger, His Book, the leader of the Muslims and the general Muslims, is not one of them.”**

It is well known that the sudden civilizational decline that afflicted the nation in recent centuries—manifesting in the stagnation of its social dimensions and the dominance of its invasive, materialistic, consumer-driven patterns over its culture of solidarity—has contributed

to the weakening of the culture of volunteerism. The only remedy lies in revitalizing the human effort through volunteering, directing human energies towards goodness in all aspects of life, and recognizing every beneficial act as counted in the balance of good deeds. The Prophet (peace be upon him) said: “Every day the sun rises, charity (Sadaqah) is due on every joint of a person: you administer justice between two men is a charity; and assisting a man to mount his beast, or helping him load his luggage on it is a charity; and a good word is a charity; and every step that you take (towards the mosque) for Salat (prayer) is a charity and removing harmful things from the road is a charity” (Sahih Al-Bukhari, No. 2989).

Today, we see leading countries excelling in volunteer work. In Britain, more than 20 million people participate in organized volunteer activities, contributing approximately 90 million hours of work each week. The economic value of these efforts is estimated at £40 billion annually. Such figures highlight the need to promote a culture of volunteering in charitable and solidarity-based initiatives. How could it be otherwise when the Muslim community is, by its very nature, a community grounded in righteousness and benevolence?

To encourage students and academic staff at Qatar University to meaningfully integrate this positive form of engagement into campus life, it is appropriate to propose the following through two parallel plans:

#### **First: The Operational Plan at Qatar University**

- Advance scientific research at the University on issues related to social solidarity, zakah, endowments (awqaf), volunteer work, and charitable action.
- Utilize the State’s statistical centers and draw on the resources of survey and data centers to generate actionable knowledge.
- Create libraries and specialized bibliographies on volunteering, social solidarity, and charitable work for accumulation, documentation, and archiving.
- Revive hadith-based sessions in which relevant chapters and explanatory material supporting volunteering and charitable work are read.

- Organize awareness campaigns and mobile convoys to promote giving and volunteerism. These initiatives can coincide with religious occasions, such as Ramadan, the two Eids, and the Prophet’s (Alaihissalaam) migration, as well as national, cultural, and sporting events, in addition to urgent response efforts during disasters, conflicts, or crises.
- Support stationary and mobile tents that operate during major seasons and events, providing permanent or temporary spaces in locations like shopping malls, stadiums, universities, industrial zones, airports, and ports.
- Develop promotional or Dawah cards, tailored to specific occasions and audiences, to communicate the values of solidarity and volunteerism.
- Leverage sporting events by setting up tents and awareness campaigns alongside competitions, encouraging donations and volunteer participation.
- Establish reading circles dedicated to exploring books on charity, almsgiving, and volunteerism; interpreting Qur’anic verses that promote generosity, initiative, good deeds, and cooperation; or reviewing the experiences of pioneers in volunteer, charitable, and relief work.
- Install student donation boxes and voluntary piggy banks within departments, colleges, and student clubs. Contributions are collected and donated monthly to charitable organizations, serving as a continuous reminder of the culture of benevolence.
- Activate University Volunteer Week, a dedicated week that leverages students’ energy and maturity. Volunteer and solidarity clubs can be established to focus on academic support, charitable activities, and relief efforts.
- Organize student competitions in volunteering and solidarity, offering motivational prizes, celebrating role models among distinguished community members, and drawing inspiration from the social heritage of generosity, rapid support, and



mutual assistance.

- Develop volunteer work websites and social media platforms on campus.
- Produce continuous advertising campaigns. Awareness-raising advertisements, including videos and other media products, should be designed with a strong Dawah dimension that encourages good deeds for Allah's sake, while also highlighting practical benefits such as social stability, development, and community security.
- Offer extracurricular training in areas such as first aid, disaster response, and emergency preparedness.
- Introduce a University award for outstanding volunteer entities and issue special volunteer passports to recognize and motivate exceptional contributions.

#### Second: The Foundational Structural Plan for Volunteer Work in Educational Institutions

This plan addresses schools, educational and training institutions, universities, and other centers. The following proposals can be made:

- Coordinate with curriculum developers and instructional designers to integrate volunteering and charitable work into school curricula.
- Focus on kindergartens by training children from early childhood on volunteer work and teamwork.

- Establish partnerships between schools, universities, and charitable institutions.
- Propose specialized master's programs in volunteering and social solidarity in faculties such as Sharia, Law, Arts, and Sociology.
- Issue the Ministry of Education directives requiring students to present accredited certificates of participation in volunteer work.
- Organize conferences, seminars, and workshops at both school and university levels, locally and internationally, to enhance volunteer experiences.

These teachings embody the social dimension of Islam, which becomes manifest in the positive activation of society, the empowerment of individuals to participate in volunteer work, and the encouragement of engagement in charitable activities. Such efforts foster harmony, compassion, and intergenerational cohesion, while also reducing the security costs that burden the State treasuries. For these reasons, governments endeavor to promote volunteerism and social solidarity initiatives from within the society itself, given their demonstrated role in reducing crime and curbing the rise of violent phenomena that often originate in social alienation.



# From Rajjal to Rayyal: Dialect Change among Young Qatari Bedouin Women



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**This study aimed to explore something subtle yet deeply significant—and seldom documented: “How young Bedouin women in Qatar are reshaping their linguistic practices as they establish new social identities through increased interaction with Hadhari communities and other expatriates in schools, universities, and workplaces.”**

## **Social and Linguistic Fabric of Qatar**

The Qatari population primarily consists of two major groups: the Hadhar, a sedentary population traditionally engaged in occupations such as fishing and pearl diving, and the Bedouins, who lived in the desert, with their primary occupation involving the raising of camels and sheep. Since the exploration of oil in the 20th century, which unleashed projects of modernization and urbanization on

a massive scale, the lifestyles of both groups have dramatically changed. The Hadhar and Bedouins are no longer engaged in their traditional occupations, nor do they live in isolation from one another. Today’s Qataris live in modern houses, drive the latest cars, and work with each other and other Arab and non-Arab expats in modern offices. Their respective Arabic dialects, however, still show distinct features, the most prominent of which is



that the Standard Arabic letter jeem in words such as rajjaal, meaning ‘man’, is pronounced as rayyaal by the Hadharis and rajjaal by the Bedouins.

### Why Dialect Matters

Arabic in Qatar, as in the rest of the Arab World, is not just one language. Alongside Standard Arabic, which is used in the official spoken and written communication in government offices, schools, and universities, and the religious discourses, there are local varieties tied to heritage and tribal origins. Qataris, while using Standard Arabic in formal contexts, take pride in speaking their respective dialects in everyday social interactions to express identity and build relationships. Though closely related, these dialects differ in subtle but recognizably distinct ways.

In addition to the differences in the pronunciation of rajjaal and rayyal, there are many other key words and expressions that mark the Hadhar apart from Bedouins. When addressing a woman, for example, Bedouins would use the phrase ismish/ismis ‘your name’, while Hadharis would pronounce it as ismitch, changing the last sound to ‘ch’ as in the English word ‘chat’. The word for ‘I want’ is pronounced as abghi (with a throaty sound for ‘gh’) by Bedouins, but abbi by the Hadhars. Such differences quietly signal who they are and where they belong or where they would like to belong. For decades, Qataris moved between these social spaces with little mixing. However, urbanization and education have created social and linguistic

spaces for sustained and meaningful language contact between them. As linguists, we wanted to understand: Are younger Bedouins holding on to their traditional forms of speech, or are they sounding more like their Hadhari classmates and co-workers?

### How the Change was Studied

Two kinds of linguistic evidence were combined: natural speech and attitudinal survey data. First, informal interviews were recorded with eight Qataris—older and younger, men and women—all of Bedouin ancestry. The conversations were loosely structured and open-ended, covering childhood, schooling, and daily life, followed by questions about attitudes towards different ways of speaking.

Second, a survey was conducted with sixty Qatari university students—Bedouin, Hadhari, and those of mixed heritage—asking them to evaluate Bedouin and Hadhari dialects across social traits such as prestige, class, modernity, open-mindedness, masculinity, and purity of origin. This approach made it possible to observe not only how language is shifting, but also the social motivations behind those changes.

### What was Heard in Young Voices ...

Across levels of language — sounds, grammar, vocabulary — clear signs of a shift in the language of the Bedouins towards Hadhari speech were found.

- **Pronunciation:** While older Bedouins used



the traditional [dʒ] in *rajjaal* and [k] in words like *kəm* (“how much”). Younger speakers, especially women, often replaced these with the Hadhari [y] and [tʃ], saying *rayyāl* and *tʃəm*.

- **Grammar:** The way to say “your name” to a woman — a small but telling feature — has undergone a shift. Older speakers said *ismish/ismis*. Among younger Bedouin women we studied, we found out that in their words, they copied the Hadhari pronunciation *ismitch*. Even core verbs like “I want” and “I see” now sound urban among the Bedouin women. They pronounce ‘*abbi*’ and not ‘*abghi*’ as their parents and grandparents.
- **Pronouns:** We found that even pronouns, which rarely show differences, were shifting too. Young women used Hadhari forms like *ʔohma* “they” and *ʔohwə* “he” more than men did. The Bedouin women pronounced the pronoun for “I” as ‘*aanaa*’, a shibboleth of the Hadhari dialect. When tiny details like pronouns and basic verbs shift, linguists know a major social realignment is in progress.

## Women are Leading the Change

One of the strongest findings was the gender difference. Young women move towards the Hadhari dialect forms more than men. These interviews offer some insights. First, young women often described Hadhari speech as ‘standard’, *mutaḥaḍḍirah* ‘civilized’, and easier to use in professional and social spaces. Second, the Bedouin dialect is widely perceived — even by Bedouins — as masculine. That makes it less attractive to women who want to construct a feminine persona.

Young men, while not immune to change, hold onto Bedouin features more than women. Authenticity, toughness, and tribal pride still seem to have masculine appeal.

What People Believe about Their Speech Attitudes explain a great deal about the dialect shift. From this survey, a consistent picture of ideologies and perceptions about the Hadhari and Bedouin dialects emerges:

- **Hadhari Arabic** is perceived as modern, prestigious, and socially mobile. Bedouins and

Hadharis alike gave it high marks for social class, open-mindedness, and modernity.

- **Bedouin Arabic** is perceived as a sign of heritage, masculinity, and authenticity. It scored strongly for “purity of origin” and masculinity but weakly for prestige and openness. Older Bedouins voiced disapproval of the changes, calling the shift to Hadhari *ʕeib* ‘shameful’. However, younger Bedouins were pragmatic. Many said the Hadhari speech helps them be understood, move comfortably in mixed settings, and fit urban norms.

## A Mirror of Qatar’s Transformation

Although this research was grounded in Qatar, it reflected a broader phenomenon. Around the world, urbanization and education reshape perceptions of identity. Rural youth adopt speech styles linked to cities because cities concentrate power, prestige, and opportunity. Women, often agents of social change, tend to adopt upwardly mobile speech as it is perceived as cool and more prestigious. For Bedouin women, the perception of femininity of the Hadhari dialect was an added value.

## Why the Dialect Shift Matters

Documenting linguistic change is crucial, as dialect is an everyday yet powerful marker of shifting identities, including gender roles, class mobility, and notions of belonging. Language reveals how speakers interpret modernization and negotiate new social identities. The study also opens avenues for further inquiry. For instance, Bedouin speech was found to strongly index masculinity. This raises the possibility that some young Hadhari men may adopt Bedouin linguistic features to sound tougher or more authentic. Anecdotal reports suggest that this may already be happening, but additional research is required to fully understand the adoption and social meaning of Bedouin features among Hadhari speakers.

For more information about the research, please scan the QR code:



# Losing Our Compass

## How Consumerism Conflicts with Islamic Values

**Manar Al-Mahmoud**  
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In today's world, social media and consumer culture are reshaping Muslim communities in ways that challenge long-standing values. Practices such as humility, frugality, and Zakat, once central to daily life, may be overshadowed by the cycle of trends, comfort, and material gain. What was meant to foster simplicity and gratitude is now at risk of being replaced by rivalry, greed, and waste. This growing tension highlights the urgent need to reflect on how consumerism distances Muslims from the spiritual balance their faith calls for.

## A Losing Game against the Racing Trends

Modern society is overwhelmed by the chase for trends. Styles, gadgets, and social fads now have shorter lifespans than ever, forcing people into an exhausting cycle of constant change. Landfills overflow with barely used products, the environment suffers under mounting waste, and households collapse under record levels of debt. The popular “buy now, pay later” model intensifies the problem, luring people into long-term financial struggles for short-term satisfaction. Muslims have found themselves caught in this race, and some face the added dilemma of drifting away from religious values.

“BNPL providers make money from both ‘merchants’ fees (typically between 2–6 per cent) and customer ‘late’ fees. Up to one in five BNPL users incur such penalties.” – (Threadgold et al., 2024, “Buy-Now-Pay-Later services and young people” section).

Social media magnifies this pace. Platforms reward those who produce content quickly, and influencers are incentivized to push every new product as the “next big thing.” What begins as entertainment soon becomes persuasive marketing, convincing viewers that items once considered unnecessary are now “must-haves.” This subtle messaging transforms wants into needs and links self-worth to possessions. For Muslims, such exposure can pull them away from gratitude and contentment, deepening dissatisfaction and rivalry.

This constant bombardment creates dangerous competition. Individuals subconsciously compare their lives to others, and communities that once thrived on unity now fracture under silent rivalries. Instead of supporting one another, people may find themselves in a contest to flaunt who is more fashionable, up-to-date, or socially relevant. This undermines the spirit of compassion, forgiveness, and solidarity that Islam teaches. In effect, the race

to keep up with trends becomes financially and spiritually draining.

## The Illusion of Frugality in a World Overrun with Consumerism

Unable to confront the guilt of excess, many Muslims seek comfort in bargains, discounts, and fast fashion. By spending less on a product, they believe they are being frugal and still aligned with Islamic values, but this is a dangerous illusion. Frugality in Islam is not about cutting costs; it is about mindfulness, moderation, and respect for resources. Justifying overconsumption by pointing to low prices distorts the meaning of frugality. True frugality requires reflection. Islam teaches Muslims to question not only how much they spend, but also what they spend on and why. Purchasing countless discounted items is still wasteful if they serve no real purpose. The Quran emphasizes balance, teaching believers to avoid extravagance and to use wealth to support faith, family, and community. Yet consumer culture encourages the opposite—an endless accumulation of things under the false banner of saving money.

Surah Al-Isra’ (17:26-27): “And give to the near relatives their due, and to the orphans, the needy, and the traveler, and do not spend wastefully (your wealth). Indeed, the wasteful are brothers of the devils, and the devil is ever ungrateful to his Lord.” If consumerism can reshape the concept of frugality, its influence is even more evident when it impacts religious duties, such as Zakat. Fast fashion thrives on the mindset that quantity equals value. Communities increasingly flood these markets, believing they are practicing restraint when they may be unintentionally contributing to waste and excess. Consumerism not only reshapes habits but also reinterprets religious concepts, pulling Muslims further from the mindfulness their faith demands.





## **Zakat: An Obstacle in the Way of Self-Care or a Divine Test of Faith?**

Perhaps the clearest example of consumerism's influence is its impact on Zakat. Muslims may struggle to balance self-care with religious obligations, sometimes believing indulgence is justified if it contributes to personal happiness. Zakat is not a burden meant to deprive; it is a divine command to purify wealth, strengthen communities, and restore balance.

Zakat does not forbid self-enjoyment. It places it within a framework of responsibility. By mandating that Muslims give a portion of their wealth to the poor, Islam teaches that money is not one's absolute property, but a trust from Allah, and every believer is accountable for its use. Through this act, blessings circulate to uplift others, combat inequality, and foster solidarity, aligning with the vision of a united ummah. Consumer culture, by contrast, can distort priorities, presenting what

was once a central pillar of faith as optional or secondary to personal comfort.

“The wealth of a person does not decrease by paying Zakat” (Sahih Bukhari 2588).

“Zakat is the right of the poor on the wealth of the rich” (Sahih Bukhari 1395).

## **Conclusion**

The rise of consumerism has quietly challenged Muslim communities, promoting indulgence and personal comfort over Islam's principles of simplicity, generosity, and unity. Yet this struggle is not just about money—it is about how Muslims navigate their values in a world dominated by consumption. The challenge before believers is not to reject modern life entirely, but to engage with it thoughtfully: holding fast to faith, practicing moderation, and ensuring that wealth, possessions, and trends never replace the deeper values of gratitude, solidarity, and spiritual balance.

# When Heritage Meets Science: Unlocking the Acoustics of the Oud



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The oud, one of the most iconic musical instruments of the Arab world, embodies centuries of cultural expression and artistic craftsmanship. Known for its deep and resonant tones, the oud is more than an instrument; it is a symbol of heritage and identity. Yet, like all traditional instruments, it faces technical challenges. Maintaining a balance between structural durability and rich tonal quality has always been a delicate task, traditionally entrusted to the experience of skilled luthiers. At Qatar University, we sought to explore how modern engineering methods can be used to understand and optimize the oud's complex vibro-acoustic characteristics while preserving its authenticity. The oud's structure comprises several key components, each contributing to the instrument's overall performance. In particular, the bracing, consisting of internal wooden supports glued to the underside of the soundboard, is used to distribute the tension from the strings and prevent deformation, warping, or cracking due to the tension of the strings. The strategic design and placement of braces ensure stable tuning, durability, and optimal vibrational characteristics, ultimately contributing to the instrument's overall acoustic performance and longevity. Central to this research is the study of bracing systems. Historically, bracing design has relied on inherited craftsmanship and intuition, with little scientific evaluation. Our study bridged this gap by combining finite element simulations with experimental modal analysis to systematically evaluate fourteen different bracing configurations as shown in Figure 1. To investigate the vibroacoustic behavior of the oud, a numerical analysis was performed using the Finite Element Method within the Analysis System (ANSYS) environment. A detailed three-dimensional model of the instrument was constructed in SolidWorks and imported into ANSYS, where the orthotropic properties of Sitka spruce were assigned to replicate the soundboard

material. As displayed in Table 1, Modal simulations were conducted to identify the natural frequencies and associated mode shapes of the instrument under realistic boundary conditions. These simulations focused particularly on the first vibrational modes, which play a dominant role in defining the tonal balance and acoustic projection of the oud. The finite element results provided quantitative insight into how internal bracing influences vibrational stiffness, mode distribution, and the efficiency of sound radiation.

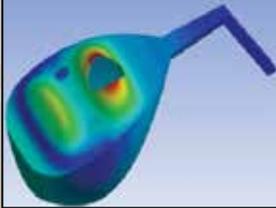
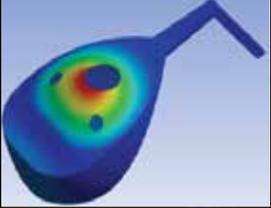
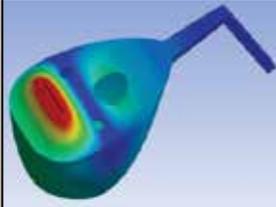
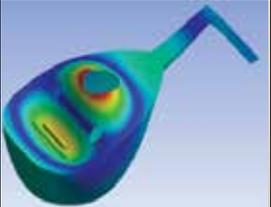
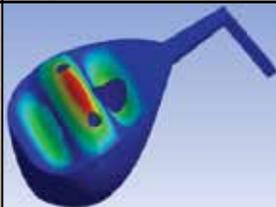
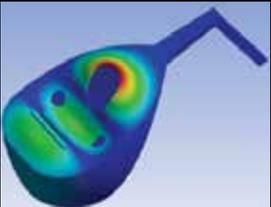
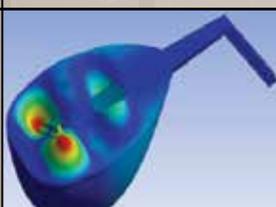
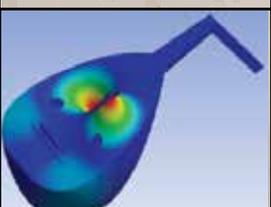
Experimental	Simulation	
	With bracing (Reference Oud)	Without bracing
Mode 1 $f_1$ : 142 Hz	 $f_1$ : 140 Hz	 $f_1$ : 117 Hz
Mode 2 $f_2$ : 226 Hz	 $f_2$ : 210 Hz	 $f_2$ : 182 Hz
Mode 3 $f_3$ : 242 Hz	 $f_3$ : 239 Hz	 $f_3$ : 204 Hz
Mode 4 $f_4$ : 280 Hz	 $f_4$ : 303 Hz	 $f_4$ : 275 Hz

Table 1: Computational modal analysis and validation with experimental results.

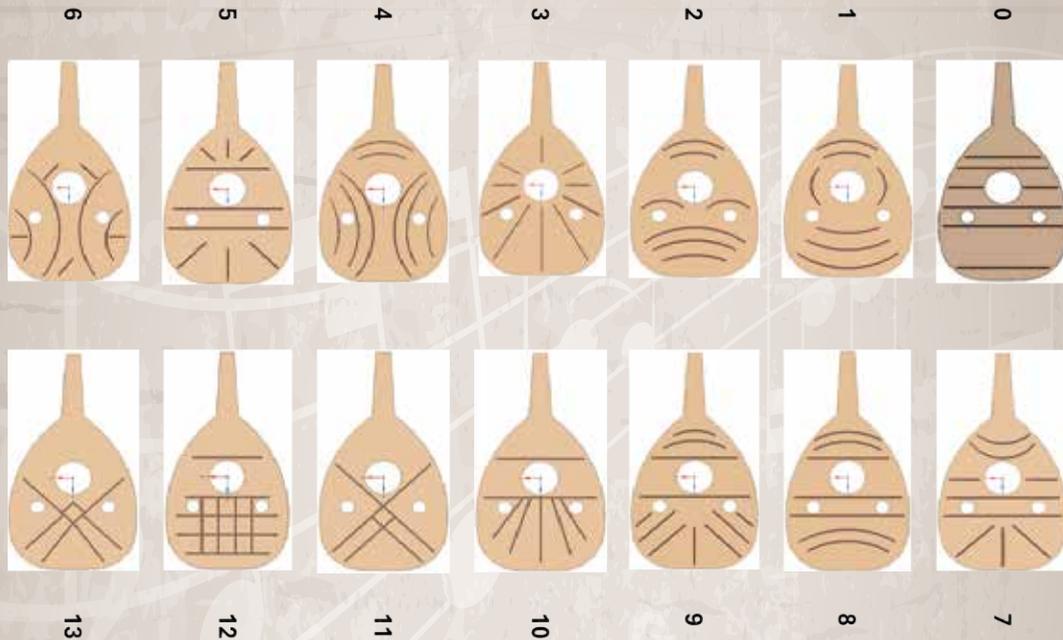


Figure 1: Fourteen different cases of Oud bracing structures.

Paramount to this research is the study of bracing systems—the wooden supports placed beneath the soundboard. These braces not only prevent structural collapse under string tension but also play a decisive role in shaping the tonal character of the instrument.

Each model was assessed against six carefully defined performance indicators that captured both structural and acoustic qualities. These included tonal clarity, vibrational balance, stress distribution, and acoustic projection. The findings revealed that bracing is far more than a structural necessity. Well-designed braces can dramatically improve tonal clarity, enhance projection, and extend the life of the instrument. Among the fourteen models tested, two designs—Models 6 and 11—stood out as consistently high performers. They offered the best balance between stiffness and resonance, making them promising candidates for professional-grade instruments. Several midrange models, such as 3, 4, 8, 9, 10, and 13, also showed favorable results when evaluated under more flexible performance criteria, particularly in contexts that demand strong projection, such as concert halls.

In contrast, traditional or poorly balanced bracing systems tended to underperform, revealing the limitations of conventional methods when tested against scientific benchmarks.

The societal and cultural significance of this work extends beyond the technical findings. By applying advanced engineering tools to a traditional craft, this research contributes to the preservation and evolution of a cultural symbol deeply rooted in the Arab world. It demonstrates how modern science can support the continuity of heritage, ensuring that the oud not only survives but thrives in contemporary performance contexts. This aligns closely with the Qatar University Research Strategy (2025–2030) under the pillar of Society, reinforcing national identity while promoting innovation in arts and cultural preservation.

In essence, this study demonstrates that the oud is not only a cultural treasure but also a dynamic system that can benefit from modern engineering insight. By merging craftsmanship and science, we open new possibilities for enhancing its sound, durability, and cultural relevance, ensuring that this cherished instrument continues to inspire future generations.



# Justice Can't Be Coded Alone: Integrating Local Knowledge and AI for Equitable Climate Action



**Dr. Yasmin Hageer**  
Lecturer, Core Curriculum Program, Deanship of  
General Studies - Qatar University



This study explores the intersection of social sustainability, climate justice, and digital innovation in climate change mitigation and adaptation policies, with a specific focus on the role of the digital society and digital governance in fostering inclusive and resilient climate action. Through a systematic review of 67 peer-reviewed studies published between 2015 and 2025, the research demonstrates how emerging digital technologies — including artificial intelligence (AI), big data analytics, and participatory mapping platforms — can be ethically integrated into climate strategies to empower marginalized communities and amplify local voices.

The study addresses a critical gap: current climate responses often prioritize technical or economic approaches while neglecting social dimensions, particularly in the design and deployment of digital tools. This oversight risks exacerbating inequalities, widening the digital divide, or excluding indigenous and local knowledge systems. To address this, the paper proposes a novel conceptual framework built on four interlinked pillars: (1) Climate Justice and Equity,

(2) Social Resilience, (3) Community-Driven Solutions, and (4) Technological Strategies for Inclusive Climate Action.

Within the digital society context, this review highlights how digital platforms can enable citizen engagement — such as flood-reporting mobile apps in Jakarta or community-sourced urban heat mapping — allowing residents to co-produce climate risk data and influence policy. However, the analysis reveals that such initiatives only achieve true inclusivity when co-designed with end-users and when barriers like limited connectivity, low digital literacy, or language gaps in informal settlements are actively addressed.

Regarding digital governance, the study advocates for “Participatory AI” models, where algorithmic tools are co-created with local stakeholders — including indigenous people, women, and youth — to align technical outputs with community values and needs. For example, AI-driven vulnerability mapping in Phoenix, Arizona, successfully directed greening investments to historically redlined, heat-vulnerable neighborhoods, reducing heat-related emergency calls by nearly 20%. Yet, the authors caution that such tools can perpetuate systemic biases if trained on incomplete or historically skewed datasets that underrepresent marginalized groups.

Crucially, the paper highlights that digital technologies should serve as complements—not replacements—for local and traditional ecological knowledge.

Indigenous fire management practices in Australia, for instance, have proven more effective and cost-efficient than high-tech aerial firefighting, yet remain sidelined due to institutional preference for Western scientific paradigms. The proposed framework calls for a redistribution of decision-making power through institutional mechanisms that grant communities genuine authority in digital climate planning.

The study also warns against “digital colonialism,” where tech corporations extract community data



without ensuring privacy, consent, or equitable benefit-sharing. It therefore emphasizes the need for ethical digital governance, including algorithmic transparency, community data sovereignty, and participatory oversight of AI systems used in public climate services.

Drawing on these insights, the paper offers actionable recommendations tailored to contexts like Qatar and the Gulf region, where investments in smart cities and digital transformation are accelerating. These include:

- Embedding social equity indicators into National Determined Contributions (NDCs) and urban resilience plans.
- Piloting community co-designed AI tools for localized climate risk assessment.
- Developing culturally and linguistically appropriate digital climate education platforms.

- Establishing inter-ministerial coordination bodies linking environment, digital infrastructure, and social development portfolios.

Ultimately, the research contends that a truly inclusive digital society is not measured by smartphone penetration, but by the capacity of every individual — regardless of socio-economic status — to shape decisions affecting their environment and well-being. It asserts that integrating justice, participation, and ethics into digital climate governance is not optional, but essential for effective, legitimate, and enduring climate action.

For more information about the research, please scan the QR code:





**Digital Currencies and Public Law:  
History, Constitutionalism  
and the Revolutionary  
Nature of Money**

**A Book Exploring  
the Digital World**



**Dr. Andrew Mazen Dahdal**  
Acting Associate Dean for Academic Affairs,  
College of Law – Qatar University

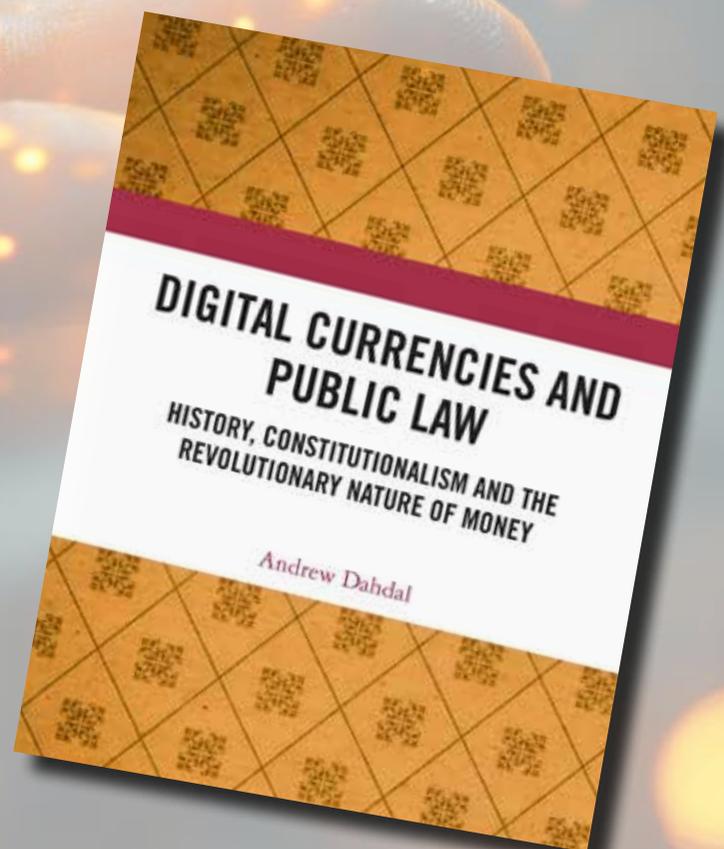


Money is sometimes described as a ‘social technology’. Yet, it is so much more than a tool for trade and transactions. Across history, money has defined the relationship between governments and the societies they govern. The lesson from history is that changing the nature of money can also change the constitutional balance in society. In order to understand what and how those changes are, the idea of money must be examined, and the new forms of digital currencies must also be explored.

Many policymakers around the world have already introduced (or are intending to introduce) a variety of laws to deal with digital currencies and digital assets. What is specifically being regulated, and what are the ultimate goals of such regulations, are important preliminary questions.

There are different kinds of digital currencies, from the well-known ‘bitcoin’, to the so-called ‘stablecoins’, all the way to digital currencies that can only be described as ‘scams’. There are many words used to describe this phenomenon, including ‘digitized money’, ‘digital assets’, ‘digital tokens’, ‘crypto currencies’, and more. This confusion sometimes intimidates people from asking or engaging in discussions about what digital currencies actually are—let alone what they mean for broader society. There are also many motivations for banning, allowing, or regulating these activities. Some may argue that the ultimate goal is to protect individuals or the economy from scams and other illegal conduct. In contrast, others may argue that promoting economic and technological innovation is the real goal. Whatever the motivation, not many people have considered the broader consequences of changing the nature of money on how governments and societies function. This book argues that the broader consequences of changing the nature of money are more than economic. They are social, political, and even philosophical. By exploring the history

of monetary change across civilizations, this book outlines the tensions and forces that will shape the future of societies and governments in the digital age. Over the last decade, digital currencies have featured heavily in nearly all discussions around economic digitization. Digital currencies are testing and challenging legal categories. For instance, laws related to property, contracts, crimes, and taxation have all had to adapt in order to meet the unique challenges of digital currencies and digital assets. One area of law that has not been sufficiently examined in light of the digital currency developments is constitutional law—or the legal relationship between societies and the state. While ‘private law’ is the domain of business and commerce, digital currencies must also be seen through a ‘public law’ lens. This book provides a framework for constitutional scholars to understand and engage with digital currency debates. This book is also an entry point for other scholars from across all disciplines seeking to better



understand digital currencies and the significance of their growth.

Money is not merely an object; it is a web of relationships. It shapes and defines interactions among individuals, between individuals and the state, and among states themselves. The use of money for charity can also define the relationships between people and their religious beliefs. This book draws on historical sources and literature relating to currency changes and reforms to argue that the introduction of digital currencies (in all their forms) risks unbalancing society in many potentially unforeseen ways.

For centuries, the origin and control of money have been central concerns for political leaders and empires, from Alexander the Great to Rome and the Islamic Caliphate. These historical experiences reveal enduring patterns and insights that continue to shape the constitutional dynamics of monetary reform. Only an epistemology grounded in history can fully capture the breadth and implications of this debate; abstract reasoning alone is insufficient to grasp the real-world consequences of monetary change. Building on this historical foundation, the book introduces a “Money

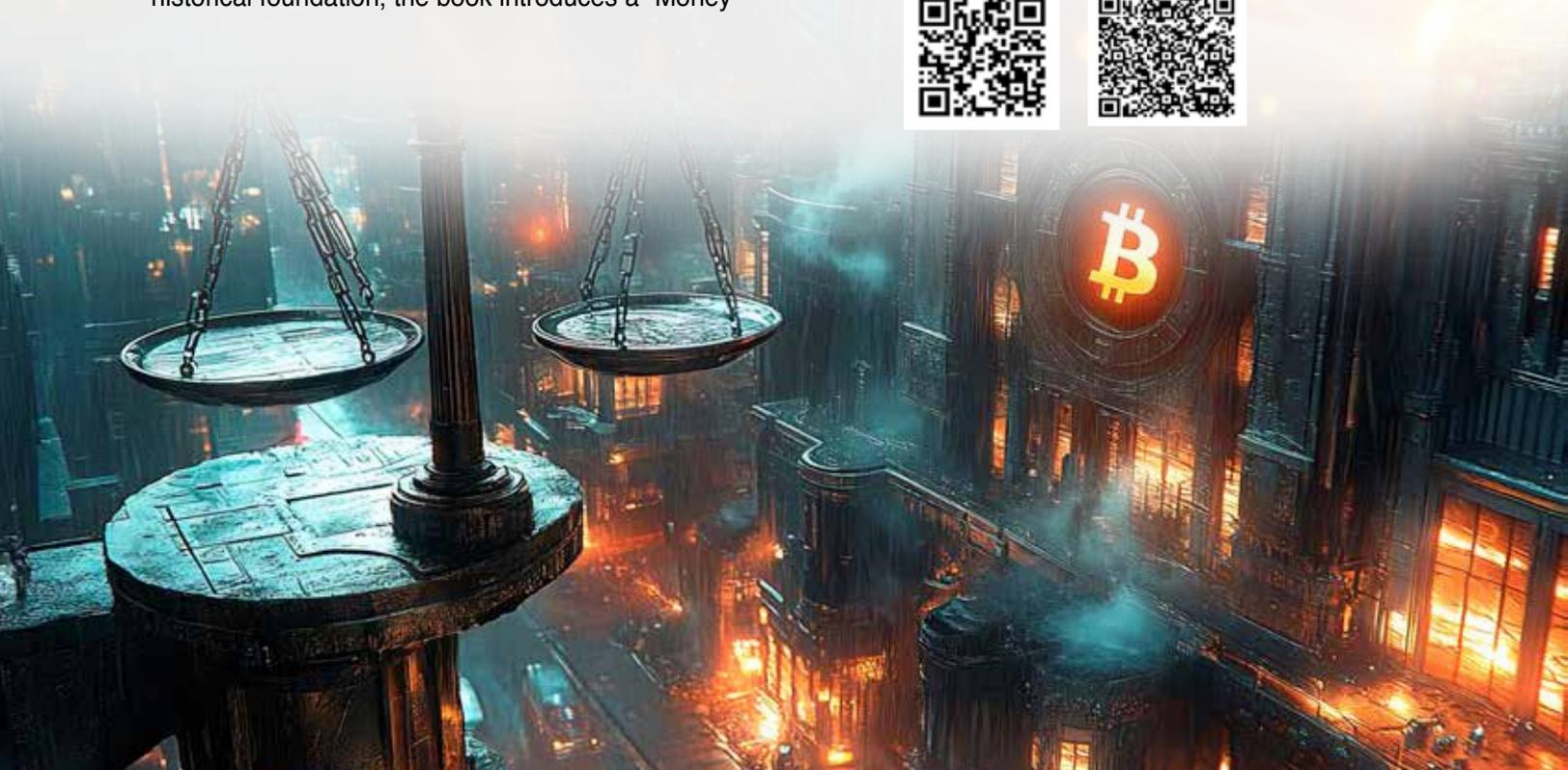
Matrix” as an analytical framework for interpreting digital monetary reforms, focusing on who issues money, who controls it, and the degree of control exercised.

Through this framework, those engaging in digital money debates can address political, social, philosophical, and even religious perspectives rather than focusing on law, technology, and economics. Given the significance of digital currency developments and associated legal reforms, it is important that everyone understands and is engaged in this shift.

This book is an open invitation to scholars from all disciplines across the Qatar University community and beyond to participate in this transformative discussion. The book is available in the Qatar University Library as an e-book here:

For purchase here:

The book was supported by the Academia-Industry Cooperation project AICC05-0619-230007 from the Qatar National Research Fund (a member of the Qatar Foundation) and TÜBİTAK.



# Building Circular Supply Chains through Digital Technologies



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**Dr. Hamid Jleidan, Associate Professor of Management**  
**Mohammed Al-Haifi, PhD Candidate (under the supervision of Dr. Al-Suwaidi)**  
**College of Business and Economics – Qatar University**

In the article by Al-Swidi et al. (2025), “Harnessing digital technologies in circular supply chains: the role of technological opportunism capability and technological turbulence,” the authors explore how firms can effectively develop circular supply chain capability in an era of rapid digital transformation, focusing on the role of digital technologies, technological opportunism capability, and technological turbulence. Using empirical evidence from the Indian automotive industry, the study provides a nuanced explanation of why some firms can operationalize circular economy principles while others struggle, despite similar environmental pressures.

At the heart of the study is the argument that digital technologies are not optional add-ons but essential enablers of circular supply chains. The authors demonstrate that technologies such as the Internet of Things, blockchain, and big data analytics play a decisive role in enabling firms to manage material flows, improve traceability, support reverse logistics, and reduce waste across the supply chain. Firms that adopted these technologies were significantly more capable of implementing circular practices, confirming that digitalization forms the operational backbone of circular supply chain capability. Without digital tools, efforts towards circularity remain fragmented, difficult to scale, and largely symbolic. Figure 1 illustrates the study model.

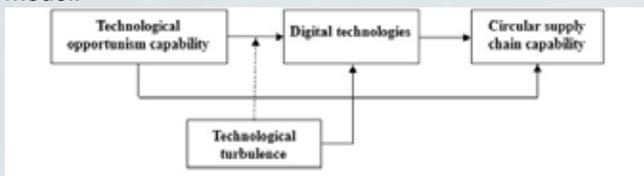


Figure 1: Study Framework.

However, the study goes beyond simply stating that digital technologies matter. It investigates how firms come to adopt these technologies in the first place, particularly in uncertain and fast-changing environments. Here, the concept of technological opportunism capability becomes central. Technological opportunism refers to a firm's ability to sense emerging technologies and respond quickly by reallocating resources and adjusting strategies. The findings show that firms with strong technological opportunism capability are significantly more likely to adopt advanced digital technologies. These firms actively scan their environments, recognize technological opportunities early, and move faster than competitors in experimenting with and deploying new tools. Crucially, the study reveals that technological opportunism capability does not directly improve circular supply chain capability. This is one of the article's most important and counterintuitive findings. While opportunistic firms are better at identifying new technologies, this capability alone does not automatically translate into circular outcomes. In other words, being

alert to technological opportunities is insufficient unless it leads to concrete investments in digital systems. The analysis shows that technological opportunism influences circular supply chain capability only through digital technology adoption, establishing a case of full mediation. This finding clarifies a key ambiguity in prior research and underscores that dynamic capabilities must be operationalized through tangible systems before they generate performance benefits.

The study further examines the role of technological turbulence, defined as the speed and unpredictability of technological change in the external environment. The results indicate that technological turbulence has a direct positive effect on digital technology adoption. In highly turbulent environments, firms face greater uncertainty, shorter technology life cycles, and stronger competitive pressure, which motivates them to adopt digital tools as a way to maintain control, visibility, and flexibility in their supply chains. Digital technologies become a response mechanism to environmental volatility.

More importantly, technological turbulence strengthens the relationship between technological opportunism capability and digital technology adoption. When the technological environment is stable, even firms with modest opportunism can keep pace with incremental change. However, under high turbulence, differences between firms become pronounced. Opportunistic firms gain a clear advantage because their sensing and responding capabilities allow them to act decisively in the face of rapid change. In such environments, technological opportunism becomes a critical differentiator that accelerates digital adoption and, indirectly, circular supply chain capability.

Taken together, the findings, as presented in Table 1 and Figure 2, present a coherent causal chain. Firms that cultivate technological opportunism are better positioned to adopt digital technologies, particularly when technological turbulence is high. These digital technologies, in turn, enable the development of circular supply chain capability. The study, therefore, reframes circular supply chain transformation as a capability-building process, rather than a simple compliance or





sustainability initiative. Circularity emerges not from intentions alone, but from the interaction between organizational capabilities, digital infrastructure, and environmental conditions.

**Table 1: Data Analysis Results.**

H1	Path	$\beta$	Std. Error	t-value	p	LL	UL	Result
H1a	TOO → DT	.344	.055	6.268	.000	.233	.455	Supported
H1b	TOO → CS	.455	.055	8.291	.000	.344	.566	Supported
H1c	TOO → CSOC	.088	.057	1.524	.066	-.022	.198	Not supported
H1d	TOO → ST	.077	.056	1.367	.173	-.044	.190	Unsupported

Source: Authors' analysis.

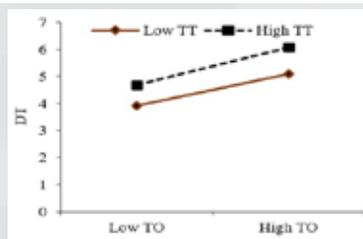
H2	Path	$\beta$	Std. Error	t-value	p	LL	UL	Result
H2	TOO → DT → CSOC	.275	.085	3.232	.000	.104	.446	Supported (Full mediation)

Source: Authors' analysis.

H3	Path	$\beta$	Std. Error	t-value	p	LL	UL	Result
H3	TOO → DT → ST	.300	.042	7.143	.000	.216	.384	Supported

Source: Authors' analysis.



**Figure 2: Moderation analysis of technological turbulence.**

The article makes several important theoretical contributions. It integrates Technology–Organization–Environment (TOE) theory with Dynamic Capabilities Theory, demonstrating how organizational capabilities and environmental turbulence jointly shape technology adoption and sustainability outcomes. By showing that digital technologies fully mediate the relationship between technological opportunism and circular supply chain capability, the study resolves conflicting assumptions in prior research about the direct impact of managerial or technological orientation on sustainability performance. It also enriches circular economy research

by providing empirical evidence from an emerging economy, where resource constraints, regulatory pressures, and technological gaps create a particularly challenging context for circular transformation.

From a managerial perspective, the findings carry clear implications. Managers seeking to advance circular supply chains must move beyond high-level sustainability rhetoric and invest decisively in digital technologies that enable traceability, analytics, and coordination across the supply chain. At the same time, firms should actively develop technological opportunism through environmental scanning, flexible decision-making structures, and a culture that supports experimentation. Importantly, managers should recognize that such capabilities are most valuable in turbulent technological environments, where speed and adaptability determine success. Policymakers, in turn, can support circular transitions by reducing barriers to digital adoption and by fostering ecosystems that encourage experimentation and learning.

In conclusion, the study demonstrates that digital technologies are the central mechanism through which firms translate technological awareness into circular supply chain capability. Technological opportunism acts as an enabler rather than a direct driver, and its effectiveness depends heavily on the level of technological turbulence in the environment. By illuminating these relationships, the article provides a robust, empirically grounded explanation of how firms can navigate digital transformation to achieve meaningful and scalable circular supply chain outcomes.

# Digital Qatar: Where Innovation Shapes the Future of Sustainable Development

**Sumaya Omran Al-Kuwari,**  
**Student, College of Engineering – Qatar University**

In an unprecedentedly changing world, digital transformation and innovation stand as two driving forces reshaping the economy, society, education, and even the daily way we live. Digital transformation is no longer a luxury or an option, but has become an indispensable tool for achieving sustainable development. In Qatar, the Qatar National Vision 2030 was launched to put innovation and digitization at the heart of its strategy, stressing that technology is not just a means, but a pillar of achieving the United Nations Sustainable Development Goals (SDGs) and ensuring a prosperous future for future generations.





## Digital Education: Making the Knowledge Generation (SDG4 and SDG9)

In the past, students needed to be in classrooms with limited walls and time. Today, these walls have become transparent. Thanks to digital transformation, students in Qatar can follow their lectures via online platforms, participate in interactive discussions using smart applications, and even receive instant feedback from AI-based systems. This qualitative leap not only enhances the quality of education (SDG4) but also supports the construction of a strong knowledge and technical infrastructure (SDG9). For example, the “Bedded Learning” project at Qatar University provided an integrated model that combines field presence and digital technologies, opening the way for a flexible and effective learning experience. Digital education in Qatar is no longer just a means of learning, but has become a factory to produce a generation capable of creativity, innovation, and competition globally.

## Women’s Empowerment through Digitization: New Spaces for Equality (SDG5)

When we talk about digitization, we are talking about opening new doors that were not available before. Qatari women today are directly benefiting from this transformation. E-commerce platforms, for example, have enabled many women entrepreneurs to launch their businesses from their homes and access local and regional markets without restrictions. This shift

helped break down the traditional barriers that limited women’s participation in some areas. With the expansion of digital education, Qatari women have gained equal opportunities for learning, self-development, and competition in the fields of technology and entrepreneurship. Digital transformation thus contributes to supporting gender equality (SDG5) and makes women key partners in building a sustainable and prosperous society.

## The Digital Economy and Youth Entrepreneurship: Inexhaustible Opportunities (SDG8 and SDG9)

Qatar’s digital economy is leading a new march of growth and diversification. Imagine a young Qatari man developing a simple application for managing medical appointments, to turn into a national project serving thousands of citizens in a few months. This is not a fictional story, but a reality we live in, in light of the state’s support for young people and entrepreneurs.

The digital economy opens the door to small and medium-sized enterprises to compete in global markets and creates new jobs in line with the requirements of the future. This promotes sustainable economic growth (SDG8) and drives an evolving innovation environment (SDG9). Government initiatives such as Technology Valley and business incubator programs have provided young people with spaces for experimentation, development, and the transformation of ideas into successful startups.



## Digital Security: Community Trust in the Virtual World (SDG16)

However, with all these opportunities, new challenges emerge. Cybercrime, cyberattacks, and data leakage are all threats that may shake people's trust in the digital system. Therefore, Qatar has developed advanced strategies in the field of cybersecurity, including the establishment of the National Cyber Security Centre and the development of modern legislation to protect information and personal data.

Digital security is no longer just a technical issue, but also a social and political issue, as it contributes to the consolidation of trust between the citizen and the state, and promotes peace and security at the local and global levels. This complies with SDG16 (Peace, Justice and Powerful Institutions) and makes digitization a safe and reliable tool to serve the community.

## Partnerships and International Cooperation: Development is a Shared Responsibility (SDG17)

No country can live in isolation from the world, especially in the time of the digital economy. Therefore, Qatar is taking the initiative to build strategic partnerships with international universities, international technology companies, and international institutions. These partnerships allow the exchange of expertise, the

development of scientific research, and the attraction of investments, enhancing Qatar's position as a regional centre for digital innovation.

For example, the collaboration between Qatar University and European research centers in the fields of artificial intelligence and clean energy reflects how international integration can deliver outcomes that serve the Sustainable Development Goals (SDG17). Development is not the responsibility of one state, but a global responsibility that requires solidarity and cooperation.

## Interconnected Vision: How SDGs Come Together Under Digitization

What distinguishes digital transformation in Qatar is that it does not serve just one goal, but creates an interconnected network of achievements. Digital education enhances the quality of education (SDG4), empowers women (SDG5), establishes a diversified economy (SDG8), and encourages innovation (SDG9). At the same time, cybersecurity consolidates trust and peace (SDG16), while international partnerships ensure the sustainability of efforts (SDG17). This connectivity makes digitization more like a bridge connecting all the Sustainable Development Goals, turning from a mere national project to a comprehensive vision.

## Conclusion: Qatar...where the future is made today

Digital transformation and innovation in Qatar are not just glamorous slogans, but a concrete reality that every individual in society lives. From smart classrooms, to e-commerce platforms, to the stories of young innovators, we clearly see how a modern state is built that puts people at the heart of development. Today, Qatar does not wait for the future, but works for building a better one by integrating digitization with sustainability, acting as a role model for the countries of the world. The development journey in Qatar is a clear message that says: "Innovation and digitization are the key to building a better tomorrow for all."



# E-TADWEER

## An Ecosystem for Green Electronic Components and Systems in Qatar



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### Introduction

At the pace of rapid technological advancement comes an equally critical responsibility to manage the growing volume of electrical and electronic equipment reaching the end of its lifecycle. In the absence of coordinated systems for reuse, refurbishment, or recycling, this discarded equipment turns into what is commonly known as Electronic Waste (e-waste), creating mounting environmental and sustainability challenges. In Qatar, e-waste poses both an environmental challenge and a strategic opportunity, containing valuable and hazardous materials that demand regulated management. While the country has made commitments to sustainability through its Qatar National Vision 2030 and the Third National Development Strategy, the current e-waste management construct remains fragile, lacking a comprehensive nationwide system. Effective solutions require coordination across the entire value chain, from material suppliers and manufacturers to consumers and recyclers. Addressing these complexities requires an integrated and adaptive approach that acknowledges Qatar's unique material flows and market dynamics.

Within this context, E-TADWEER introduces a circular ecosystem for green electronics management tailored specifically to the country's needs. It aims to develop an integrated framework that combines digital platforms, AI-driven recommendations, and physical infrastructure to rethink how e-waste is managed nationwide. Central to this effort is the development of a mobile application to recommend optimal circular practices for each device. Alongside this, physical kiosks and a dedicated digital marketplace will be deployed to encourage the exchange of electronic devices, with QU as the pilot location. These technological solutions are complemented by targeted awareness campaigns and educational seminars, steering Qatar towards a zero-waste electronics industry. Its core objectives are to:

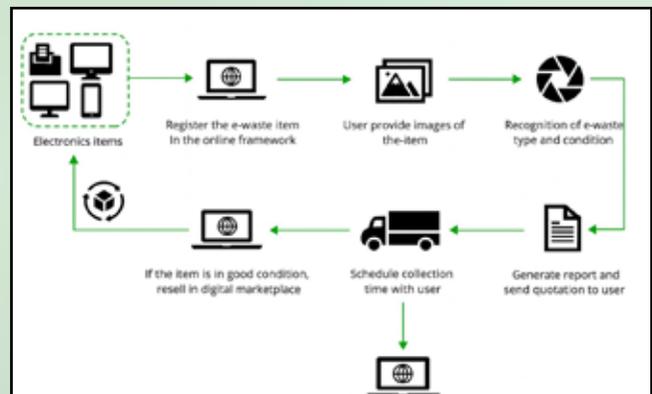
1. **Enable intelligent decision-making** through a mobile application that recommends the most effective circular strategy for each device based on its condition.
2. **Promote recycling and refurbishment** behavior through the deployment of physical kiosks and a digital marketplace, including targeted five kiosks strategically located across Qatar University (QU), to make sustainable disposal convenient and rewarding.
3. **Engage stakeholders across sectors**, with a strong emphasis on educating and empowering youth, to build societal awareness and shape environmentally responsible behaviors.

#### Methodology

### 1. Overview of the Digital Framework

E-TADWEER adopts a multidisciplinary approach that blends technological innovation with practical implementation to establish a holistic e-waste management system, as illustrated in Figure 1. The initiative is anchored in the 6R principles: Reduce, Reliability, Repair, Reuse, Refurbish, and Recycle, integrating powered tools to support sustainable practices across the electronic product lifecycle. The process begins with users registering their electronic items and uploading product images via the online

platform: <https://etadweerqa.com/login>. AI algorithms then analyze and classify the items by type and condition, generating a detailed report and quotation



for the user. Following this, collection is scheduled, and devices deemed suitable are reintegrated into a digital marketplace for resale, promoting reuse and extending product lifecycles.

Figure 1: Workflow of the E-TADWEER platform.

### 2. Pilot phase: Kiosk and Mobile Application

The initiative includes the deployment of smart physical kiosks to enable convenient device drop-off. The system integrates geolocation features and a reward-based credit mechanism to encourage active participation. Overall, E-TADWEER aims to achieve a 25% reduction in e-waste and attract at least 1,000 users to the platform.

As of October 2025, we are currently in the pilot implementation phase of this project. Initially, we developed a collection kiosk in collaboration with the Facilities and General Services Department at QU. This kiosk, shown in Figure 2, represents the backbone of the system and will be strategically installed in key campus locations to encourage students and staff to engage in responsible e-waste disposal practices. Moreover, it is designed to be interconnected with a mobile application, as illustrated in Figure 3. Through the platform, users will be able to register their devices, receive tailored recommendations for circular actions (such as reuse,



repair, or recycling), and track their contributions to sustainability efforts: an essential component for the success of E-TADWEER. Moreover, this will also enable the collection of valuable behavioral insights to inform future system improvements. To illustrate its pilot phases, Figure 3(a) illustrates the registration interface, whereas Figure 3(b) presents the account details, including the user profile and accumulated reward points. Figure 3(c) highlights the recycling request submission

page, where users upload device images to receive disposal recommendations. Finally, Figure 3(d) shows an interactive map interface for locating the nearest kiosk, marked by red pins.

### 3. Educational Outreach

Alongside its technological focus, E-TADWEER puts strong emphasis on a human-centric approach by building awareness and sharing knowledge through education. To ensure lasting impact, the project will include a series of outreach and training initiatives, such as summer schools, workshops, and capacity-building sessions. These are supported by collaborations with institutions like the IEEE student branch at QU, helping to engage students and young professionals.

### Conclusion

The E-TADWEER initiative underscores several critical policies, institutional, and operational gaps within Qatar’s evolving e-waste management landscape. Key challenges include the lack of structured and accessible data, fragmented management of end-of-life electronics across multiple stakeholders, and limited public engagement, all of which hinder the development of a shared culture of environmental responsibility. These gaps emphasize the need for an integrated approach that combines policy alignment, technological innovation, and active societal participation. Beyond its technological tools, E-TADWEER places strong emphasis on behavioral change and community engagement. It integrates educational initiatives to raise awareness, strategically located kiosks to provide accessible drop-off points, and reward-based mechanisms to incentivize responsible behaviors. This combined approach ensures that individuals, particularly youth, are active participants in shaping sustainable e-waste practices, supporting Qatar’s transition towards a circular economy and advancing the environmental development pillar of Qatar National Vision 2030.



Figure 2: Developed kiosk in collaboration with the Facilities and General Services Department, to be installed across the QU campus.

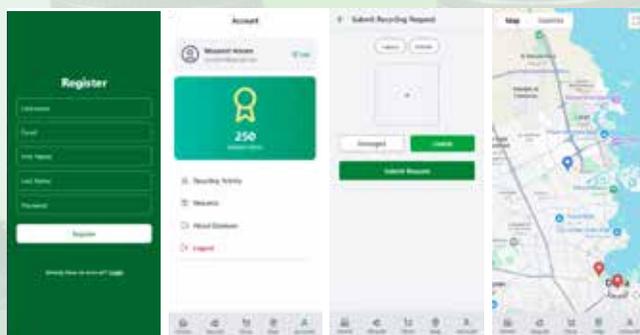


Figure 3: Pilot phase interfaces of the E-TADWEER mobile application: (a) registration screen; (b) account page with reward points; (c) recycling request submission; (d) interactive map for locating nearby kiosks.

# Biochar

## A Sustainable Organic Fertilizer within the Framework of Circular Economy and Closing the Recycling Loop



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### Background

Despite efforts to become more self-sufficient, the Gulf Cooperation Council (GCC) countries still depend on food imports, albeit to varying degrees, mainly driven by extreme climatic conditions. To address this situation, Qatar has, for instance, established a comprehensive food security strategy, resulting in greater self-sufficiency in many agricultural products. These initiatives align with Qatar's National Food Security Strategies (2018–2023; 2024-2030) and Qatar National Vision 2030. Accordingly, climate-controlled greenhouse farming has been playing an essential role in increasing local food production to cope with the extended hot and dry season conditions of Qatar. To this end, the land surface covered by greenhouses in Qatar has increased to 666 hectares (ha) in 2023 compared to 300 ha in 2018



In addition to vegetable crops, greenhouse operations also generate around 15 tons of plant residues per hectare annually. As such, it is estimated that Qatar's greenhouse activities generate approximately 10,000 tons of plant residues per year, which constitute an environmental issue if unsustainably managed by burning or landfilling. On the other hand, these organic residues may serve as a valuable feedstock for biochar production, for instance, which considerably reduces waste volume and greenhouse gas (GHG) emissions while improving crop production.

Biochar is a porous carbonaceous solid that can be produced from various biomass waste sources, including agricultural organic residues, forestry byproducts, animal manures, and municipal solid waste. Pyrolysis is the most widely used method for biochar production. It involves the thermal decomposition of organic materials at temperatures varying between 250 and 900°C in the absence of oxygen, breaking down biomass into bio-oil, gases, and charcoal. The stable chemical structure of biochar, large specific surface area, high carbon content, and cation exchange capacity make it a versatile material with sustainable applications in various fields. Additionally, biochar contains some essential plant nutrients like potassium, sodium, magnesium, calcium, copper, zinc, and iron, which make it suitable for agricultural applications. By and large, biochar production from agricultural residues has tremendous agri-environmental benefits as compared to using chemical fertilizers or other unsustainable agro-chemicals.

The use of biochar as an organic fertilizer in agriculture has seen greater focus because it simultaneously reduces the carbon footprint and improves the physical, chemical, and biological properties of soil and hydroponic substrates, resulting in more sustainable crop production. More precisely, biochar application increases water and essential plant macronutrient retention, making it highly

beneficial in arid regions characterized by limited water supplies, high evapotranspiration rates, and degraded soils. In this regard, recent efforts have focused on biochar modification to further enhance the physicochemical properties and adsorption capabilities using various methods. Biochar modification aims to either increase its surface area or to improve its surface characteristics and reactivity.

## Research procedures

The research study aimed to transform agricultural wastes generated in Qatar into modified biochars to enhance local greenhouse production in the framework of the circular economy concept. This was in line with Qatar National Food Security Strategies as well as Qatar University Research Priorities (Water and Food Security-Resource Sustainability Pillar). The feedstock utilized for biochar production consisted of a 1:1 mixture of two locally generated agricultural residues, namely, lignocellulosic biomass and animal manure. The synthesis of the magnetic biochar (MBC) was performed using the co-precipitation method with iron salts. The impregnation of the magnetic biochar with phosphorus (P-MBC) was carried out as a second step modification by adding disodium phosphate. Then, both magnetic biochar forms (MBC and P-MBC) were added to the cocopeat substrate to grow cherry tomato in the greenhouse of the Center for Sustainable Development for an entire cultivation cycle using different application rates (Figure 1).



Figure 1: Tomato cultivation inside the greenhouse of CSD at QU.

## Key findings

- Both modified biochars (MBC and P-MBC) were deeply characterized for their physico-chemical properties by using advanced techniques of surface scanning and elemental mapping. Accordingly, XRD analysis revealed the presence of magnetite on the surface of both biochars, while FT-IR and EDX techniques confirmed the successful impregnation step by detecting the presence of phosphorus and phosphorus-containing groups in the P-MBC sample.
- The cultivation cycle of cherry tomato inside the greenhouse lasted 120 days after transplanting. All biochar treatments enhanced plant biomass with respect to the untreated control, along with treatment MBC added at 2%, showing the highest shoot fresh and dry weights. Moreover, biochar application improved cumulative tomato fruit yield compared with the control, with the highest production recorded under the P-MBC treatment at a 1% application rate, resulting in an approximate 62% increase in yield (Figure 2). Likewise, biochar application positively increased total sugar content in tomato fruits compared to control plants.

## Perspectives

This study examined the conversion of Qatari organic agricultural residues into modified biochars through magnetization and phosphorus impregnation to serve as a substrate conditioner in the framework of the circular economy and zero-waste principles. Outcomes indicated that the most significant effect of magnetic biochar addition was the improvement of tomato fruit yield and sugar content with respect to control plants. Moving forward, there are several areas where further research could significantly advance this field of investigation. First, examining the nutrient adsorption/release kinetics of these modified biochars is needed to understand the contribution of magnetization and phosphorus impregnation to the sought-after property of controlled nutrient release after application. Additionally, exploring other abundant agricultural residues in Qatar as potential feedstocks for biochar production could reveal ways to enhance the beneficial properties of biochars for soil or greenhouse substrate enhancement, and consequently, local food security improvement.



Figure 2: Control and treated plant appearance during the full production stage.

# Driving Qatar's Green Future Integrating Smart EV Charging with Energy Storage and Solar PV System



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## Abstract

Qatar is at the forefront of an energy transition shaped by its ambitious Qatar National Vision 2030. As the country invests in renewable energy and advanced grid technologies, electric vehicles (EVs) are emerging as key enablers of sustainable mobility. However, the integration of EVs into the national grid presents challenges, especially given Qatar's extreme climate and unique energy demand patterns. This article highlights research from Qatar University and international collaborators on integrating EVs with solar photovoltaic (PV) systems, energy storage, and intelligent charging strategies. The findings reveal a roadmap for balancing grid reliability, user convenience, and environmental sustainability, placing Qatar at the forefront of green transportation innovation in the Gulf region.

## Introduction

Energy is central to sustainable development, powering transportation, industry, and communication systems. With the global shift from fossil fuels to renewable sources such as solar, wind, and hydrogen, nations are rethinking energy planning and infrastructure. In Qatar, abundant solar potential and progressive national goals make energy innovation a priority. The commissioning of the Al Kharsaah Solar Plant marked a significant milestone, supplying a large portion of peak demand and demonstrating Qatar's renewable energy ambitions.

For a nation balancing its role as a global energy exporter with domestic decarbonization needs, the integration of renewable energy, advanced storage, and intelligent grids is crucial. Against this backdrop, EVs offer an opportunity to decarbonize transport, but their integration into Qatar's power system requires smart, adaptive strategies.

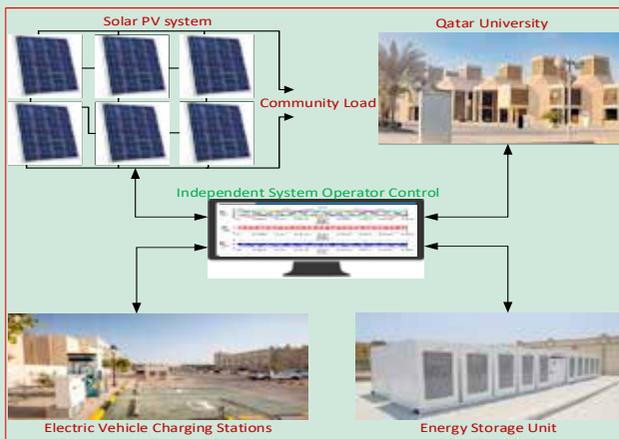


Figure 1: Conceptual diagram of EV charging integrated with solar PV systems and energy storage units' control via an independent system operator.

## Why Electric Vehicle Integration Matters for Qatar

Unlike internal combustion vehicles, EVs draw substantial electricity for charging, often during peak demand hours. In Qatar, this issue is exacerbated by the extreme summer conditions, where temperatures usually exceed 40°C.

EV batteries require more cooling under such conditions, raising charging demand by up to 20%. If unmanaged, large-scale EV charging can overload transformers because of voltage drops, which could stress the national utility grid. Intelligent solutions are, therefore, essential to prevent these challenges from hindering Qatar's sustainable mobility goals.

### Smart Models for Smarter Charging

Qatar University researchers have developed probabilistic models using Monte Carlo-based intelligent methods to simulate EV charging patterns across residential, commercial, and government sectors. Reflecting Qatar's distinct working hours, the models identified two stress points: early mornings and afternoons.

To mitigate risks, reward-based smart charging schemes were proposed. Instead of penalizing users, the model incentivizes them through:

- Lower tariffs for off-peak charging
- Free charging sessions
- Grocery vouchers or loyalty rewards
- Parking privileges for EVs charged using solar power

Such user-friendly approaches foster public acceptance while reducing grid strain, creating a



win-win scenario for utilities and consumers.

### Solar Synergy: EVs Meet PV

Qatar's vast solar potential makes PV systems an ideal complement to EV charging. By integrating a 1.5 MW solar PV system with EV charging, researchers observed significant improvements in grid stability. Solar generation during daylight hours aligned well with peak charging demands, easing stress on the grid while maximizing renewable utilization.

This synergy illustrates how solar integration on campuses, highways, and urban centres can accelerate Qatar's shift towards a clean transportation ecosystem.

### Resilient Networks through Reconfiguration

Another innovation explored was distribution network reconfiguration, transitioning from radial to mesh structures. This adjustment improved voltage profiles by up to 18%, even under 20% EV penetration scenarios across residential, commercial, and industrial sectors. Such grid-level flexibility ensures that transportation electrification does not compromise reliability.

### Qatar University: Towards a Sustainable Future

This research reflects Qatar University's leadership in sustainable innovation. By blending advanced simulations, renewable integration, and consumer-centric strategies, the institution is setting benchmarks for green mobility in the Gulf region.



Figure 2: Recommendation for Overall Energy Management Strategies.

Furthermore, the integration of machine learning in PV systems, covering inverter control, site adaptation, and output power forecasting, enhances efficiency and reliability. These intelligent solutions contribute to resilient energy systems, reinforcing Qatar University's mission of fostering sustainability and intelligent infrastructure on its campus and beyond.

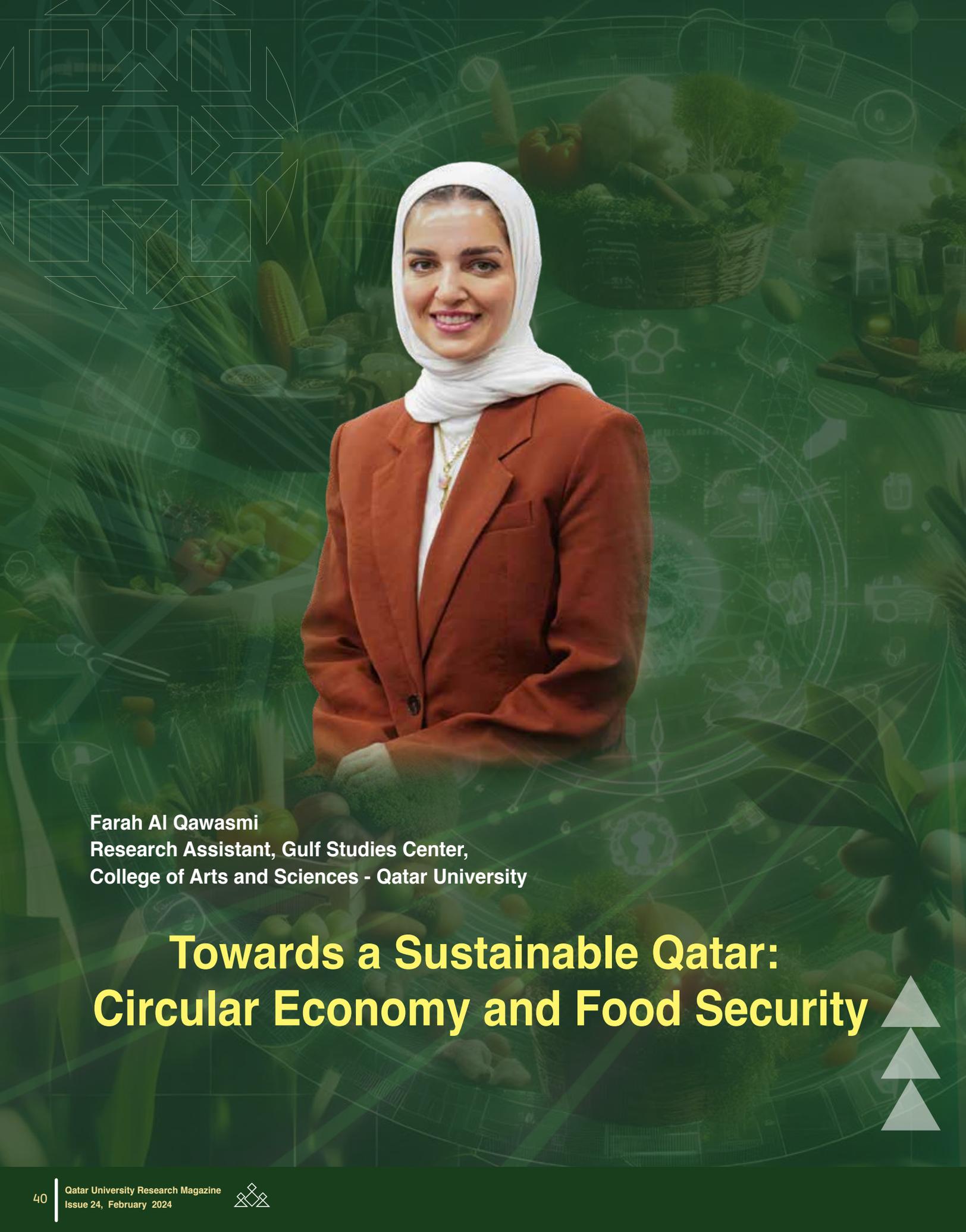
### Conclusion and Future Directions

Qatar stands at the threshold of a transformative era in energy and mobility. EV integration, when combined with solar PV, energy storage, and smart grids, can enable a resilient, low-carbon future aligned with Qatar National Vision 2030.

Future research and policy directions should focus on:

1. Expanding PV-powered EV charging hubs across cities.
  2. Deploying AI-driven demand forecasting and optimization algorithms.
  3. Enhancing incentive-based models to encourage consumer participation.
  4. Strengthening grid resilience through network reconfiguration and advanced storage technologies.
- By advancing these innovations, Qatar can establish itself as a global leader in sustainable transportation and intelligent energy management.





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# **Towards a Sustainable Qatar: Circular Economy and Food Security**



Qatar, a peninsula located in the Arabian Gulf, faces significant challenges arising from its arid climate, which poses the main obstacle to securing both water and food resources and needs. Before 2017, Qatar imported more than 85% of its food from neighboring countries in the Gulf (Wellesley, n.d). However, the GCC blockade marked a pivotal turning point, emphasizing the urgent need to strengthen local production and diversify food trade routes. In response, Qatar expanded its trade partnerships beyond the Gulf region—particularly with ASEAN countries—while simultaneously investing in local agricultural projects.

To support achieving its deliberate goals, Qatar began its transition from a linear to a circular economy, while mobilizing national institutions to implement the sustainable development objectives outlined in the Qatar National Vision 2030. Presenting the nation's strategic initiatives highlights the combined efforts to tackle food security challenges and enhance Qatar's local self-sufficiency, as well as the utilization of natural resources, and advancing its broader sustainable development agenda.

Qatar has been a strong actor in global efforts to achieve environmental sustainability and accelerate climate change initiatives. The state demonstrated its commitment to global initiatives in 1996 when it ratified the United Nations Framework Convention on Climate Change (UNFCCC) and became a signatory to the Kyoto Protocol in 2005. In 2008, the government introduced the Qatar National Vision 2030, a comprehensive framework that set forth the country's long-term goals for economic diversification and sustainable development. Following on from that, Qatar was the first Arab country to host the United Nations COP conference in 2012, and it later signed and ratified the Paris Protocol in 2016 (MOFA). Qatar's dedication to global environmental agreements extended to its local objectives, where the circular economy and its direct role towards food security emerge as key

components of its sustainable development goals. Food security is an integral part of the transition from a linear to a circular economy. The circular economy is defined as a regenerative economy that minimizes waste and reintegrates it back into the state's production cycle. This economic model follows the three R's principle, which are Reduce, Reuse, and Recycle to reduce waste, promote efficient resource use, and achieve sustainable and environmental goals (Kolade, 2025).

In terms of food security, Qatar faces two main challenges: its harsh climatic conditions and rapidly growing population. These factors once made the nation heavily dependent on food and water imports, yet they have also served as key drivers behind the development and enhancement of Qatar's National Food Security Vision. This vision seeks to achieve more than the country's immediate needs as it also aims to establish a resilient and sustainable system capable of withstanding future political, economic, and environmental challenges. In December 2024, Qatar launched its National Food Security 2030 initiative, aiming to build a resilient framework that reduces the country's reliance on food imports while increasing domestic agricultural productivity (Prime Minister, 2024). The initiative covered 17 feasible strategies designed to achieve Qatar's long-term food security objectives. These strategies include the integration of advanced technology into agricultural practices to minimize food waste and enhance productivity (Dairy News, 2025). Additionally, they emphasize the need to strengthen partnerships between public and private sector entities to improve the efficiency and sustainability of Qatar's food supply chain. Furthermore, the strategies impose stricter state regulations to ensure food safety and quality across production, storage processes, and ensure feasible shelf-life regulations. Finally, this highlights the importance of promoting healthier consumption habits and reducing food waste within society as key mechanisms of achieving national food security

goals (Dairy News, 2025).

Qatar established and employed numerous national channels to advance its sustainable development agenda and achieve the objectives outlined in its National Food Security Vision 2030. Among these entities is the Agricultural Affairs Department under the Ministry of Municipality, which has secured over 950 farms across the country dedicated to the cultivation of local and organic produce. Moreover, in 2024, Mahaseel Company for Marketing and Agricultural Services marked a significant national achievement by producing over 26 million kilograms of locally grown vegetables and reaching a livestock population of over 1.4 million (Dairy News, 2025). Additionally, Qatar achieved 100% self-sufficiency in dairy production through its local company, Baladna (Koe, 2019). Although Baladna Farm was established in 2014, it significantly expanded its production capacity, capital investments, and operations in 2017 following the Gulf blockade. This strategic expansion aimed to reduce the country's dependence on regional imports of essential food products (The Peninsula, 2019). Expanding on these achievements, Qatar aims to extend its food security goals to achieve food self-sufficiency and security across a wide range of food categories.

By 2030, the National Food Security Program in Qatar aims to have achieved solid quantitative figures that align with Qatar's population growth. These figures include over 50% self-sufficiency in fruits and vegetable needs, 30% increased sufficiency in livestock and poultry, 80% in fish farms, while maintaining the achieved 100% efficiency in fresh dairy (Qatar News Agency, 2025). To effectively implement the objectives of Qatar's National Food Security (QNFFS) 2030 strategy on food security, Qatar underwent numerous reforms. First, it established the ground for change by shifting to a Circular Economy Model. Second, it set feasible strategies that prioritized enhancing the sustainability of its natural resources, particularly land and water. Third, it mobilized numerous domestic institutions to study and execute its sustainable development goals. Fourth, it involved the public sector by reforming food regulation laws and encouraging consumption and waste habits. Continuous work on these strategies helps in achieving these goals, which will ultimately enable Qatar to design more efficient local production chains and strategies, and advance the development of its agricultural goods and produce to achieve its food security goals.



# From Classrooms to the World Digital Education, Curriculum Innovation, and Capacity Building



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## Introduction

Education has always been the backbone of human progress. For centuries, it was confined to classrooms, textbooks, and face-to-face interactions. Today, however, education is breaking boundaries. It is no longer about being physically present in a lecture hall; it is about accessing knowledge anytime, anywhere through digital education, rethinking curricula, and building .strong capacities



## Digital Education: Expanding Horizons

Digital education is no longer a luxury—it is a necessity. The COVID-19 pandemic made this clear: institutions that lacked digital readiness struggled, while those that embraced technology thrived.

For students, digital education offers unmatched flexibility. They can watch lectures at their own pace, revisit complex materials, and fit learning into their schedules. For professionals, it enables lifelong learning through short online courses and certifications.

Most importantly, digital education removes barriers of distance. A student in Doha can join a seminar hosted by a professor in Europe, while simultaneously collaborating with peers in Asia and Africa. This connectivity not only enriches academic knowledge but also fosters intercultural understanding.

## Curriculum Innovation: Preparing for Tomorrow

If digital education is the vehicle, curriculum is the soul. Traditional curricula were heavily content-driven, with success measured by memorization. But in a world where information is abundant and instantly available, memorization alone is

insufficient.

Modern curricula emphasize 21st-century skills like critical thinking, creativity, problem-solving, teamwork, and adaptability. Students are encouraged not only to acquire information but to question it, evaluate it, and apply it in real-life contexts.

At Qatar University, blended learning has emerged as a forward-looking model. It combines the best of both worlds: the human connection of in-person classes with the flexibility of digital platforms. This approach aligns with the University's vision of preparing graduates who can thrive in a global, knowledge-based economy.

## Capacity Building: People at the Core

Behind every successful educational system are people—teachers, students, and administrators. No amount of technology can replace the human factor. Teachers are at the heart of education. They need continuous professional development to master digital tools, adapt to new teaching strategies, and respond to evolving student needs. Students, in turn, must be empowered to become active participants: self-directed learners who can manage



# EDUCATION



their time, collaborate effectively, and think critically. Institutions must also invest in infrastructure: reliable internet, advanced learning management systems, and supportive policies. Building capacity is about creating an ecosystem where teachers, students, and technology work together seamlessly.

## Inspiring Examples

Globally, platforms like Coursera and edX have revolutionized access to education, enabling millions of learners to attend courses from top universities like Harvard and MIT.

Locally, Qatar University demonstrated resilience during the pandemic by transitioning swiftly to online learning. This adaptability highlighted the University's commitment to innovation and its role as a leader in the region. The University continues to invest in blended learning models and faculty development programs, ensuring that students receive a holistic and future-ready education.

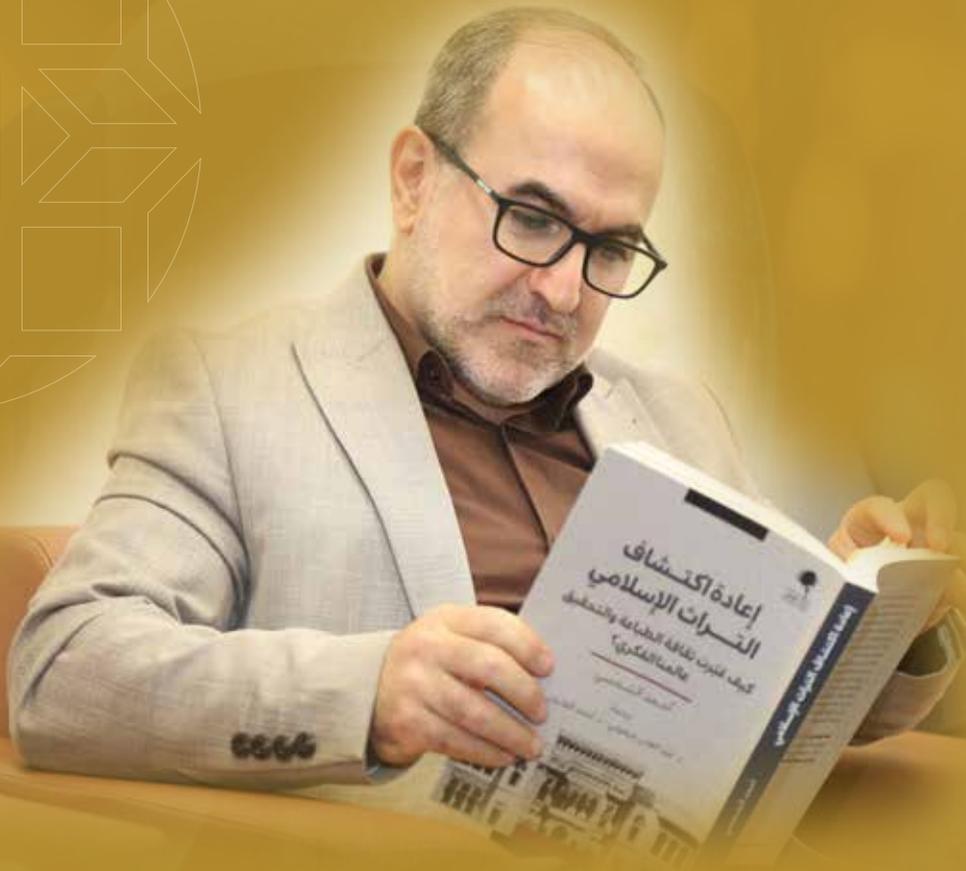
## Why It Matters

This transformation is not just about improving education; it is about shaping the future of nations. For Qatar, embracing digital education, modern curricula, and capacity building is central to the country's vision of becoming a knowledge-driven society.

The graduates of tomorrow will not only carry degrees but also the skills, creativity, and adaptability needed to solve global challenges, contribute to innovation, and lead in diverse fields.

## Conclusion

Education today is a journey that transcends walls and borders. Digital tools provide access, curricula shape minds, and capacity building ensures sustainability. Together, these pillars form a roadmap to a brighter educational future—for Qatar and the world.



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## The Second Rediscovery of the Classical Tradition in the Age of Artificial Intelligence

A quarter of a century ago, a graduate student in disciplines related to classical Islamic tradition had to bring along a notebook and a bundle of index cards, and sit for hours in one of the public or private libraries, taking one book after another and reading long pages to extract relevant ideas and citations to serve as sources for his thesis or dissertation. Similarly, scholars two centuries ago lacked access to a significant body of classical works spanning multiple disciplines, works that had remained manuscripts consigned to oblivion before being revived in the consciousness of the new generations in the age of printing, when the classical tradition was rediscovered.



Today, the scholar has a closer connection to and a broader knowledge of the classical tradition than his counterpart who lived in Islamic cities three centuries ago. As Ahmed EL Shamsy has traced, the book markets and stationeries of that time did not carry *Tafsir Al-Tabari*, nor Ibn Khaldun's *Muqaddimah*, nor Al-Shafi'i's *Al-Umm*, among many others. Extracting the rare treasures of forgotten books and reprinting them has been extremely fruitful in provoking debates on various historical, literary, and jurisprudential issues, and in opening wide doors to understanding the dimensions of Islamic culture, its history, and sciences.

Today, when researchers scroll through thousands of classical books and texts on their computer and access what they need in a matter of minutes, they will feel an even greater sense of strangeness compared to the scholar of a quarter of a century ago, not to mention the situation two centuries earlier. The technology that provides today's tools to study classical heritage and facilitate access to it has created a fluidity of information. While it supplies the necessary material, it has also increased the difficulty of controlling and making effective use of it. Nevertheless, digital tools have not altered the methods of consulting, analyzing, and comparing sources; these remain necessary stages that must be completed in the study of classical heritage. What digitization has done is to remove barriers to accessing sources and information, enable searching within sources, and place them at the researcher's disposal, while the researcher remains the foundation and mainstay of scholarly research.

The printing press revolutionized intellectual renewal in ways that digitization has yet to equal. Nevertheless, the current transitional phase is laying the groundwork for a new paradigm. Artificial

intelligence is poised to transform scholarly roles, demanding new methods for engaging with and validating its outputs, and opening the path towards a second rediscovery of the classical tradition—one that surpasses both the printing revolution and the digital era.

The promising potential for employing artificial intelligence in Arabic language sciences and heritage across their various specializations is far deeper than naïve perceptions and hasty judgments based on hallucinations that appear in the answers of AI tools that are not trained on Arabic and its sources, a language that ranks among the lowest in terms of available content in the digital space. To appreciate these prospects, it suffices to interrogate the AI models themselves about the capabilities they can offer in this field. They will tell us about converting manuscripts into searchable, analyzable texts using advanced Optical Character Recognition techniques trained on old Arabic scripts, comparing manuscript variants, restoring damaged or incomplete texts using predictive text techniques, and restoring images and old manuscripts using AI-based image processing. Among the easier tasks is classifying content by topic using machine learning models and detecting duplicated or similar texts across ages, which helps trace the development of ideas and terms.

In the linguistic domain, AI promises the ability to analyze rhetorical and linguistic styles in Quranic, hadith, and heritage texts; extract legal concepts and terms and link them to their historical and social contexts; and build intelligent lexicons that connect classical vocabulary with their meanings in different contexts. It goes further by building knowledge models that link scholars, books, intellectual schools, topics, their journeys, and their meetings—even constructing a “code” of a scholar, his style



and language, that enables the identification of his texts. It will be possible to analyze the influence of scholars and intellectual schools on one another using network techniques, and even to monitor interactions between cultures and civilizations, as well as their mutual linguistic and scientific influences, all the way to translating classical texts and conveying their meanings to those who do not master their language. In education and interaction, intelligent educational assistants can be created to explain classical concepts in contemporary language, simulate juristic or theological dialogues between scholars using language models, and generate interactive educational tools to simplify understanding of the classical tradition.

Experiments indicate the realism of these prospects and the realization of some of them, but there are challenges that delay their accuracy and reliability. Chief among these challenges is the failure of relevant institutions and experts to adequately train AI models on Modern Standard Arabic and on the sources of the Islamic tradition across its various disciplines. The widely available Arabic AI models are directed towards everyday life, services, and investment opportunities, and for the most part are not trained on specialized sciences and knowledge or on lofty Arabic. These require massive projects funded by states and institutions that carry civilizational concerns and bear the heavy responsibility of preserving the Arabic language and Islamic identity.

One of the most important matters to pay attention to in potential projects in this field is that experts in language, history, and Islamic sciences should take on the task of guiding how AI tools are trained, after they themselves have been trained and educated on the possibilities of its exploitation. No matter how knowledgeable a technical expert is in Arabic, they may not fully grasp the particularities of each discipline and the possible horizons within it. Consider, for example, how advanced an AI's command of Arabic would be if a model were trained through Arabic digital dictionaries, poetic encyclopedias, and the major books of Arabic literature - the results would be astonishing. In this context, I recommend that the Qatar University introduce a diploma program for humanities students that equips them with essential knowledge in artificial intelligence and prepares them to lead future training initiatives for AI tools relevant to their fields of specialization.



# Women, Engineering, and Society

## Understanding Gender Disparities in Engineering Education Research in the GCC



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Engineering has long been central to the Gulf Cooperation Council (GCC) countries' development strategies, as these nations work to diversify beyond oil economies and invest in building knowledge-based societies. At the heart of this transformation lies education, innovation, and human capital development, with engineering education serving as a cornerstone for workforce development, industry demands, and national self-reliance. While women's empowerment is a shared national priority across GCC countries, and there has been significant progress in female enrolment and graduation rates, women continue to face barriers to participation, advancement, and recognition in STEM fields.



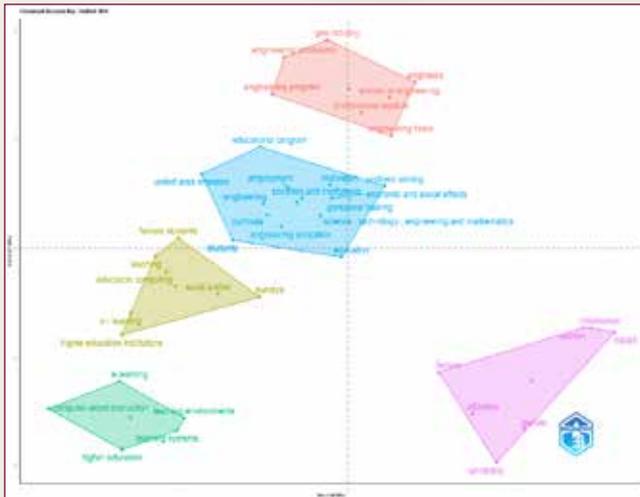


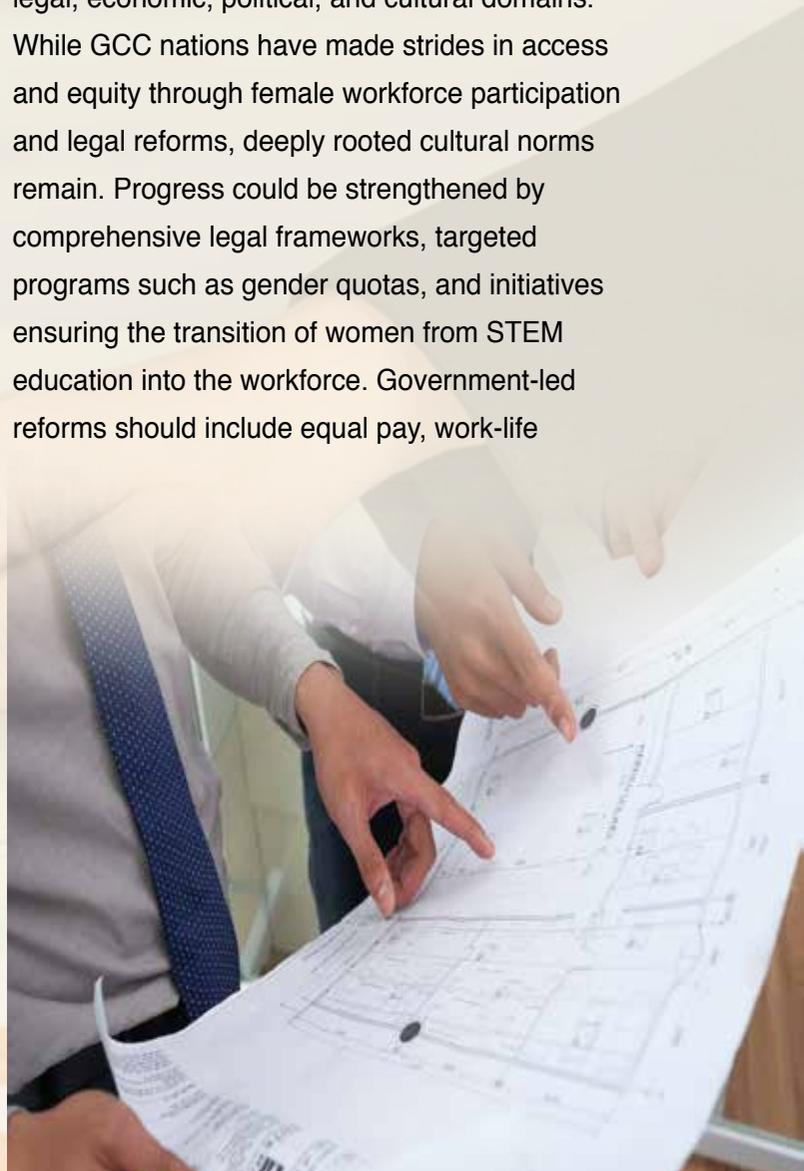
Figure 3: Factorial Analysis of Conceptual Structure in Gender and Engineering Education Research in the GCC.

shows sustained interest in engineering education, students, and curricula, with more recent attention to women and higher education institutions. Similarly, factorial mapping (Figure 3) identifies distinct clusters, including pedagogy, digital learning, professional skills, and gender-related themes, with gender often located on the periphery of the research landscape.

Furthermore, the sentiment analysis of highly cited studies shows that research tends to adopt a neutral, diagnostic tone, documenting disparities but rarely interrogating the systemic causes behind them. Highly influential works are often authored by male-dominated teams and frame gender as a variable within broader educational inquiries. Mixed-gender teams and female-led studies more directly address women's motivations, experiences, and participation in engineering education. High citation counts are associated with timely topics such as mobile learning adoption and student motivations to pursue engineering, indicating the influence of global and regional educational shifts on research visibility.

The findings underscore the need for regarding

gender not simply as a demographic variable but as a systemic issue shaped by multi-level dynamics. Research should move beyond individual-level analysis towards examining broader system-level forces that shape gender issues. Adopting a systems-level approach is crucial for identifying conditions under which meaningful progress towards gender equality can occur. It is neither coincidental nor superficial that the Nordic nations of Iceland, Finland, and Norway consistently rank as global leaders in gender equality. Their success reflects decades of comprehensive and systemic efforts grounded in gender-inclusive policies across legal, economic, political, and cultural domains. While GCC nations have made strides in access and equity through female workforce participation and legal reforms, deeply rooted cultural norms remain. Progress could be strengthened by comprehensive legal frameworks, targeted programs such as gender quotas, and initiatives ensuring the transition of women from STEM education into the workforce. Government-led reforms should include equal pay, work-life



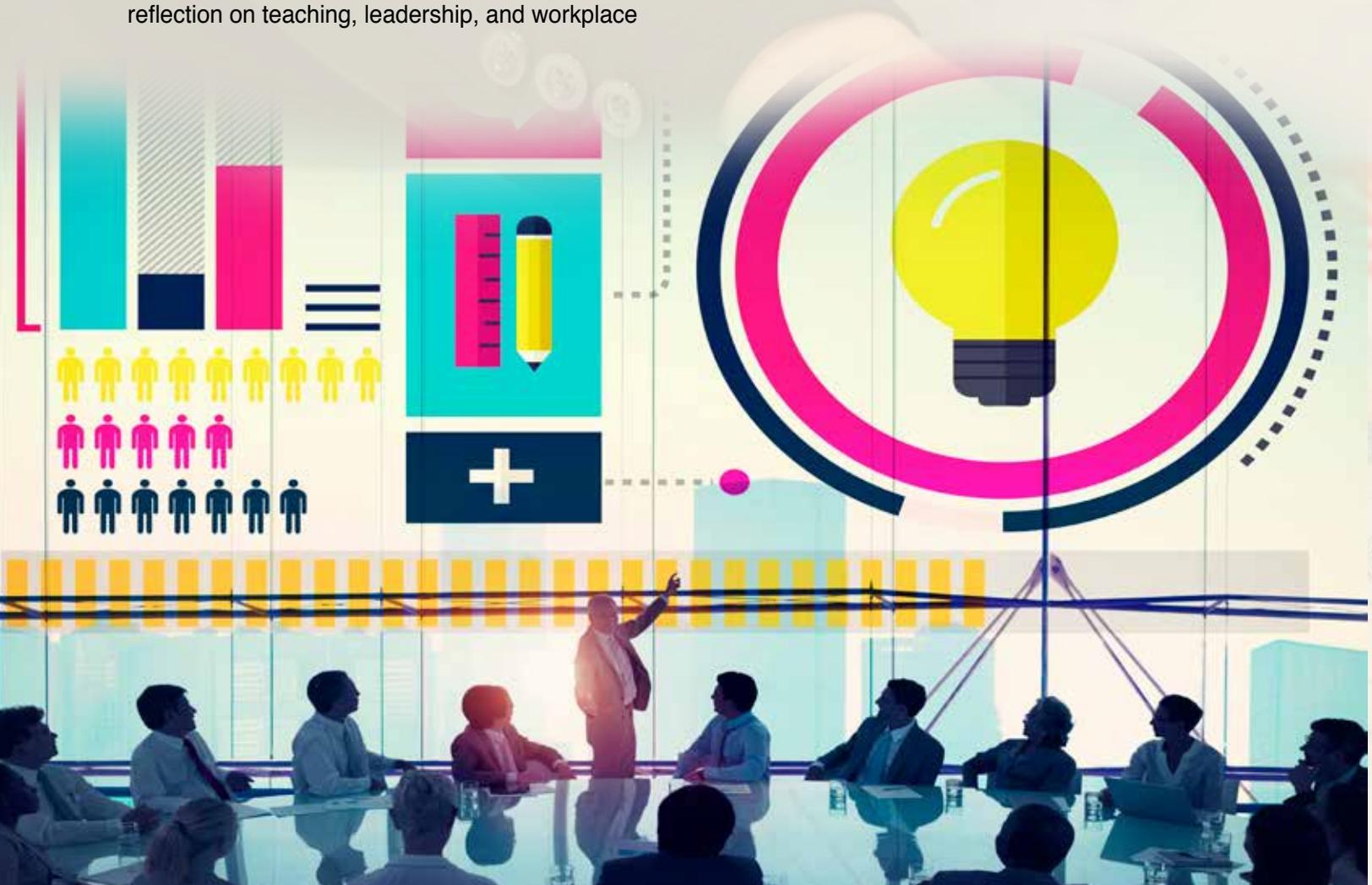
balance, awareness campaigns, gender quotas, and funding for women-focused STEM initiatives.

At the institutional level, strategies to foster gender inclusivity include revisiting hiring and promotion practices, strengthening mentorship and professional networks, offering flexible work arrangements, and promoting leadership engagement.

Societal-level interventions are vital to dismantling gender stereotypes and fostering STEM engagement. Early exposure, visible female role models, and active methodologies support confidence and participation, while broader cultural shifts, including engaging men as allies, are necessary for sustained gender equity. Achieving equity is not solely a matter for women but requires reflection on teaching, leadership, and workplace

practices to develop a more diverse and inclusive professional body.

In conclusion, this study reveals both progress and persistent gaps in gender equity within engineering education research in the GCC. While women's participation in higher education has expanded, their visibility in scholarly publishing and leadership remains limited. The field is modest in scale, nationally siloed, and male-dominated, with gender issues often appearing as peripheral rather than central themes. Addressing these gaps will strengthen the contributions of universities such as Qatar University in advancing national development goals, empowering women, and contributing to the creation of cohesive, balanced, and knowledge-driven societies.



# Citizenship Education through University Classrooms

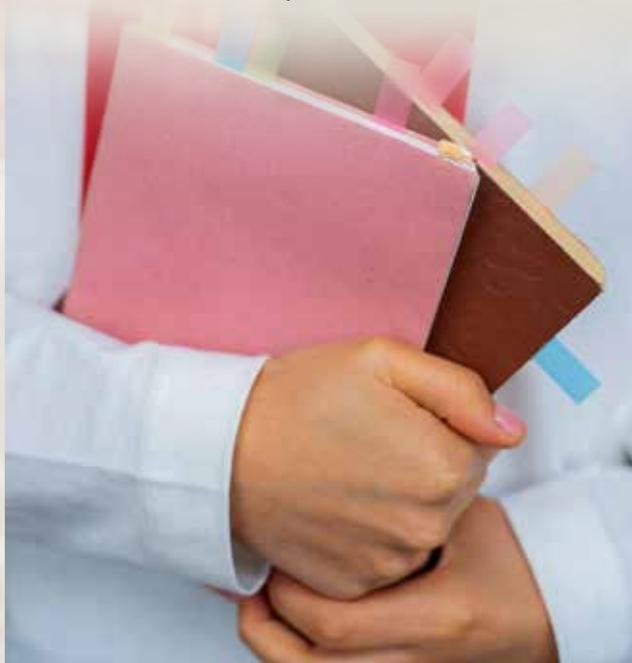
## Fostering Values and National Belonging in Qatar

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As Qatar builds towards a cohesive, innovative, and sustainable society, the Qatar National Vision 2030 places human and social development at the core of this transformation. Universities carry the responsibility of imparting knowledge while shaping citizens capable of contributing to national progress, even as they engage with global challenges. As the national university, Qatar University bears a significant responsibility to prepare students to become responsible, reflective, and value-driven members of society. In this context, citizenship education should not be confined to textbooks or classroom instruction alone; it must be experienced, practiced, and connected to real-world issues.



This report outlines a current project in the course “EDUC200: Education and Social Problems,” which is a general education course redesigned to enhance values, identity, and citizenship by using experiential and community-based practices. The course integrates active learning methods, open engagement platforms, and reflective online practices designed to foster accountable participation, strengthen national identity, and enhance ethical awareness among undergraduate students. Although the study is still in progress, its design already offers valuable insights into how higher education can contribute to the objectives of Qatar’s research and development strategy. The course design is based on the modern theories of learning and identity. The sociocultural theory of Vygotsky emphasizes the fact that knowledge and values are developed in the process of interaction, dialogue, and mutual activity. Taken together, these perspectives suggest that the transmission of values and civic dispositions is not a mechanical process, but rather one that is co-constructed through meaningful participation. This approach is further guided by the principles of the Scholarship of Teaching and Learning (SoTL), which encourages the systematic investigation of teaching practices, the collection of evidence on their effectiveness, and the dissemination of findings to broader academic and professional communities.



Simultaneously, the focus on the 21st century skills, such as critical thinking, collaboration, digital literacy, and reflection, will ensure that the course is oriented towards the transformations in the sphere of higher education worldwide and will equip students to cope with the challenges of the fast-changing world.

The EDUC200 weekly model is a blend of theoretical lectures, guided discussions, and practical tasks. The topics are sequenced progressively, moving from the personal to the societal. The course begins with an exploration of youth and education, addressing themes such as identity, mental health, and the role of technology in young people’s lives. Students then shift to discussions on family and schooling, where they examine communication gaps between home and school and their implications for student learning. In the following weeks, the focus expands to values within the context of globalization, including the influence of social media, consumer culture, cultural diversity, and artificial intelligence on identity and behaviour. The final segment of the course engages students in connecting citizenship and nation-building to the four pillars of Qatar National Vision 2030—human, social, economic, and environmental development. To ensure academic rigor, students employ the Claim–Evidence–Reasoning (CER) framework, which requires them to substantiate their arguments with evidence rather than personal opinion. Interactive tools such as live polls and digital sticky notes support sustained engagement, even in large classrooms, while case studies and role-play exercises encourage students to approach issues from multiple perspectives.

Two major assignments are designed to translate theory into practice. The first is the Group Community Project and Exhibition, in which student groups identify a locally relevant social issue, investigate its underlying causes, and propose an original solution. Their work is then presented in a digital format—such as a video, podcast, awareness campaign, or web-based product—and culminates in a public showcase held at the College





of Education. This transforms the classroom into a civic arena, where students engage with peers, faculty, and visitors in a dialogue around real social concerns. The second assignment is the Individual Reflective Blog, where each student selects a personal habit with wider social implications, such as digital balance, reading, or environmental practices, and documents their efforts to improve it throughout the semester. Weekly reflections help students connect personal growth with broader social challenges, fostering deeper self-awareness, ethical online behaviour, and the application of values in everyday life.

This course design will contribute directly to the development of the Society Pillar of the research strategy of Qatar University and will correspond to the National Development Strategy (2030). At the family and social level, the course addresses the importance of effective communication between schools and parents, as well as the role of youth well-being in educational success. In terms of identity and citizenship, it explores the formation of values in an increasingly globalised and digitalised world, with particular emphasis on responsible engagement with artificial intelligence. At the digital transformation level, the course equips students with the skills and ethical awareness needed to participate responsibly in online communities. The economic and environmental pillars of Qatar National Vision 2030 are embedded throughout the design, fostering entrepreneurial thinking through creative, innovative student projects and encouraging environmental responsibility by addressing sustainability, waste management, and

similar contemporary challenges.

The course is intentionally designed with ethical safeguards to promote responsible practice. Students are required to disclose the use of artificial intelligence tools transparently, reinforcing the link between digital ethics and digital citizenship. Privacy is protected by prohibiting the sharing of peer images without consent, and the use of respectful and dignified language is expected both in class and in online interactions. These measures are not merely protective, but developmental—helping cultivate behaviours that are essential for a knowledge-based society undergoing rapid technological transformation and evolving forms of citizenship.

Citizenship education in university settings cannot be reduced to abstract instruction on rights and duties alone. What ultimately shapes real communities are lived values, a nurtured sense of identity, and the ability to generate and communicate solutions to social challenges. EDUC200: Education and Social Problems offers a practical blueprint for how Qatar University can translate its mission into meaningful teaching through active learning, community engagement, and reflective digital practice. The course contributes to cultivating a generation of learners and civic actors capable of balancing tradition with modernity, national identity with global citizenship, and ethical responsibility with technological innovation. In doing so, it stands as a potential model for how higher education can support Qatar's aspiration to build a harmonious, equitable, and sustainable society.

# Cybersecurity Regulation and Minors' protection in Qatar: A Policy Analysis



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## Introduction

This article explores the profound transformations brought about by digital technologies in family and childhood contexts, emphasizing their pervasive integration into minors' daily lives. While technology offers unparalleled opportunities for learning and connectivity, it simultaneously introduces significant risks, including exposure to harmful content, cyberbullying, and exploitation. The paper highlights that regulatory frameworks are essential for ensuring digital security and safeguarding minors, focusing on Qatar's legislative and strategic initiatives in this domain.

## Regulating Cyberspace: A Conceptual Framework

Cyberspace constitutes a multidimensional virtual environment that transcends physical and political boundaries, integrating digital communication systems, databases, and interconnected network infrastructures into a global ecosystem. It is not merely a technological construct but a socio-political space where norms, values, and power dynamics are continuously negotiated. Scholarly discourse on cyberspace governance reveals two dominant paradigms. The libertarian approach champions minimal state intervention, emphasizing self-regulation, decentralized control, and the preservation of individual autonomy. This perspective aligns with early internet ideals of openness and innovation, arguing that excessive regulation stifles creativity and economic growth. Conversely, the paternalistic approach advocates for proactive state involvement to safeguard fundamental rights and public interests, particularly those of vulnerable populations such as minors, who face heightened risks of exploitation and harm in digital environments. The article critiques the inadequacy of traditional regulatory frameworks—often rooted in territorial sovereignty and hierarchical control—in addressing the fluid, borderless nature of cyberspace. These models struggle to cope with transnational data flows, platform monopolies, and algorithmic governance, which operate beyond conventional jurisdictional limits. Consequently, the complexity of cyberspace necessitates adaptive and collaborative governance mechanisms that combine multi-stakeholder participation, technological innovation, and normative consensus-building. Such mechanisms may include hybrid regulatory models, international treaties, and algorithmic accountability systems designed to balance freedom, security, and equity in

the digital domain. Three primary regulatory models are examined: self-regulation, co-regulation, and hybrid regulation. Self-regulation empowers private entities to establish standards autonomously, while co-regulation involves collaborative frameworks between state and non-state actors. Hybrid regulation integrates elements of both, reflecting the interdependent nature of cyberspace governance. Although these models offer flexibility, they raise concerns regarding transparency, accountability, and the potential for monopolistic practices.

## Are children Safe in Cyberspace? Cyber Risks Facing Minors

Minors represent the most vulnerable demographic in cyberspace due to their developmental stage, limited risk perception, and heightened susceptibility to influence. Their cognitive and emotional immaturity often impairs their ability to critically evaluate online interactions, making them prime targets for exploitation and harm. The risks they face are multifaceted:

### 1. Commercial Exploitation by Technology

**Firms:** Digital platforms frequently employ persuasive design and data-driven advertising strategies that capitalize on minors' behavioural patterns. Practices such as targeted advertising, in-app purchases, and gamification foster compulsive engagement, raising ethical concerns about manipulation and consumer protection.

**2. Exposure to Inappropriate Content:** Despite content moderation efforts, minors encounter explicit material—including sexual, violent, and extremist content—through social media, streaming platforms, and gaming environments. Such exposure can distort normative development, desensitize empathy, and normalize harmful behaviours.

**3. Cyberbullying and Online Harassment:** Peer aggression in digital spaces manifests through

insults, exclusion, and doxing, often amplified by anonymity and virality. Empirical studies reveal that cyberbullying correlates strongly with anxiety, depression, and suicidal ideation among adolescents, underscoring its severe psychosocial impact.

**4. Identity Theft and Privacy Breaches:** Minors frequently share personal information without understanding its permanence or misuse potential. Data breaches and phishing attacks can lead to identity fraud, financial exploitation, and long-term reputational harm.

Recent empirical evidence highlights alarming trends. Over 60% of minors report encountering explicit content online before age 16. One in three adolescents experiences cyberbullying, with significant mental health repercussions. Increasing prevalence of data harvesting from children's apps, often without informed consent.

Addressing these risks demands comprehensive, multi-layered interventions:

- **Regulatory Measures:** Enforce stricter age-verification systems, mandate transparency in data collection, and penalize exploitative design practices.
- **Educational Initiatives:** Integrate digital literacy into curricula, emphasizing critical thinking, privacy awareness, and resilience against online harm.
- **Technological Safeguards:** Deploy AI-driven content filters, parental control tools, and privacy-enhancing technologies tailored to minors' needs.
- **Collaborative Governance:** Foster partnerships among governments, tech companies, educators, and civil society to create adaptive frameworks that balance protection with autonomy.

The Cyberspace Regulatory Framework in Qatar

Qatar has implemented a multifaceted approach to safeguarding minors online, encompassing legislative, institutional, and educational measures. Notable laws include the Cybercrime Prevention Law (2014), which imposes stringent penalties for offenses such as child pornography, and the Personal Data Privacy Law (2016), mandating parental consent for processing minors' data. Complementing these statutes, the National Cybersecurity Strategy (2014) promotes awareness and resilience against cyber threats. Institutional mechanisms, such as the National Committee for Information Security (NCIS), facilitate multi-stakeholder collaboration through specialized subcommittees addressing family issues, content regulation, and legal compliance. Educational initiatives, including the integration of cybersecurity curricula and the establishment of child protection hotlines, further reinforce Qatar's commitment to creating a secure digital ecosystem.

#### Conclusion

The article concludes that effective cyberspace governance requires adaptive regulatory models capable of transcending traditional state-centric paradigms. Unlike conventional frameworks rooted in territorial sovereignty, adaptive models embrace the dynamic, borderless nature of digital ecosystems, integrating legal, technological, and societal dimensions. Such models prioritize flexibility, multi-stakeholder engagement, and continuous recalibration in response to emerging threats and innovations. Qatar's experience serves as a compelling case study, demonstrating the efficacy of integrated governance frameworks that combine:

- **Legislative Rigor:** Robust cybercrime laws and



data protection statutes that align with international standards.

- **Institutional Coordination:** Synergistic collaboration among regulatory bodies, law enforcement agencies, and technology providers to ensure coherent policy implementation.

- **Public Awareness Campaigns:** Nationwide initiatives promoting safe digital practices, targeting families, educators, and minors to build a culture of cyber resilience.

Looking ahead, future governance efforts should prioritize:

- 1. Continuous Legislative Updates:** Laws must evolve in tandem with technological advancements, addressing emerging issues such as AI-driven cyberattacks, deepfakes, and algorithmic bias.

- 2. International Cooperation:** Given the transnational nature of cybercrime, Qatar should strengthen partnerships through global treaties,

regional alliances, and information-sharing platforms to enhance cross-border enforcement capabilities.

- 3. Investment in Digital Literacy:** Sustained funding for educational programs aimed at families and minors is critical. These programs should emphasize privacy awareness, critical thinking, and responsible online behavior, ensuring that vulnerable groups are equipped to navigate digital risks.

- 4. Technological Innovation and Accountability:** Encourage the development of secure-by-design technologies and implement accountability mechanisms for platforms, including transparency in data handling and algorithmic decision-making. Ultimately, adaptive governance is not a static endpoint but a continuous process of negotiation and innovation, balancing freedom, security, and equity in an increasingly interconnected world.





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## **Qatar's Humanitarian Diplomacy**

# **Compassion as Statecraft**

In an era where humanitarian action increasingly shapes global perceptions, Qatar has emerged as one of the most visible and consistent donors in the international arena. For a state with a small geographic size and limited military capacity but vast economic resources, humanitarian diplomacy offers an alternative form of influence—a means to project soft power, build legitimacy, and contribute to global society through compassion.



Referring to the use of humanitarian action to advance diplomatic objectives, secure access during crises, and shape international perceptions, humanitarian diplomacy has historically been dominated by Western institutions, particularly the International Red Cross and Red Crescent Movement. However, in recent years, non-Western actors like Qatar have increasingly become influential humanitarian actors. What sets Qatar apart in this competitive domain is not merely the scale of its assistance but the way it weaves aid into a broader narrative of solidarity, moral responsibility, and diplomacy.

Rooted in the Qatar National Vision 2030, this orientation towards humanitarian action reflects Qatar’s broader ambition to couple national development with global responsibility through compassion-driven diplomacy. Through its humanitarian engagement, Qatar projects an image of a small but globally conscious state—capable of mediating conflicts, mobilizing aid, and shaping discourse in international forums.

### Building a Humanitarian Architecture

The foundations of Qatar’s humanitarian system have evolved over the past two decades, collectively defined by central actors such as Qatar Charity (QC), the Qatar Red Crescent Society (QRCS), the Education Above All (EAA) Foundation, and the Qatar Fund for Development (QFFD).

These institutions are formally independent yet closely aligned with national foreign policy priorities. Their combined portfolios span over 60 countries

and multiple sectors, including emergency relief, education, health, livelihoods, and infrastructure. In 2023, QC’s operations reached more than 10 million people worldwide with an intervention volume of USD 328 million (QC 2023: 11), while QRCS assisted 6.5 million beneficiaries in 29 countries, focusing on health and disaster response (QRCS 2023: 9). EAA has enrolled over 12.3 million out-of-school children through its global “Educate A Child” initiative (EAA 2024: 6), and QFFD disbursed over USD 500 million in relief and development financing across 62 countries (QFFD 2023: 11). This institutional coordination reflects not only administrative efficiency but also a deliberate projection of values—solidarity, generosity, and moral responsibility grounded in Arab-Islamic ethics. Humanitarianism, in this sense, becomes an expression of culture and identity as much as a tool of diplomacy.



Figure 1: Global Distribution, Source: QFFD (2023: 10-11). <https://exsjwzu9tz6.exactdn.com/wp-content/uploads/2024/09/QFFD-AnnRpt23.pdf>.



## From Regional Crises to Global Engagement

Qatar’s humanitarian diplomacy first gained prominence during the Arab Spring, when it became a central donor in conflict-affected countries such as Libya, Syria, Yemen, and Gaza, among others. In these volatile contexts, aid served both as a stabilizing force and a way for Qatar to position itself as a credible and independent actor amid regional polarization.

In Gaza, Qatar’s assistance is highly visible and symbolically charged. Established in 2012 by His Highness the Father Amir Sheikh Hamad bin Khalifa Al Thani, the Qatar Committee for the Reconstruction of Gaza has overseen projects worth hundreds of millions of dollars, from housing and hospitals to power infrastructure (MOFA, n.d.). Beyond reconstruction, Qatar’s institutions continue to deliver health, education, and psychosocial support through partnerships with the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), the World Health Organization (WHO), and other agencies. These efforts underline Doha’s enduring

commitment to Palestinian resilience and regional stability—what scholars describe as a form of “moral diplomacy.”

In Syria, Qatar has contributed more than USD 2 billion in humanitarian aid since 2011, supporting refugees and internally displaced communities through initiatives like QFFD’s QUEST program and EAA’s education projects (QNA, 2022). By working with UN partners such as the United Nations Children’s Fund (UNICEF), the World Food Program (WFP), and the United Nations Development Programme (UNDP), Qatar embeds its regional assistance within multilateral humanitarian frameworks, reinforcing its reputation as a responsible global actor (QFFD 2023).

In Somalia, Qatar’s humanitarian diplomacy extends into East Africa. QC, QRCS, and QFFD have implemented programs in water security, food distribution, and health services that reach millions of Somalis annually. These interventions have not only improved livelihoods but also strengthened Qatar’s presence in the Horn of Africa, where development cooperation often complements its





### Balancing Principle and Power

While Qatar's humanitarian diplomacy has elevated its international profile, it has not been without controversy. While some critics have accused Doha of politicizing aid or aligning with specific actors in conflict zones, these debates also reveal how humanitarian diplomacy itself has become a site of geopolitical contestation—a way for small states to assert influence through legitimacy and peaceful means rather than force.

Qatar has sought to address such critiques through institutional reforms and transparency measures. The establishment of the Regulatory Authority for Charitable Activities (RACA) followed regional tensions and centralized oversight of NGOs to ensure compliance with international standards. This step was both a governance reform and a diplomatic signal: Qatar's humanitarian system operates within the norms of global accountability, not outside them. By aligning cultural authenticity with international best practices, Qatar has crafted a distinctive humanitarian model that bridges moral conviction with diplomatic pragmatism (balancing values and interests).

At its core, Qatar's humanitarian diplomacy

embodies the idea that aid can be both altruistic and strategic. Its interventions are grounded in the Islamic principle of ta'āwun (cooperation) and the cultural value of karam (generosity), yet they simultaneously advance soft power by cultivating trust and moral authority.

### Looking Ahead: Towards a Plural Humanitarian Order

Qatar's experience illustrates a shifting humanitarian landscape—one that is increasingly multipolar and culturally plural. Its model of centralized coordination, cultural legitimacy, and strategic multilateralism offers lessons for small states seeking influence through cooperation rather than coercion. Rooted in the Qatar National Vision 2030, Qatar's humanitarian diplomacy advances both foreign policy and a broader vision of compassion, cooperation, and sustainability. Its continued credibility, however, will hinge on transparency, diversified partnerships—especially South–South collaborations—and the integration of sustainability and climate resilience. As global crises intensify, Qatar shows that influence can stem not from power, but from moral responsibility and a sustained commitment to human solidarity.



# Public Health Students Taking the Lead in Advancing Knowledge about the Issues of Vaping and Tobacco Use

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Vaping and tobacco consumption pose critical public health issues globally, and Qatar is no exception. These issues disproportionately impact adolescents and young people. Undergraduate students in Qatar University have contributed to the advancement of research and knowledge on these subjects, providing vital perspectives to direct efforts at prevention, policy, and cessation. Four recently published studies, all spearheaded by Qatar University public health students, made notable contributions to our understanding of vaping behavior and early vaping initiation in Qatar and beyond. Further, they study second-hand smoke in the household as a contributor to negative respiratory outcomes and public support for the tobacco endgame in Qatar. These studies are highlighted in this article and emphasize how student-and alumni-led research is influencing the discourse around vaping in the Middle East.

Study 1: Differences in vaping frequency and negative health effects experienced from vaping in a sample of vapers from three Middle Eastern countries.

Study 1 link: <https://doi.org/10.1016/j.heliyon.2025.e42657>





The first published study, led by public health student, now alumna, Rana Abouzeor, examined the prevalence of vaping and its adverse effects on health among users in Qatar, Egypt, and Iraq. In this study, a comprehensive cross-sectional online survey circulated on social media was used to evaluate the vaping trends and health outcomes of 386 adult vapers from Qatar, Iraq, Egypt, and other Arab nations. The findings from the study showed clear country-based variations associated with local policies' restrictiveness. Vapers in Qatar were less likely to vape daily, reflecting the country's more stringent regulations against vaping. Vapers in Iraq reported more adverse health impacts, while vapers in Egypt were significantly more inclined to vape every day. Also, female vapers were more susceptible to adverse health effects from vaping than males. Additionally, compulsive or everyday vapers were more likely to have a history of tobacco use. Most importantly, the study called for targeted interventions in populations most at risk, particularly females and vapers trying to quit vaping.

Study 2: Sociodemographic characteristics and vaping motives as potential correlates of early vaping initiation.

Study 2 link: <https://doi.org/10.3389/fpubh.2024.1484252>



The second published study, led by public health students Aisha Al-Naimi, Fatma Al-Obaidli, and Reem Al-Rashdi, examined the sociodemographic traits and reasons for early vaping initiation (EVI) among adult vapers in the Middle East. This study surveyed a broad sample of people from Qatar, Iraq, Egypt, and other Arab nations, asking specific questions on age of initiation, motivations, and societal influences. According to the data, expatriates and older participants were less likely to experience early vaping initiation. Additionally, males and residents in Qatar had a higher likelihood of early vaping initiation than women and Egyptian participants, respectively. The authors proposed practical strategies to assist in counteracting early beginning patterns. Finally, this research emphasized the necessity of multifaceted approaches that take sociodemographic and motivational variables into account for supporting the deployment of tailored prevention campaigns and policy responses in Qatar.

Study 3: Second-hand smoke exposure level in the household increases risk of chest pain and wheezing: evidence from Qatar biobank.

Study 3 link: <https://doi.org/10.1186/s12889-025-23927-2>



The third study led by past public health student and current alumna Rana Abouzeor, and biomedical sciences students Farah Issa, and Marah Abdulla, examined Qatar biobank data from 6000 individuals and found that exposure to second hand smoke in the household (number of smokers and amount of time spent with them in proximity) are associated with chest pain and wheezing after adjusting for other variables. Some of the associations were evident even when looking at the relationship for the subgroup of non-smokers and non-shisha smokers, which signifies the importance of reducing exposure to secondhand smoke in the household. The students conclude by calling for awareness campaigns to encourage less or no exposure to secondhand smoke in the household.

Study 4: Tobacco endgame policies: An analysis of preferred strategies and support levels in a sample from Qatar.

Study 4 link: <https://doi.org/10.3389/fpubh.2025.1515633>



The fourth study, published, led by public health students Aisha Al-Naimi, Khadiga Elsayed, Marwa Alharoon, Fatma Al-Obaidli, Hissa Almuraikhi,

Amaal Osman, and Reem Al-Rashdi, who received a UREP grant, was conducted to determine the public's preferences and level of support for tobacco endgame policies in Qatar's population. This study surveyed locals and expatriates to find the most favored government initiatives to permanently reduce or eradicate tobacco use. The study highlighted that standardized packaging was more popular among men and current tobacco users, while females supported nicotine reduction policies. In contrast, those who had never used tobacco were more likely to support tax increases, import bans, adult and minor restrictions, and flavor bans. When compared to 'current' users, 'never' and 'past' users often expressed more support for tobacco endgame initiatives. Furthermore, those who had never used tobacco or quit their usage showed more support for endgame measures than those who were currently using them. The study concluded that Qatar's public health is well-positioned for the tobacco endgame, but it also emphasized the necessity of culturally sensitive implementation and ongoing engagement to maximize effectiveness.

Together, these Qatar University studies illustrate how undergraduate public health students are leading the effort to address the critical issues of tobacco use and vaping in their area. Their studies offer practical recommendations for public health practice and policy changes, emphasizing the significance of tailored interventions, social impacts, demographic variables, and policy implementation. These students are advancing knowledge and influencing the local and regional response to tobacco-and-vaping-related hazards by systematically investigating vaping and tobacco. Such involvement enhances public health education, and their research serves as a basis for upcoming projects that safeguard the health of Qatar's youth and adults.





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# The Success of the Transport System during FIFA World Cup Qatar 2022 From Demand Management to Sustainability

Hosting the FIFA World Cup 2022 was not only a historic achievement for Qatar, but also a successful real-world experiment in managing transportation during a global mega-event in a geographically compact setting. With over one million visitors, 64 matches held over 29 days across 8 stadiums located within short distances of each other, Qatar was expected to face major challenges in meeting transportation demand for both daily activities and event-related travel. Yet, the outcome defied expectations.



This success was achieved through a comprehensive Travel Demand Management (TDM) strategy, which was carefully planned, piloted, and effectively implemented. The strategy included over 30 measures designed to encourage residents and visitors to shift from private cars to sustainable modes of transport. As shown in Figure 1, these interventions were geographically distributed to optimize their impact. These measures can be grouped into four main categories:

- Road-related measures: such as restricting access to stadium roads and dedicating lanes for buses and taxis.
- Public transport service enhancements: services, including extended operating hours, reduced waiting times, and a trip-planning mobile app.
- Supportive measures: such as remote work policies, adjusted working hours for public and private sectors, temporary school closures, and halting construction projects near event zones.
- Hayya Card privileges: services, which served as stadium access passes and offered free public transport throughout the tournament.



Figure 1: Spatial Representation of TDM Measures during FIFA World Cup Qatar 2022.

## Study Objectives and Methodology

To assess the impact of TDM measures on daily mobility behavior and evaluate the most influential interventions during the tournament, Qatar University conducted a field study involving 1,200 interviews, supported by survey analysis and secondary data such as public transport ridership statistics, as illustrated in Figure 2. The study focused on:

- Mobility behavior analysis: comparing trip frequency and mode usage before and during the tournament.
- Nature of changes: examining how residents adapted, by reducing trips, changing travel times or routes, or switching modes, and linking these changes to socio-economic factors.
- Measure evaluation: rating the impact of each TDM measure on a scale from 1 (no impact) to 5 (high impact).

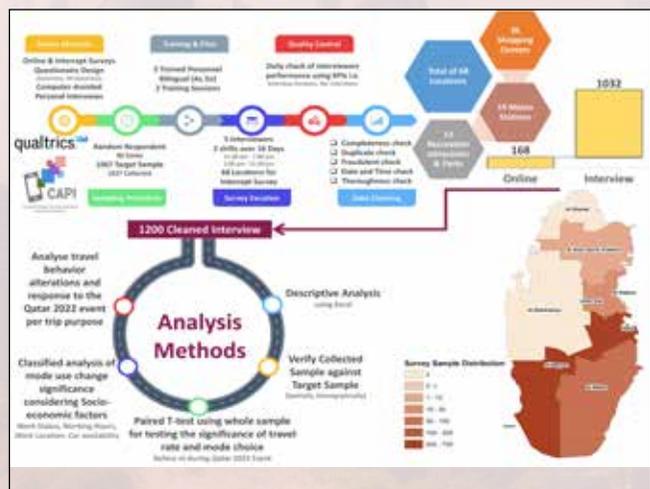


Figure 2: Data Collection and Analysis Framework. Key Findings

## Key Findings

Analysis of the survey results revealed that 93% of residents changed their travel behavior during the tournament, while only 7% did not alter their mobility patterns compared to regular days before the event. This represents a remarkable success where private car usage decreased by an average





of 2.8 trips per week, while metro usage increased by 2.5 trips per week, without any significant increase in daily travel time or delays.

Additionally, 29% of residents reduced their daily trips, either by deferring them or switching to digital services (such as online shopping or remote work), highlighting the important role of technology adoption. Meanwhile, 23% of residents shifted from using private cars to metro or public buses, and 16% changed their travel times to avoid peak hours—a change strongly linked to temporary school closures and adjustments in working hours. The results also showed that 33% of residents changed their travel routes to avoid congested areas, making this the most common change. This indicates a high level of awareness among residents and their ability to make smart decisions based on traffic updates via apps, media, or intelligent transport systems.

Our evaluation of 16 TDM measures, showed that measures related to personal comfort, cost reduction, and work flexibility were the most

influential, while strict regulatory measures were the least impactful, according to participants' perceptions.

### **How Qatar Outperformed Global Experiences**

Qatar's experience stands out for the scale of behavioral change among residents. For example:

- In the London 2012 Olympics, only 20% of residents reduced daily trips.
- In Beijing 2008, strict road closures caused public dissatisfaction.
- In Brazil 2014, major cities faced severe congestion with little increase in public transport use.

In contrast, Qatar achieved change through positive incentives (e.g., free tickets) rather than strict restrictions. Car dependency among Qataris dropped from 95% to 83%, while metro usage among expatriates rose from 9% to 19%, with no significant impact on daily travel time. This success was driven by early planning, robust infrastructure, and cultural and social awareness.

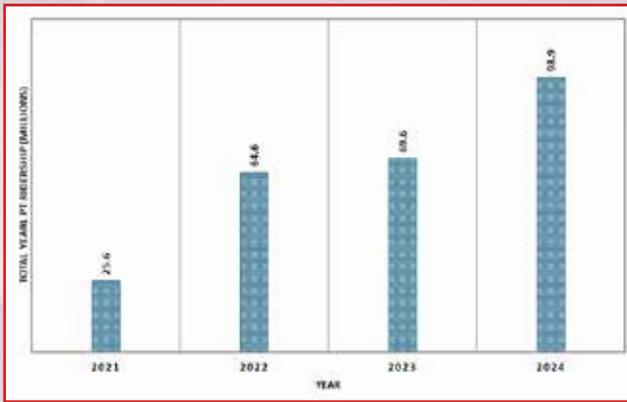


Figure 3: Annual Public Transport Ridership (2021–2024).



Lessons Learnd

### Can This Shift Be Sustained?

Yes, this shift can be sustained. According to the analysis results, residents expressed a willingness to continue using public transport if incentives such as fare discounts (66%) and flexible working hours (53%) remain in place. Moreover, the results illustrated in Figure 3 indicate that the FIFA World Cup 2022 was not a temporary event, but rather a catalyst for building a culture of sustainable transport in Qatar. For example, annual public transport usage increased by 53%, from 65 million in 2022 to 99 million in 2024. To build on this success, the country can:

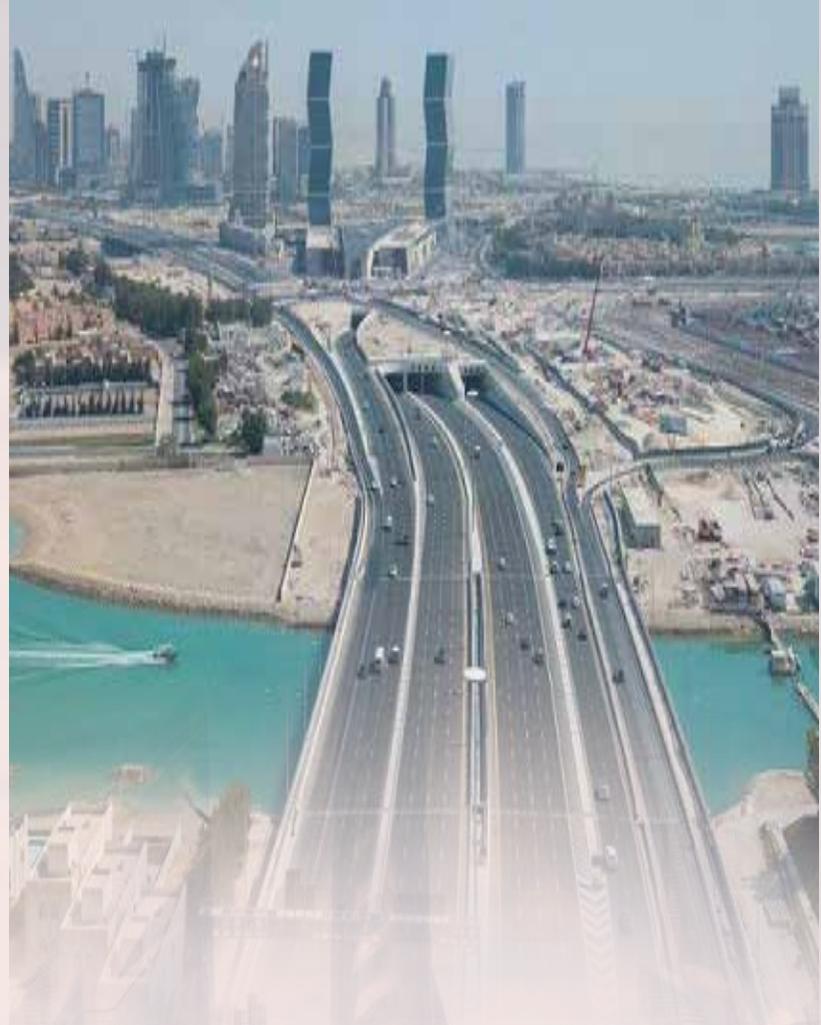
- Expand the metro network to cover new areas.
- Promote remote work and flexible working hours to reduce peak-hour congestion.
- Integrate smart technologies like mobile apps and e-payment systems.

Qatar successfully managed transportation

operations during the FIFA World Cup 2022 through a combination of modern infrastructure, such as metro and tram lines, and the implementation of incentive-based measures rather than restrictive ones—most notably free public transport tickets and the use of digital solutions. This led to a behavioral shift among 93% of residents, as the number of trips on the Doha Metro reached 18.2 million in just 28 days, with public transport usage increasing by 232%.

The keys to success were planning, centralized coordination, data-driven decision-making, and collaboration across all stakeholders. This experience can be replicated across the GCC and Middle Eastern countries, with adjustments tailored to each country's local context.

In summary, Qatar's success in hosting the FIFA World Cup 2022 was not just a temporary event, it was a successful model of sustainable transport that can be adapted globally.



# The Major Foundations of Family Cohesion

## A Field-Based Study



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The family is the primary foundation for building civilizations and the natural environment for nurturing human values. It is within the family that individuals learn responsibility, moral behavior, and emotional balance. For this reason, Islamic legislation places great importance on the family, viewing it as a sacred institution and a “solemn covenant” (mīthāq ghalīz), not merely a social agreement. However, contemporary transformations and rapid social change have contributed to rising rates of marital conflict, emotional separation, and divorce. This reality creates an urgent need to revive the major foundations established by Islamic law to strengthen family cohesion and protect this institution from disintegration.





This study explores the jurisprudential principles and ethical values that serve as “safety valves” for family stability. It organizes these foundations into two phases: the phase of establishment and formation (before marriage), and the phase of continuity and sustainability (after marriage). The study also seeks to connect juristic theory with real-world practice by using quantitative field data to assess how society understands these foundations and how effective they are in addressing modern challenges, such as financial pressure and emotional distance. The study emphasizes the Qur’anic concept of *sakinah* (tranquility) as the central pillar of marital stability, because marriage in Islam is intended to create psychological calm, affection, and mercy between spouses.

## Research Problem

This research stems from the growing impact of modern social and economic challenges on family stability. These challenges include changing expectations, weak communication, increased financial burdens, and external influences that disturb the private space of marriage. Therefore, the study seeks to answer the following question: What are the major foundations that strengthen family cohesion from the perspective of Islamic jurisprudence, and how is society today perceiving them? The study aims to establish these foundations through Islamic legal evidence and to measure societal awareness of them through a field study. In doing so, it provides recommendations that reduce conflict and divorce while improving marital stability.

## Research Methodology

The researcher adopted two methods:

### 1. Inductive-Analytical Method:

This method was used by tracing the relevant texts in the Qur’an and Sunnah and analyzing the interpretations of jurists and exegetes. Modern studies were also reviewed and linked to the objectives of Islamic law (*maqāṣid al-sharī‘ah*), especially those related to protecting lineage and honor.

### 2. Descriptive-Analytical Method (Field Study):

An online questionnaire was designed and distributed to a random sample of 30 participants, with 96% married. The questionnaire aimed to identify societal priorities in family cohesion and to measure awareness of key Islamic foundations such as values, readiness, and communication.

#### Section 1: The Importance of Family Cohesion

From the perspective of Islamic law, family cohesion is essential because it fulfills major Sharia objectives. A stable family protects lineage (*ḥifẓ al-nasl*) and honor (*ḥifẓ al-‘ird*), which are among the necessities preserved by Islamic law. Without cohesion, moral systems weaken, children’s upbringing becomes unstable, and social order is threatened.

Family cohesion also enables spouses to uphold Allah’s boundaries through mutual rights and duties. Jurists emphasize that marriage becomes an act of worship when each partner fulfills responsibilities with sincerity and accountability. In addition, Islamic teachings connect marital stability to *sakinah* as the psychological goal, while affection and mercy (*mawaddah wa raḥmah*) are the practical tools that maintain love and respect. This makes marriage more than a contract—it becomes a spiritual bond.

Scholars and thinkers further confirm that the family is the first building block of society. Classical thinkers such as Ibn Khaldun argued that the strength of civilization depends on stable families. Modern thinkers also note that cohesive families reduce crime and deviance, lower



social costs, and increase society's ability to resist cultural and economic pressures.

## Section 2: Major Foundations of Family Cohesion/ Foundations Before Marriage (Formation Phase)

The pre-marriage stage is the cornerstone of stability. The most important foundations include:

### 1. Sound selection based on religion and character:

Choosing a spouse with strong faith and good morals ensures shared values and creates a reference point during conflict.

### 2. Psychological and emotional readiness:

Emotional maturity reduces instability. Research indicates that a lack of readiness can lead to emotional separation, affecting 38.5% of wives (Nadia Hassan, 2025).

### 3. Financial stability (al-bā'ah):

The ability to provide support creates security and reduces conflict. A study by Noura Al-Sumaani (2022) found that 80% of financially stable families experience high levels of stability.

### 4. Shar'i meeting and dialogue:

Legitimate communication before marriage helps build acceptance and prevents later shocks caused by unrealistic expectations.

## Foundations after Marriage (Sustainability Phase)

After marriage, cohesion requires continuous commitment through:

### 1. Affection and mercy:

Affection strengthens emotional connection, while mercy preserves respect during hardship.

### 2. Achieving marital tranquility (sakinah):

Marriage should provide comfort and calm, making the home a safe space rather than a place of tension.

### 3. Good companionship and effective communication:

Gentle dialogue, privacy, and patience are essential for resolving disagreements without escalation.

### 4. Family independence and religious conscience:

Protecting the household from harmful interference and maintaining self-accountability strengthens responsibility and prevents injustice.

## Section 3: Field Study Results

The questionnaire results showed strong awareness of family cohesion foundations:

- 73.3% identified religion and good character as the most decisive factor.
- 76.7% confirmed psychological readiness before

marriage is essential.

- Only 36.7% rated financial stability as "excellent" in importance, suggesting values are prioritized over wealth.
- 86.7% preferred gentle dialogue as the best method of resolving disputes.
- 56.7% believed the absence of religious conscience and self-accountability is a main cause of divorce today.

## Conclusion and Recommendations

The study concludes that Islamic jurisprudence provides a complete system for family cohesion that combines spiritual tranquility (sakinah), moral commitment, and practical awareness. The Qur'anic image of spouses as a "dwelling" (sakan) summarizes Islam's goal of making the family a source of safety and mercy. Field results confirm that society values religion, dialogue, and emotional readiness as essential foundations for stability.

The study recommends:

1. Premarital training programs focusing on jurisprudence, emotional readiness, and budgeting.
2. Preventive family counseling units using Sharia-based psychological guidance.
3. Media awareness campaigns promoting successful family models and sakinah.
4. Larger field studies to examine the impact of digital transformation on family cohesion.

Note: This research was prepared as a requirement for the course (Family Jurisprudence), under the supervision of Prof. Ayman Saleh, Professor of Fiqh and its Principles at the College of Sharia and Islamic Studies, Qatar University (2025).



# Qatari Women's Participation in the Labor Market: The Role of the Family and Empowerment Factors

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Qatari women's participation in the national development and advancement of Qatar, in the last two decades, is noteworthy. The representation of Qatari women in the labor market, in business, academia, and government sectors, has risen exponentially. This should come as no surprise since one of the main pillars of the Qatar National Vision 2030 is promoting 'gender equality', which materialized in a set of government initiatives aimed at empowering women. For instance, the Education City initiative, founded in 1997 had granted women world-class education, opening the door for Qatari women to ascertain their significant imprint in the workplace. This research aims to examine the extent to which the Qatari family is an enabler through providing support and embracing women's aspirations rather than being an impediment. Similarly, religious norms empower women to enact a religious agency, fostering their involvement in the job market. This research analyzes two interviews conducted by the platform Women of Qatar, a project dedicated to narrating success stories of pioneering Qatari women to inspire other female Qataris, and to showcase the role of family and religion in supporting women in their educational and professional achievements. The first interview delves into the success story of a famous Qatari Endocrinologist while the second recounts Qatar's first female entrepreneur.



## Family support

The first female Qatari interviewee is a well-known physician who was inspired by her uncle, an esteemed medical practitioner. As she mentioned, she was symbolically influenced by his stethoscope. This tangible experience reinforces how familial influence and materialistic symbols often intertwine to construct ambition. She reinforces this through her lexical focus on proximity and belonging as she navigates to live closer to him. The linguistic framing reinforces the centrality of family through the possessive pronouns: “my parents”, “my work”, and “my job”, reinforcing her emotional connection and personal anchoring to her family, mirroring their support and understanding of her. She uses evaluative adjectives like “supportive,” intensified by “very,” to create empathy and a positive attitude towards her family. The interviewee framed the support that she received from her family as the source that enables her to persevere and stand in the face of different challenges, creating a form of familial solidarity that she is not struggling alone, and that she is protected through the scaffolding care of her family. The second female interviewee, the first Qatari businesswoman, found it hard to initially win over the

family, as she states that her “...family members were opposed to me standing in front of people to sell my products...”. Similarly, she shares her struggle as a mother who has to balance multiple priorities, saying “I became busy with my children and housework” multiple times in the interview. Her father, however, has been her backbone, the emblem of family support to her. She says she remembers how he had once said to her, “In my eyes, you are worthy of 100 men! I’m proud of you. Keep working.” The repetition of evaluative adjectives like ‘worthy’ and ‘proud’ conjures up a frame of value and strength. Additionally, her father comparing her to ‘a 100 men’ reflects the linguistic reversal of gender hierarchy, affirming her social status. She gained her strength through her father and the admiration of her grandmothers, who supported each other when she was still a child, saying, “I hope that the current generation of women would support each other the way our grandmothers used to do”. In her interview, she asserted that her family later came around to support her with full force.

Enactment of Religious Agency

The first Qatari female interviewee anchors on the importance of her religion, Islam. She reiterates how



being thankful to Allah has helped her: “He guides me to help my patients”, constructing an agency where profession becomes an act of faith and service. She reframes traditional expectations by asserting that being “a working woman, wife, mother” does not belittle your value as a woman; it is a gift from Allah. Similarly, the second Qatari female entrepreneur anchors on to her religion; she consistently thanks Allah in her interview, saying ‘Alhamdulillah’, ‘Subhanallah’, “with the help of Allah”, reiterating how thankful she is to Allah, and how deep rooted her beliefs are in divine agency that supplants her with the moral attributes necessary to create a diligent and determined female character.

#### Ambitions and achievements

Struggle is another crucial frame in the female physician’s narrative. This is expressed through lexical sets that convey endurance and adapting to “challenge”, “learned to be independent”, and “trials”. This change in perspective constructs a fighter frame, revealing how hardship is a site for personal growth. Her articulation of dreams intertwines balance and ambition: “There are no limits to your ambitions. You can be a working woman, a wife, and a mother, and excel in all these roles.” The use of the modal verb “can” expresses the possibility of empowerment and multiple inclusions; that female identity is integrated, not fragmented. She represents a modern Qatari woman, creating an equilibrium that respects cultural roots as well as individual aspiration. Through her linguistic choices, she constructs an identity that is grounded in religion, family, and resilience.

The female entrepreneur also structures her identity

and agency, using a combination of linguistic markers, like the personal pronoun ‘I’ and action verbs, saying “I supervise the preparation of the spices in the factory”, “I decided to do, start from scratch, that is, to collect money”, ‘I used to prepare the mixture of spices with my own hands.’ “... I called the manager and introduced myself.” Constructing herself as the grammatical subject and the active initiator of her own narrative, linguistically positioning her as the doer, commanding her own trajectory, rather than a passive recipient.

#### Conclusion

Both female Qatari interviewees ascertain the significant impact that their supportive and caring families had on them during their journey to realize their ambitions. Their stories reveal that true progress starts with supportive units that turn obstacles into opportunities for growth. By reconstructing inherited limitations into vessels of moral and emotional strength, they redefined empowerment as a collective pursuit that is rooted in compassion and perseverance. Both interviewees advance their vision of a balanced and prosperous society that is founded on familial support, compassion, and unity, which turn out to be vehicles for women’s empowerment and determining factors to achieve female Qataris’ goals.

The interviews are transcribed into English and can be accessed via the following link:

<https://womenofqatar.com/about/>.

Or scan the QR code:



# Family Cohesion: Building a Sustainable Society in Qatar



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Family plays a significant and effective role in building a truly cohesive society. The importance of family is shaped through nurturing individuals emotionally and offering a sense of belonging and security, which is essential for personal development. Family is also the primary environment where individual capabilities are developed and religious, national, and social values are instilled. Individuals in strong families are far more capable of withstanding life hardships because they are mentally tougher and grow to positively contribute to society. Many studies on family cohesion focus on children, as early development is a crucial period in which core principles, values, and social skills are instilled, shaping individuals' contributions to society later in life and fostering stronger, more cohesive communities. This focus on the family aligns with Qatar University's Research Strategy 2025-2030, which emphasizes social cohesion as the essence of societal development. In this context, family cohesion is not only a personal benefit but also a societal asset. This article explores the role of family cohesion in promoting mental health, education, and societal values, and how the family can be the backbone of a prosperous and cohesive society.

One of the most important roles of family cohesion is promoting positive mental health among its members. Strong families offer comfort, stability, and inner strength, helping individuals cope with life's hardships and encouraging them to act as responsible members of society. Research in Qatar supports this view. According to Fakhrou et al. (2023), in a study made to examine how families support children with mental disorders in



the GCC with a focus on Qatar, specific family behaviors can either worsen or ease stress, emphasizing the vital role family plays in strengthening children's well-being and enabling them to develop effective coping skills. They provide comfort and guidance, help children obtain appropriate care, and ensure their needs are addressed within the healthcare system. Families assist children in following treatment plans and tracking their progress. In addition, the authors also mentioned that the family can help by teaching children essential coping strategies, including problem-solving, emotional control, and social skills. Families can also strengthen their children's resilience and promote a sense of purpose, which contributes to overall positive mental health. Thus, these findings highlight that family cohesion is not only crucial for supporting children with mental health disorders but also for promoting mental health across society, reinforcing the vital role families play in building a cohesive and resilient community. Another important aspect of family cohesion is its role in promoting education. There is no denying that family support can significantly enhance the individual's motivation towards achievement, engagement, and overall performance in the academic context. Families are the closest influence an individual is exposed to,

shaping multiple aspects of their life, academics being one. According to Guo et al. (2025), a study made on 436,299 adolescents across 71 countries found that family support was positively linked with academic performance in a global context. The study showcased that family support, including emotional and academic encouragement, plays a crucial role in enhancing students' academic outcomes. This is also reflected in Qatar, where many schools encourage parental workshops and their involvement in the academic context. Growing up, one can observe how parents are often invited to contribute to the academic environment, emphasizing the shared responsibility between schools and families. Hence, this highlights the vital role of family cohesion in shaping a cohesive and sustainable society in Qatar.

Family cohesion, alongside its role in education and mental health, is important for passing down societal values and helps build a prosperous and cohesive society. The key role of family cohesion in transmitting core societal values illustrates how families serve as the backbone of a prosperous and cohesive society in Qatar. Individuals learn core values and moral principles through the family they grew up in, often through shared experiences, and cultural traditions that are practiced in daily life. This early foundation shapes a society with shared values and allows communities and social institutions to work together harmoniously. Qatar has implemented many programs to strengthen family cohesion and transmit societal values. According to the Ministry of Social Development and Family (MDSF, 2023), Qatar's MSDF launched a campaign called "Family is the Treasure of the Nation" to observe the International Year of family 2024. The campaign involves a series of events aimed at promoting family cohesion as part of the "Strengthening Values" initiative. The Ministry of Education and Higher Education, the Ministry of Interior, and Wifaq Family Consulting Center took part in the campaign by organizing workshops that teach values such as morality, religion, and ethical behavior, promoting kindness within families, all of which are crucial for promoting a prosperous and harmonious society. In this way, reinforcing the fundamental role of a strong family structure for societal



development and social harmony.

Family cohesion plays a crucial role in shaping a cohesive, sustainable, and prosperous society, as it supports mental health, promotes education, and instills societal values. Strong family structure provides comfort, stability, and emotional strength, helping individuals cope with life difficulties and develop into responsible members of society. By nurturing these aspects, families in Qatar create a foundation for positive mental well-being, ensuring that children and adolescents grow up confident, resilient, and capable of contributing to their communities. In addition, family involvement in education strengthens academic motivation and engagement, allowing individuals to develop essential skills, knowledge, and a sense of purpose that benefits both personal growth and societal progress. Furthermore, families serve as the primary outlet for transmitting cultural, ethical, and moral values, enabling communities to function harmoniously and collectively work towards shared goals. Initiatives in Qatar, such as educational workshops and programs promoting family cohesion, demonstrate the nation's commitment to supporting families in these roles. Therefore, reinforcing family cohesion remains important to societal development. Government officials, educators, and community leaders need to maintain environments that strengthen and empower families, so that future generations are raised in a society built on resilience, learning, cultural heritage, and common values.



# Empowering Women in Research: A Decade of Growth and Impact at Qatar University (2015–2025)



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Over the past decade, Qatar University (QU) has witnessed a remarkable transformation in its research landscape - one marked by diversity, inclusion, and excellence. Central to this transformation has been the growing participation and leadership of women researchers across disciplines. In alignment with QU's Research Strategy (2025–2030) and the Third National Development Strategy (2024–2030)—both of which prioritize fostering a cohesive society and empowering human capital—this analysis examines the evolving contributions of women scholars at QU between 2015 and 2025. According to Scopus/SciVal data for the 2015–2025 window, female scholars now constitute approximately 46.7% of active researchers, illustrating a near-gender-balanced research ecosystem.

Drawing on bibliometric data from Scopus and SciVal, the study highlights gender-based trends in research productivity, impact, and collaboration. The findings demonstrate how sustained institutional commitment to equity and capacity building has positioned QU as a regional leader in women's research empowerment.

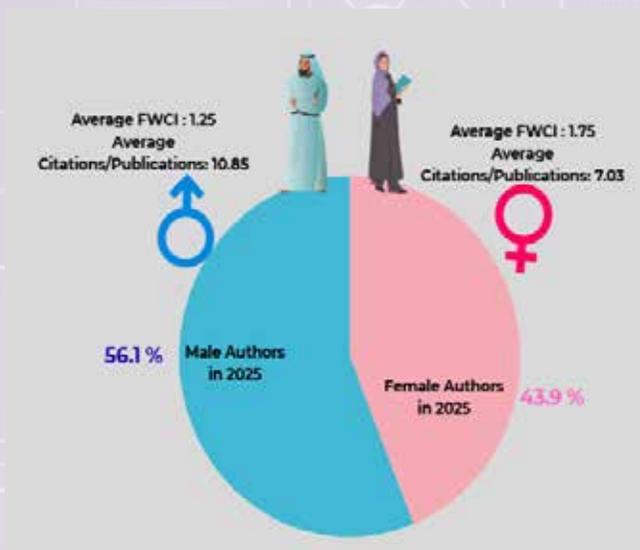


Figure 1: Research Performance Indicators by Gender (Year 2025).

### Rising Scholarly Output and Gender Representation

Between 2015 and 2025, QU's research ecosystem has expanded significantly, reflecting not only institutional growth but also increased global engagement. While total research output has more than tripled over the decade, an equally impactful development has been the steady rise in female scholarly participation across disciplines. In 2025, the number of active authors, those whose most recent publication fell within that year, had expanded nearly sixfold, comprising 56% men and 44% women (Figure 1). When analyzing trends over time, the gender gap in research participation progressively narrows as the decade advances. Notably, between 2021 and 2023, the number of female authors slightly surpassed that of male authors, marking a pivotal period of gender balance and demonstrating the strengthening role of women in QU's research enterprise. The steep rise in scholarly output over time coincides with enhanced institutional support mechanisms, including targeted funding, interdisciplinary collaboration platforms, and capacity-building initiatives. These efforts have collectively cultivated a more dynamic, inclusive, and sustainable research environment—one that empowers both women and men to contribute meaningfully to Qatar's innovation ecosystem and advancing knowledge economy.

### Citation Impact and Research Quality

Over the time from 2015 to 2025, both male and female researchers have contributed significantly to the university's growing citation footprint, but female scholars have shown exceptional performance in terms of average citation impact and global relevance. The average citations per publication among female researchers consistently exceeded that of their male counterparts during several key years. For instance, in 2015, publications authored by women received an average of 21.43 citations per paper, compared to 13.15 citations per paper for men. Similarly, in 2016, women scholars averaged 29.78 citations per publication, significantly exceeding the 17.48 citation average of their male counterparts. Even as the overall publication base expanded after 2020, female researchers maintained competitive impact levels, averaging between 7 and 26 citations per paper, closely aligned with male performance. The Field-Weighted Citation Impact (FWCI) values further underline this strength. Female researchers consistently achieved or surpassed the global benchmark (FWCI = 1.0), with notable peaks in 2016 (1.53) and 2019 (1.41). The average FWCI for female researchers remained between 1.03 and 1.53 across most years, highlighting strong global visibility and discipline-adjusted impact. Interestingly, in 2025, when the number of active female researchers reached 759, the FWCI stood at 1.25, reflecting that women's research remains 25% more cited than the world average—a remarkable achievement given the rapid growth in participation. Male researchers also demonstrated strong performance (FWCI = 1.75 in 2025), indicating that both genders have contributed synergistically to the University's global recognition.

### Building Capacity and Empowering Future Leaders

Over the past decade, the University has placed increasing emphasis on creating a supportive research environment that enables women to pursue advanced





studies, develop leadership skills, and actively contribute to the national research agenda. A significant trend reinforcing this transformation is the rising proportion of women among postgraduate students, particularly at the master's and PhD levels. This shift reflects not only an expanding talent pool but also the success of initiatives encouraging women to engage in research careers and contribute to Qatar's knowledge-based economy.

Female academics at QU are now leading impactful research in sustainability, health, materials, social sciences, and education—fields that align closely with Qatar's national priorities. Their contributions extend beyond scholarly publications, encompassing innovation, community engagement, and interdisciplinary collaboration that address societal challenges and promote sustainable development. Moreover, according to SciVal data for the 2015–2024 period, QU's research performance within the UN Sustainable Development Goal (SDG) 5: Gender

Equality achieved the highest Field-Weighted Citation Impact (FWCI) of 11.39, underscoring the global influence and quality of research that advances women's empowerment and equality. This accomplishment reflects both the academic excellence and leadership potential of QU's women researchers, who continue to inspire future generations and shape the University's evolving research identity. Finally, it is equally important that women's research contributions align with Qatar's societal priorities. Their work addresses issues central to the Society pillar of QU's Research Strategy (2025–2030) -including education, health, sustainability, and community well-being -and complements the goals of the Third National Development Strategy. As QU looks ahead to 2030, sustaining this momentum through continued mentorship, research support, and equitable opportunities will be key to deepening the impact of women in research - both within the institution and on the global stage.

# Applying CEDAW in Qatar: Between International Obligations & Constitutional Authority



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## Introduction

The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) is one of the most significant international instruments dedicated to the promotion of women's rights and the achievement of gender equality. Adopted by the United Nations General Assembly in 1979 and entering into force in 1981, the Convention seeks to eliminate discrimination against women "in all its forms" in both the public and private spheres. It obliges States Parties to adopt legislative, judicial, administrative, and policy measures to eradicate such discrimination.

The State of Qatar acceded to CEDAW pursuant to Emiri Decree No. (28) of 2009, thereby affirming its commitment to the international human rights framework. However, the domestic applicability of international treaties within the Qatari legal order is governed by the Permanent Constitution of the State of Qatar. Article 68 of the Constitution provides that treaties relating to citizens' rights or involving amendments to domestic legislation must be enacted by law to acquire binding force at the national level.

This raises a fundamental constitutional issue concerning whether CEDAW satisfies the requirements necessary for its domestic application, and whether ratification by Emiri decree alone is sufficient to confer upon it the force of law. This study examines the constitutional framework governing international treaties in Qatar, the legality of the executive authority exercising a legislative role in this context, and the implications thereof for the enforceability of CEDAW before national courts.

## First: Executive Exercise of Legislative Authority via Decrees with the Force of Law

As a general principle, legislative authority is vested in the legislative branch pursuant to Article 61 of the Permanent Constitution, which assigns such power to the Shura Council. Nevertheless, the Constitution grants His Highness the Amir the authority to issue decrees having the force of law in exceptional circumstances,

namely in cases of necessity or upon the declaration of martial law, as provided for in Articles 69 and 70.

Outside the context of martial law, the exercise of this exceptional legislative power is subject to strict conditions. These include the existence of a state of necessity requiring urgent measures that cannot tolerate delay during the absence of the Shura Council. Moreover, such decrees must be submitted to the Council at its first



subsequent session, and the Council may, within forty days of submission, reject or amend them.

## Second: The Constitutional Conditions for Ratifying CEDAW by Decree

In light of the issuance of Decree No. (26) of 2009, dissolving the session of the Shura Council, which stipulated that the thirty-seventh session would conclude after the Council's meeting on 29 June 2009, two hypotheses may be considered.

Under the first hypothesis, the Shura Council was still in session during the decree ratifying CEDAW was passed. In this case, the exceptional competence of the executive authority to exercise legislative functions would not apply, due to the absence of the constitutional condition of parliamentary non-session. Consequently, the decree would not have the force of law, and a formal legislative enactment would be required to satisfy the constitutional requirement for domestic implementation. The second hypothesis assumes that the decree dissolving the Council's session preceded the ratification decree, thereby fulfilling the condition of the Council's absence. Even so, this would still require the existence of a state of necessity justifying the issuance of the decree, as well as its submission to the Shura Council at its first subsequent meeting in accordance with Article 70 of the Constitution. There is no indication of such necessity, nor evidence that the decree was submitted to the Council or that an extraordinary session was convened pursuant to Article 88. Accordingly, the ratification decree cannot be regarded as having the force of law or as satisfying the constitutional requirements governing legislative enactments. Since the Constitution does not specify a time limit for submission, the decree's acquisition of legal force would remain contingent upon such submission.

## Third: The Domestic Applicability of CEDAW in the State of Qatar

The Permanent Constitution provides that international treaties ratified by the State of Qatar form part of domestic law, prevail over prior norms, and bind the judiciary. Legislative practice indicates that decrees are consistently used as instruments of treaty ratification. Treaties ratified prior to the entry into force of the

Permanent Constitution, which were governed by the Amended Provisional Basic Law of 1972 and did not require enactment by law, have been effectively applied by national courts. By contrast, treaties ratified after the entry into force of the Permanent Constitution and subject to the requirement of enactment by law, including CEDAW, have not been judicially invoked or applied in the reported case law.

Nevertheless, reference to CEDAW appears in Cabinet Decision No. (26) of 2019 establishing the National Committee for Women, Children, the Elderly, and Persons with Disabilities. While this may be viewed as a form of implementation, it more accurately reflects the notion of international responsibility, whereby the State remains bound by its international obligations notwithstanding defects in domestic ratification procedures. In this sense, the establishment of the Committee may be understood as an effort to demonstrate compliance before international and regional monitoring mechanisms.

## Conclusion

It may be concluded that Emiri Decree No. (28) of 2009 ratifying CEDAW did not fulfil the constitutional requirement that treaties of this nature be enacted by law. The decree cannot be regarded as having the force of law due to the absence of the constitutional conditions permitting the executive authority to assume a legislative function. Even if such conditions were presumed to exist, they would remain incomplete without submission of the decree to the Shura Council. The absence of domestic judicial application further evidences the Convention's lack of effective internal enforceability. Nevertheless, this constitutional deficiency does not negate the State of Qatar's commitment to CEDAW under international law, which remains operative within the broader framework of international responsibility.

**For more details, please scan the QR code:**



# The Right of 'Al-Kad wa Al-Sa'aya' (Toil and Endeavor) A Social, Jurisprudential, and Legal Approach

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Muslim societies today face emerging and complex family issues that cannot be addressed merely by returning to partial texts or relying on traditional solutions detached from realities. This underscores the importance of knowledge integration in developing juristic reasoning, fostering critical thinking, and innovating solutions for contemporary challenges, while grounding them in reality in a manner that serves the higher objectives of Islamic law. Knowledge itself constitutes a fundamental criterion for human thought and guidance in life affairs, and success is rooted in the ability to bridge theory and practice.

The nature of these challenges calls for an integrated epistemic approach that activates the interplay between Islamic jurisprudence and relevant sciences, opening the way for renewed *ijtihad* that balances texts with their objectives, and aligns with the realities and transformations of society. In this context, the study of The Right of 'Al-Kad wa Al-Sa'aya' (Toil and Endeavor) provides a living model that demonstrates how epistemic integration equips Islamic jurisprudence with deeper tools to address women's and family issues.





Addressing this right is not confined to being a mere financial dispute between spouses; rather, it affirms the capacity of Islamic jurisprudence to generate fair solutions that safeguard women's dignity and their role in building family wealth, without conflicting with established Sharī'a rulings.

This right is defined as the recognition of a wife's contribution to the accumulation of joint family wealth during marriage, entitling her to a fair share upon divorce or the husband's death, proportionate to her effort and actual participation. Although no definitive textual evidence exists regarding it, the right emerged from the fabric of social reality in rural communities where women worked alongside their husbands in farming and trade. It later became a subject of juristic reasoning, grounded in the objectives of justice and preventing injustice, and eventually led to attempts at legal codification in some modern legislations.

The study addresses this right from a comprehensive perspective, integrating its social roots, juristic foundations, and potential legal codification. It does not seek to prove or negate the right but aims to analyze its origins, explain its development, and clarify how it may be adapted in light of social transformations.

It emphasizes that addressing such issues requires transcending disciplinary boundaries and combining text with context, purpose with reasoning, to fulfill the higher objectives of Sharī'a in preserving rights and establishing justice.

The significance of this study emerges amid the rapid transformations affecting family structures and redefining gender roles. Women's participation in household production has become a social reality that necessitates reconsideration of mechanisms for protecting their contributions, particularly in contexts where documentation is absent, and property titles are often registered exclusively under men's names—leading to the loss of women's rights in cases of divorce or death. This highlights the need for a purposive reading of this right, one that ensures justice through a multidimensional approach encompassing its social, juristic, and legal dimensions.

The study is driven by the central question: What is the nature of the Right of 'Al-Kad wa Al-Sa'aya', and what are its juristic, social, and legal boundaries, and to what extent can it be codified in contemporary contexts? Methodologically, the study adopts a descriptive, analytical, and comparative approach, drawing on

textual and juristic analysis, observation of social customs, and examination of modern legislation. Its three main axes cover the social background of this right, its juristic foundation, and legal status in contemporary family law.

The first axis explores its social roots, showing that it emerged in traditional rural contexts, particularly in Moroccan regions such as Sous and Ghumara, where women worked in agriculture and livestock alongside men. Local customs recognized the fairness of women's claims through terms such as *al-shaqā* (hardship) and *al-harīq* (toil), reflecting early awareness of the need for justice. With growing female participation, rising divorce rates, and a persistent lack of documentation, codifying this right became a social, legal, and even Sharī'a-based demand to realize justice rather than mere formal equality.

The second axis focuses on its juristic foundations, highlighting the fatwa of the Mālikī jurist Ibn 'Arḍūn in the 10th century AH, which recognized working wives' entitlement to a share of family wealth. His reasoning relied on local custom and the higher objectives of Sharī'a, such as removing injustice and achieving fairness, supported by general texts prohibiting wrongful appropriation of others' property. The fatwa sparked debate among jurists—some endorsed it as equitable and generalizable, while others restricted it to its particular social context to avoid conflict with inheritance rules. The study underscores that this fatwa exemplifies the flexibility of Islamic jurisprudence in responding to evolving social realities and provides a foundation for broader recognition of women's productive roles within the family. It also stresses the importance of distinguishing between inheritance, which concerns posthumous distribution, and *al-Kadd wa al-Sa'āya*, which addresses contributions during marital life—necessitating special evidentiary rules adapted to typically undocumented labor.

The third axis investigates the legal dimension, analyzing Article 49 of the Moroccan Family Code, which allows spouses to prearrange financial agreements or rely on evidence in disputes. The study compares this framework with the Right of 'Al-Kad

wa Al-Sa'aya', noting their shared aim of preserving rights despite differing mechanisms. It also reviews the French experience, which offers multiple models for marital financial arrangements. While such modern legal frameworks aim to safeguard women's contributions, the study stresses that codified texts alone are insufficient without flexible evidentiary systems and effective documentation to prevent rights from being lost. The study concludes that the Right of 'Al-Kad wa Al-Sa'aya' is a juristic innovation (*nāzilah ijtihādiyyah*) rooted in Sharī'a objectives such as justice and fairness, and in customary practices reflecting lived social realities. Recognition of this right does not contradict inheritance law, since it pertains to wealth generated during life, whereas inheritance applies after death. Attempts to use this right as a tool to undermine Sharī'a-based inheritance are therefore misguided, failing to recognize the distinction between the two domains. The findings further demonstrate that discussion of this right is not limited to Morocco but extends to other Arab contexts, including scholarly debates within al-Azhar.

The study recommends adopting an integrative epistemic approach in addressing family issues, anchored in purposive juristic reasoning (*ijtihād maqāsidī*) that balances texts with social realities, thereby achieving Sharī'a's objectives of justice and protection of rights. It also calls for reforming family law, strengthening documentation and evidence procedures, and promoting legal awareness to foster a culture of participation and fairness within the family—without undermining Sharī'a's immutable principles—thereby securing stability for both family and society. The study was published in *Al-Qalam Journal for Humanities and Applied Sciences – Issue 48*, pp. 470–498, Al-Qalam University, Ibb, Yemen, 2025. <https://quni.edu.ye/journal/index.php/alqalam/article/view/884>



## From Worry to Weight

# Understanding the Impact of Prenatal Maternal Mental Health in Qatar: Why Family and Community Support Matter



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For many women, pregnancy can be a period of stress, worry, and emotional challenges. A certain level of stress during pregnancy is the body's natural way of supporting fetal growth and preparing the mother for childbirth. However, prolonged or high stress levels may have negative effects on both the mother and the baby. Prenatal psychological distress is a broad term that includes symptoms of depression, anxiety, and stress during pregnancy. Although it is not classified as a psychiatric disorder, it reflects the everyday emotional struggles many women face during pregnancy that often go unnoticed and undiagnosed. These symptoms can interfere with healthy gestational weight gain, which refers to the amount of weight a mother gains during pregnancy. Both mental health and weight gain influence pregnancy outcomes, such as the risk of gestational diabetes, preterm birth, postpartum complications, and even long-term health risks for children.



## Why does this matter?

According to the World Health Organization, about one in five women experiences psychological distress symptoms during pregnancy. Additionally, around 45% of pregnant women gain weight outside the recommended range, either too little or too much, which can further increase health risks for both the mother and the baby.

The challenge is further pronounced in Qatar: around 58% of women begin pregnancy already overweight or obese, with a body mass index (BMI) above 25 kg/m<sup>2</sup>. During pregnancy, one in three women gains less than the recommended amount of weight, while almost half exceed the healthy range for gestational weight gain. While most previous research has focused on the health impact of excessive weight gain during pregnancy, a team of researchers at the College of Medicine (CMED), Qatar University (QU), led by Professor Giridhara R. Babu and PhD candidate Angham Ibrahim, takes a different approach. Instead of focusing solely on outcomes, they step back to explore a more fundamental question: What drives these weight-gain patterns in the first place?

## What was studied?



**QBIC**  
QATARI BIRTH COHORT

To answer this question, Professor Giridhara R. Babu and Angham Ibrahim used data from the Qatari Birth Cohort (QBIC), an established cohort led by Dr. Eleni Fthenou at the Qatar Precision Health Institute (QPHI). Dr. Fthenou also serves as a co-investigator on the current study. Their analysis examined the impact of depression and anxiety during pregnancy on women's gestational weight gain, as well as the role of social support networks in shaping this relationship. Depression and anxiety symptoms during pregnancy were assessed using the Edinburgh

Prenatal Depression Scale (EPDS) or obtained from the participants' medical records. Women who had either depression, anxiety, or both were considered to have prenatal psychological distress. Three weight gain outcomes were considered: 1) early pregnancy weight change, 2) mid-to-late pregnancy weight change, and 3) total gestational weight gain. The total gestational weight was classified according to the 2009 Institute of Medicine (IOM) guidelines. Categories were defined based on the pre-pregnancy BMI of each woman:

- Inadequate: less than the recommended range.
- Adequate: within the recommended range.
- Excessive: greater than the recommended range.

Finally, the CMED researchers evaluated the impact of daily social support and empowerment indicators, including whether a woman maintained close contact with her family, received practical assistance from neighbors, and whether she was employed during pregnancy.

## What was found?

- Mental well-being during pregnancy can have a measurable impact on physical health
- **High prevalence of prenatal psychological distress:** Nearly 41% of pregnant women in the QBIC study experienced depression or anxiety symptoms.
- **Different effects of depression and anxiety:** Women with antenatal depression gained more weight on average during pregnancy, while those with anxiety gained less.
- **Abnormal weight gain patterns:** Both conditions were associated with deviations from healthy pregnancy weight gain. Women with depression had a 31% higher risk of excessive gestational weight gain, while those with anxiety had a 54% higher risk of inadequate weight gain according to IOM guidelines.
- The Power of Family Cohesion and Community Support

A key finding of this study was that strong family and social networks appeared to buffer the negative effects of psychological distress on healthy pregnancy weight gain. For example, women with antenatal depression





who reported difficulty receiving practical support from neighbors were nearly five times more likely to gain excessive weight during pregnancy. In contrast, those who reported easy access to neighborly help had a 15% lower risk of excessive weight gain.

In other words, when women remained closely connected with family and friends, had a supportive community, or gained empowerment through employment, the stress they experienced during pregnancy had a less significant impact on their health. What are the implications of these findings?

The study findings show that maternal mental health does not just affect emotional well-being; it also has tangible biological effects on pregnancy. A pregnant woman who feels distressed, unsupported, or anxious may eat differently, sleep poorly, or experience hormonal changes that affect her weight gain.

Given that over half the women in Qatar are overweight or obese before pregnancy, understanding such mental health links could help health professionals design better support systems and prevention strategies for expectant mothers.

### What can be done?

This scholarly work reinforces a simple yet powerful message: mental health care must be an integral part of prenatal care. Some practical steps include:

- Routine screening for depression and anxiety at early stages and throughout pregnancy.
- Counseling services for women who are struggling, especially those without strong family support.
- Educational programs for families, so partners and relatives can better support expectant mothers.
- Community networks such as mother support groups, which allow women to share experiences and reduce feelings of isolation.
- Policies and protections that make it easier for women to take time off work, access healthcare, and raise concerns without stigma.

### Looking ahead

This study is a step towards understanding how psychological distress impacts pregnancy in Qatar. Future research should include larger groups of women, explore long-term outcomes for children, and examine interventions that could help reduce distress.

### Take-home message

Healthy pregnancies are the cornerstone for family wellbeing: when women feel supported, families become stronger, and babies enjoy a better start in life. Moreover, empowered women, those who feel safe, respected, and supported, are more likely to seek healthcare, share their struggles, and access resources that safeguard their physical and mental health.

# Recent Developments Concerning Rulings on Qatari Women between Hanbali Fiqh and Qatari Law: Employment as a Model



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## Research Problem

Undoubtedly, work is a value emphasized by the noble Islamic religion. Over time, and with changing social contexts, the impact and dimensions of work have evolved significantly. There has been a noticeable rise in workforce participation among both men and women. However, this shift has been particularly evident in the realm of women's work, as women have become increasingly visible in the various fields.

This research highlights these functions and opens the door for discussing the problems and obstacles associated with them. The study addressed these issues from both the Hanbali jurisprudential and a legal perspective, to uncover the most significant recent developments. This requires examining and comparing these functions within their practical reality, and analyzing them through the lens of Hanbali Fiqh and Qatari law. Accordingly, the research shall answer the question: What are the recent rulings concerning women's work in Qatari law and Hanbali Fiqh?





## Research Questions

- What are the most prominent recent developments in women's employment?
- Which Qatari laws have addressed women's employment?
- What is the stance of Hanbali Fiqh towards women's employment?
- What are the recent developments in the Qatari law about women's employment?
- What are the most significant points of agreement and disagreement between Qatari law and Hanbali Fiqh regarding women's employment?

To answer the research questions, the comparative descriptive approach was adopted. It allows for examining the details of the Hanbali Fiqh (Jurisprudence) on one hand, and Qatari law on the other, to identify points of similarity and difference between them in the light of contemporary developments.

A strong emphasis is placed on analyzing Hanbali Fiqh and Qatari law in detail, with attention to recent changes in the field of work. The research article assesses the extent to which Qatari law aligns with Hanbali jurisprudential views in this context.

## Research Objectives

- Clarifying the most important recent developments in women's employment.
- Identifying the positive and negative impacts of these developments.
- Examining the Qatari laws related to women's employment.
- Analyzing Hanbali Fiqh and the opinions of its scholars concerning women's Employment.
- Highlighting the points of agreement and disagreement between Qatari law and Hanbali Fiqh concerning women's Employment.

## Research Findings

- Islam elevated the status of women, granting them their full rights.
- Women played multiple roles in the Islamic society, as seen through the examples of the female Companions who participated in migration and in defending the Prophet (Alaihissalaam) and Islam.
- Women set examples of patience and endurance, such as the wife of Prophet Job, Mary, and the wife of Pharaoh.
- The change of time and place has played a major role in the development of fatwas related to women's Employment, allowing rulings to adapt to contemporary conditions while maintaining the regulations that safeguard women's status and rights.
- Qatari laws seek to preserve the rights of working women in parallel with the principles of Islamic Sharia, with slight differences.
- The development of Islamic laws and Fiqh related to women reflects Islam's keenness to keep pace with the recent changes while upholding moral and social guidelines.
- The Hanbali School is the last of the four major schools of Islamic Fiqh and is characterized by its adherence to religious texts.
- Imam Ahmad ibn Hanbal, founder of this School, relied on the Prophetic Sunnah, the consensus of the Companions, the mursal (unattributed reports), and weak hadith, and refrained from issuing fatwas when the evidence was unclear.
- This school passed through several stages - from its formation to expansion and widespread adoption - with numerous scholars contributing to its development and dissemination.
- The fundamental sources of this School include the texts of the Qur'an and Sunnah, followed by the

fatwas of the Companions, then selecting from their differing opinions when necessary. These sources, in this hierarchical order, provide a balanced foundation for issuing rulings on women's employment, allowing flexibility in choosing opinions that suit modern developments and support women's participation within the framework of the Islamic Sharia.

- Qatari law is primarily derived from Islamic Sharia, and the Hanbali School is the official school of Fiqh in the State.
- In cases where no clear ruling exists, the Qatari law refers to the predominant opinion of the Hanbali School, as seen in family law and other personal status-related legislations.
- The Qatari law applies legislation derived from Hanbali Fiqh, while also allowing reference to the other three Sunni schools in cases where no ruling is available in the Hanbali School.
- Law in general - and the Qatari law in particular - is a set of rules regulating the lives of individuals in society, while the Constitution is the foundation upon which all laws are built.
- Women's employment has positive and negative effects on their personal lives and on society.
- Women's participation in the workforce is governed by religious and moral regulations, which are aimed at safeguarding their status and role within society.

## Recommendations

- It is essential to take into consideration the recent developments and changes related to women's employment from both jurisprudential and legal perspectives.

- Women's working hours should be reduced, with a maximum of six hours, to enable them to maintain a balance between work and home responsibilities. This applies to both married and unmarried women.
- Qatari laws should monitor the evolving developments in women's employment and incorporate them into the legislative texts.
- Equality between men and women in the workplace should be applied only in areas where women are physically capable.

## Conclusion

This research aims to shed light on the importance of women's work in general, and its role in the Qatari society in particular, while highlighting the most significant challenges faced by Qatari women in contemporary times.

On the jurisprudential side, the study extensively addresses the opinions of the Hanbali School scholars, discussing multiple issues related to the ruling on work and its legal regulations, and presenting practical examples drawn from the experiences of the esteemed female Companions.

From the legal perspective, the article reviews the role of Qatari law in regulating work, providing a comprehensive definition of Qatari law and outlining the mechanisms of its application.

**Note:** This research was prepared as a Master's thesis under the supervision of Prof. Ibrahim Mohamed Zain, Professor of Islamic Studies and History of Religions at Hamad Bin Khalifa University (November 2024).

